

BUSINESS PAPER

ORDINARY MEETING OF COUNCIL

To be held at 6.00 pm on

Monday 9 December 2019

Council Chambers, Level 10, Council Administration Building, 41 Burelli Street, Wollongong

Order of Business

- 1 Opening Meeting
- 2 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 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 Motion(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 Leigh Colacino

Councillor Mithra Cox

Councillor Vicky King

QUORUM - 7 MEMBERS TO BE PRESENT



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MINUTES

ORDINARY MEETING OF COUNCIL

at 6.00 pm

Monday 18 November 2019

Present

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

Deputy Lord Mayor - Councillor Tania Brown

Councillor Ann Martin
Councillor Cameron Walters
Councillor Cath Blakey
Councillor David Brown
Councillor Janice Kershaw

Councillor Jenelle Rimmer Councillor John Dorahy Councillor Leigh Colacino Councillor Mithra Cox Councillor Vicky King

In Attendance

General Manager

Director Infrastructure + Works, Connectivity Assets + Liveable City

Director Planning + Environment, Future City + Neighbourhoods

Director Corporate Services, Connected + Engaged City

Director Community Services, Creative + Innovative City (Acting)

Manager Governance + Customer Service

Chief Financial Officer

Manager Property + Recreation (Acting)

Manager Regulation + Enforcement

Manager City Strategy

Manager City Works

Manager Project Delivery

Manager Open Space + Environmental Services

Manager Library + Community Services

Andrew Carfield Linda Davis Renee Campbell Sue Savage Todd Hopwood Brian Jenkins Lucielle Power Danny Madigan Chris Stewart Mark Roebuck Glenn Whittaker Joanne Page Jenny Thompson

Greg Doyle

Apologies

Min No.



COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor Walters that the apology tendered on behalf of Councillor Figliomeni be accepted.



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CONFLICTS OF INTEREST

The Lord Mayor, Councillor Bradbery, declared a non-pecuniary significant conflict of interest in Item 5 (Public Exhibition – Draft Cringila Hills Recreation Master Plan) and advised he will depart the chamber during debate and voting on the item, as he lives in close proximity to the area subject to the report. Councillor Bradbery advised that Deputy Lord Mayor, Councillor Tania Brown, would reside as Chair during this time.

CONFIRMATION OF MINUTES OF ORDINARY MEETING OF COUNCIL HELD ON MONDAY, 28 OCTOBER 2019

316 COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor T Brown that the Minutes of the Ordinary Meeting of Council held on Monday, 28 October 2019 (a copy having been circulated to Councillors) be taken as read and confirmed.

CALL OF THE AGENDA

317 COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor Cox that the staff recommendations for Items 1, 2, 4, 6, 7 and 9 to 15 inclusive be adopted as a block.

ITEM 1 - WOLLONGONG CITY-WIDE DEVELOPMENT CONTRIBUTIONS PLAN 2019 FOR ADOPTION

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 317).

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor Cox that -

1 The Wollongong City-Wide Development Contributions Plan (2019) be adopted.

ITEM 2 - COMMUNITY PARTICIPATION PLAN (2019) - FOR ADOPTION

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 317).

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor Cox that -

- 1 The Community Participation Plan (2019) be adopted.
- 2 The Wollongong Development Control Plan Appendix 1 Public Notification and Advertising Procedures be repealed.
- 3 A notice be placed in the local newspaper advising of the above actions.

ITEM 3 - STANWELL PARK BEACH DOG CONTROL AREAS CONSULTATION

- 318 COUNCIL'S RESOLUTION RESOLVED UNANIMOUSLY on the motion of Councillor Colacino seconded Councillor Kershaw that -
 - 1 The declared off-leash dog area at Stanwell Park Beach be retained at the northern end of the beach.
 - 2 The existing off-leash dog area at Stanwell Park Beach be extended north by declaring the small northern most section of the sandy beach as a dog off-leash area in accordance with Section 13.6 of the Companion Animals Act 1998.



ITEM 4 - PROPOSED ALTERATION TO WARD BOUNDARIES - RESULTS OF PUBLIC EXHIBITION

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 317).

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor Cox that -

- In accordance with s210A of the Local Government Act 1993 the proposed Ward boundaries detailed in the report, and as shown in Attachment 1, be endorsed.
- 2 The endorsed Ward boundaries be forwarded to the NSW Electoral Commissioner with a request that the boundaries apply and be used for the local government elections to be held in September 2020.

DEPARTURE OF COUNCILLOR

Due to a declared conflict of interest, Councillor Bradbery departed the meeting at 6:10 pm and was not present during the debate or voting on Item 5. Councillor Bradbery returned to the meeting at 6:18 pm. During this time Councillor T Brown acted as Chair.

ITEM 5 - PUBLIC EXHIBITION - DRAFT CRINGILA HILLS RECREATION MASTER PLAN

- 319 COUNCIL'S RESOLUTION RESOLVED UNANIMOUSLY on the motion of Councillor Martin seconded Councillor Walters that -
 - 1 Council endorse the draft Cringila Hills Recreation Master Plan for public exhibition from 19 November 2019 to 31 January 2020.
 - 2 Following public exhibition, Council receive a further report with an updated master plan incorporating the community engagement findings
 - 3 The Public Engagement also include Neighbourhood Forum 8, Lake Heights, Berkeley and Unanderra Schools.

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

ITEM 6 - REVIEW OF CHAPTERS E13: FLOODPLAIN MANAGEMENT AND E14: STORMWATER MANAGEMENT OF WOLLONGONG DCP

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 317).

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor Cox that -

- The draft Wollongong Development Control Plan (2009) Chapters E13: Floodplain Management and E14: Stormwater Management be exhibited for a minimum period of 28 days.
- 2 A further report outlining the submissions received from the public exhibition process with recommendations regarding progression of the draft DCP amendments be prepared for Council's consideration.



ITEM 7 - QUARTERLY VARIATIONS REPORT FOR DEVELOPMENT APPLICATIONS - SEPTEMBER 2019

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 317).

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor Cox that -

Council note the development standards variation report for the period 1 July 2019 to 30 September 2019.

ITEM 8 - SOUTHERN PHONE - PROPOSED PURCHASE BY AGL

- 320 COUNCIL'S RESOLUTION RESOLVED on the motion of Councillor D Brown seconded Councillor Walters that -
 - 1 Council agrees to sell its two shares (being one A Class Ordinary Share and one Preference Share) in Southern Phone Company Limited to AGL Energy Limited for \$785,714.00.
 - The General Manager be delegated the authority to execute the Share Sale Agreement, and any other related or ancillary transaction document for the purpose of giving effect to the sale.
- In favour Councillors Bradbery, Kershaw, Rimmer, D Brown, T Brown, Martin, King, Colacino, Walters and Dorahy
- Against Councillors Cox and Blakey

ITEM 9 - POLICY REVIEW - PUBLIC INTEREST DISCLOSURE POLICY [PREVIOUSLY INTERNAL REPORTING POLICY]

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 317).

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor Cox that -

- 1 The Internal Reporting Policy be renamed Public Interest Disclosure Policy.
- 2 The Public Interest Disclosure Policy be adopted.

ITEM 10 - TENDER T19/03A - PRINCIPAL DESIGN CONSULTANT (ARCHITECT) FOR WARRAWONG DISTRICT COMMUNITY CENTRE AND LIBRARY

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 317).

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor Cox that -

- 1 a In accordance with clause 178(1)(b) of the Local Government (General) Regulation 2005, Council decline to accept any of the tenders received for the provision of professional services for Principal Design Consultant (Architect) for Warrawong District Community Centre and Library and resolve to enter into negotiations with one or all of the tenderers or any other party with a view to entering into a contract in relation to the subject matter of the tender.
 - b In accordance with clause 178(4) of the Local Government (General) Regulation 2005, the reason for Council hereby resolving to enter into negotiations with one or



all of the tenderers or any other party and not inviting fresh tenders is that it is anticipated that a satisfactory outcome can be achieved with one of those parties who demonstrate a capacity and ability to undertake the works.

- Council delegate to the General Manager the authority to undertake and finalise the negotiations, firstly with the tenderers, and, in the event of failure of negotiations with those tenderers, any other party, with a view to entering into a contract in relation to the subject matter of the tender.
- 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 11 - TENDER T19/05 - SUPPLY OF SERVICE - CONTAINERISED TREES

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 317).

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor Cox that -

- In accordance with clause 178(1)(a) of the Local Government (General) Regulation 2005, Council accept the tenders of Andreasens Green (NSW) Pty Ltd, Trees Impact Pty Ltd and Speciality Trees Pty Ltd for the provision of a panel for Supply of Services containerised trees at the rates set out in each tenderer's Form of Tender, to the sum of \$660,000 over three years inclusive of 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 T19/30 - BRIDGE WORKS FOR BRIDGES OVER CABBAGE TREE CREEK AT MONTAGUE STREET AND PRINCES HIGHWAY, FAIRY MEADOW

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 317).

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor Cox that -

- 1 In accordance with clause 178(1)(a) of the Local Government (General) Regulation 2005, Council accept the tender of Diverse Civil Contracting Pty Ltd for bridge works for bridges over Cabbage Tree Creek at Montague Street and Princes Highway, Fairy Meadow, in the sum of \$519,887.68, 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 - TENDER T19/32 - FIGTREE OVAL FIELD 1 IRRIGATION

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 317).

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor Cox 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 design, supply and installation of the Figtree Oval Field 1 Irrigation system, in the sum of \$142,730.00, 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 14 - DRAFT QUARTERLY REVIEW STATEMENT SEPTEMBER 2019

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 317).

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor Cox that -

- 1 The draft Quarterly Review Statement September 2019 be adopted.
- 2 The Budget Review Statement as at September 2019 be adopted and revised totals of income and expenditure be approved and voted.

ITEM 15 - CITY OF WOLLONGONG TRAFFIC COMMITTEE MINUTES OF MEETING HELD 23 OCTOBER 2019

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 317).

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor Cox that -

In accordance with the powers delegated to Council, the Minutes and Recommendations of the City of Wollongong Traffic Committee held on 23 October 2019 in relation to Regulation of Traffic be adopted.

THE MEETING CONCLUDED AT 6:22 PM

Confirmed as a correct record of proceedings at the Ordinary Meeting of the Council of the City of Wollongong held on Monday 9 December 2019.

Chairperson	



File: CST-080.04.012 Doc: IC19/723

ITEM 1 LAKE ILLAWARRA REPRESENTATIONS

ESTUARY MANAGEMENT

COMMITTEE

COMMUNITY

The community representatives and scientific advisor appointments to the Lake Illawarra Estuary Management Committee have now lapsed.

As per the Terms of Reference the main function of the Committee is to oversee the development of a Coastal Management Program (CMP) for Lake Illawarra.

The current representatives have expressed interest to continue in their current roles to progress finalisation of the CMP.

RECOMMENDATION

- 1 Re-appoint Annie Marlow and Wayne Cook as community representatives and Dr Kerrylee Rogers and Dr Brian Jones as independent scientific advisors on the Lake Illawarra Estuary Management Committee for the next term of the Committee (31 October 2020 or until the Coastal Management Program is certified, whatever occurs first).
- 2 Adopt the amended Terms of Reference for the Lake Illawarra Estuary Management Committee.

REPORT AUTHORISATIONS

Report of: Chris Stewart, Manager City Strategy

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

ATTACHMENTS

1 Updated Terms of Reference

BACKGROUND

The Lake Illawarra Estuary Management Committee is a joint Committee of both Wollongong and Shellharbour City Councils.

At its meeting on 29 October 2018, Wollongong City Council resolved followed a public selection process to appoint Annie Marlow and Wayne Cook as community representatives on the Lake Illawarra Estuary Management Committee for the next term of the Committee. Dr Kerrylee Rogers and Dr Brian Jones be appointed as the independent scientific advisors for the same term. Based upon historical arrangements the term lapsed on 31 October 2019.

At its meeting on 30 October 2018, Shellharbour City Council similarly resolved the appointment of community representatives and independent scientific advisors to the Lake Illawarra Estuary Management Committee, following a public selection process.

It was anticipated at the time that development of a Coastal Management Program (CMP) for Lake Illawarra, would be completed before those terms expired. This has not been the case, resulting in an extension of time being granted for the project to mid-2020.

The process of developing the CMP is a complex one. The current members of the Committee have considerable personal knowledge and skills which are required for the development process to be effective.

The current representatives have expressed interest in re-appointment with the Committee Chairperson Cr Ann Martin. Their continuance until the CMP is certified or until 31 October 2020 whatever occurs first will assist in maintaining continuity in the development of the CMP.

The Terms of Reference for the Committee will require amendment to reflect the new term for the current appointments.



PROPOSAL

That Council agree to re-appoint Annie Marlow and Wayne Cook as community representatives and Dr Kerrylee Rogers and Dr Brian Jones as independent scientific advisors on the Lake Illawarra Estuary Management Committee until 31 October 2020 or until the Coastal Management Program is certified, whatever occurs first. That Council agrees to adopt the amended Terms of Reference, reflecting the changed member term attached to this report.

A similar report is being presented to Shellharbour City Council at their meeting to be held 17 December 2019.

It should be noted that the proposed appointment to 31 October 2020 coincides with next year's Local Government elections.

It is also intended to provide Council with a further report regarding the governance arrangements to best facilitate implementation of actions in the CMP post certification.

CONSULTATION AND COMMUNICATION

Members of the Committee expressed a strong desire to continue in their respective roles at the meeting held 13 November 2019. Cr Ann Martin and Cr Cath Blakey attended this meeting.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 goal "Our natural Environment and Waterways are protected and enhanced".

It specifically delivers on core business activities as detailed in the Manage and Effectively Improve the Cleanliness, Health and Biodiversity of Creeks, Lakes, Waterways and Oceans Service Plan 2018-19.

If the proposal is not supported, then the development of the Lake Illawarra Coastal Management Program may be delayed as new committee members are appointed and skills and knowledge acquired.

FINANCIAL IMPLICATIONS

In accordance with Item 12 of the Terms of Reference of the Lake Illawarra Estuary Management Committee, there is no remuneration for members. There are no additional financial implications for Council.

CONCLUSION

Wollongong and Shellharbour City Councils rely upon the Lake Illawarra Estuary Management Committee to advise and assist with development of the Lake Illawarra CMP. To facilitate continuation of this work, Council's endorsement is sought for the appointment of the recommended applicants for the positions of community representative and independent scientific advisor.



TERMS OF REFERENCE LAKE ILLAWARRA

ESTUARY MANAGEMENT COMMITTEE





1 ESTUARY MANAGEMENT COMMITTEE

2 INTRODUCTION

Lake Illawarra lies in the Local Government Areas of Wollongong City and Shellharbour City Councils. The Lake Illawarra Estuary Management Committee has been established to provide advice and support to Wollongong City and Shellharbour City Councils on the preparation and implementation of a strategic Coastal Management Program for Lake Illawarra. The Committee comprises people interested in the sustainable management of the health of Lake Illawarra.

3 AUTHORITY

The Lake Illawarra Estuary Management Committee will provide advice, feedback and support to Wollongong City and Shellharbour City Councils in developing, implementing and monitoring a Coastal Management Program and projects for Lake Illawarra, that are primarily focused on protecting estuary health.

The Committee does not have decision making authority, the power to bind the two Councils or the power to incur expenditure.

4 RESPONSIBILITIES AND FUNCTIONS

The responsibilities and functions of the Lake Illawarra Estuary Management Committee are to -

Assist Wollongong City and Shellharbour City Councils to develop a Coastal Management Program for Lake Illawarra in accordance with the NSW Government guidelines

Develop a better understanding of estuary health and identify issues which need to be addressed

Assist in developing suitable strategies to address estuary and coastal zone management issues

Monitor and evaluate the implementation of the Coastal Management Program

Provide advice on planning proposals and major capital works proposed to take place in the Lake Illawarra catchment.

Routine operational and maintenance matters relating to Lake Illawarra will not be the business of the Lake Illawarra Estuary Management Committee. These matters are to be followed up using the Customer Service functions operating at Wollongong City and Shellharbour City Councils.

5 PRIORITIES

The immediate priority of the Lake Illawarra Estuary Management Committee is to oversee the completion of the Lake Illawarra Coastal Management Program in accordance with NSW Government guidelines. Upon completion, the Lake Illawarra Coastal Management Program shall be submitted to both Councils for adoption, and implementation in line with their business priorities.

6 COMPOSITION OF THE LAKE ILLAWARRA ESTUARY MANAGEMENT COMMITTEE

The Lake Illawarra Estuary Management Committee is proposed to be made up of -

- THREE (3) councillors from each of the two Councils. One of the three Wollongong councillors is expected to be a member of its Estuary and Coastal Zone Management Committee
- TWO (2) community members from each LGA



TERMS OF REFERENCE

ESTUARY MANAGEMENT COMMITTEE





 TWO (2) Aboriginal community representatives. One nominated by the Shellharbour City Council Aboriginal Advisory Committee and one nominated by the Wollongong City Council Aboriginal Reference Group

- TWO (2) independent scientific advisors
- Representatives from each of the following State Government agencies Office of Environment and Heritage, Department of Industry (Crown Lands), Department of Primary Industries (Fisheries), and Department of Planning
- One representative from the Roads and Maritime Services
- One representative of the South East Local Land Services
- One representative from Sydney Water
- One representative from the Illawarra Local Aboriginal Lands Council.
- Hosting of the Committee will alternate between the two Councils annually, and the Chairperson will be appointed by the host Council from its councillor representatives.
- Vacancies that occur on the Committee will be filled by nomination.
- Staff from the two councils will attend meetings as observers, to provide information to the Committee or to fulfil an administrative function (eg taking minutes and/or distributing minutes within the two Councils and to Committee members). These individuals will act as ex-officio members. Administrative support for the Committee will be provided by the host Council staff.
- Term of appointment for the Committee is until 31 October 2020 or until the State Minister endorses the Coastal Management Program for Lake Illawarra whatever occurs first.

7 APPOINTMENT OF MEMBERS

Councillors

Three councillors each are to be appointed by the Wollongong City and Shellharbour City Councils.

Community Members

The community member positions available for each LGA will be advertised by the respective Council at the start of the Committee's term. The applications will be assessed by the respective Council staff and recommendations made for appointment by their corresponding Council. The selection criteria for community members will be -

- Demonstrated interest in and knowledge of estuary management issues
- Demonstrated ability to dedicate time to attend meetings and perform tasks related to committee business
- Demonstrated ability to contribute positively and constructively within an agreed management framework
- Demonstrated contact with a cross-section of the local community for the purpose of passing on information and receiving feedback
- Resident/rate payer in the LGA for which they are applying.

The community members may be eligible for re-appointment to the Committee, following the expiration of their term, by registering their interest for re-appointment with the Committee chairperson and receiving approval of appointment from the respective Council.



TERMS OF REFERENCE LAKE ILLAWARRA ESTUARY MANAGEMENT COMMITTEE





A community member may resign from the Committee at any time by advising in writing to the Committee Chairperson. Council may directly appoint a community member to fill the vacancy for the remainder of the term.

Aboriginal Community Representatives

The Aboriginal community representatives will be appointed after one nomination is received from the Shellharbour City Council Aboriginal Advisory Committee and one nomination is received from the Wollongong City Council Aboriginal Reference Group.

Independent Scientific Advisors

The Independent Scientific Advisor positions will be advertised by the Council hosting the Committee at the start of its term. The applications received will be assessed jointly by staff from the two Councils and a recommendation made for endorsement by both Councils. The selection criteria for the Independent Scientific Advisors will be -

High-level experience in research or management of estuaries -

- Demonstrated ability to dedicate time to attend meetings and perform tasks related to committee business
- Demonstrated ability to provide sound scientific advice and a high level of personal commitment while engaged in an honorary position
- Independence from Council, government, developers or any other group with a vested interest in the management of estuaries.

The Independent Scientific Advisors may be eligible for re-appointment to the Committee, following the expiration of their term, by registering their interest for re-appointment with the Committee chairperson and receiving approval of appointment from the respective Council.

State Agency Representatives

The host Council at the start of the Committee's term will invite the State Agencies listed to nominate a representative to the Committee.

8 OBLIGATIONS OF MEMBERS

Members of the Lake Illawarra Estuary Management Committee, in performing their duties, shall -

- Act honestly and in good faith
- Participate in the work of the Committee
- Perform their duties in a manner that ensures public trust in the integrity, objectivity, and impartiality of the Committee
- Exercise the care, diligence and skill that would be expected of a reasonable person
- Comply with the Committee's Terms of Reference
- Comply with the Model Code of Conduct for Local Councils in NSW Code of Conduct for Council Committee Members, Delegates of Council and Council Advisors 2018.



TERMS OF REFERENCE

LAKE ILLAWARRA ESTUARY MANAGEMENT COMMITTEE





9 MEETINGS AND MINUTES

The Committee shall meet at least four times a year to progress the work involved in the Lake Illawarra Estuary Management Process.

A quorum will consist of half plus one of the Committee members, including at least one elected representative (councillor) from each Council.

Meetings will be chaired by the Council appointed chairperson. If the chairperson is absent from a meeting, the first business of every such meeting is to elect a chairperson from the members present to preside over such meeting.

The Lake Illawarra Estuary Management Committee has an advisory role to the two Councils and will make recommendations by consensus. In the absence of consensus, advice from the Lake Illawarra Estuary Management Committee may be presented with supporting and dissenting views of members.

Meeting agendas will be distributed at least one week prior to the meeting.

10 REPORTS

The minutes of the Lake Illawarra Estuary Management Committee meetings will be provided to all Councillors and executive management of both Councils for information. Minutes will also be distributed to all Lake Illawarra Estuary Management Committee members.

Advice and recommendations of the Lake Illawarra Estuary Management Committee relating to specific Council projects will be reported to the two Councils as part of their project reporting process.

Any matters arising that require a separate decision of one or both Councils may be reported to the respective Council(s) by managerial staff at their discretion.

11 EVALUATION AND REVIEW

A review of the Lake Illawarra Estuary Management Committee will be undertaken every 12 months to ensure the purpose, membership and operation of the Committee is effective and to make appropriatechanges.

12 COMMITTEE RESOURCING

Resources required to progress the work of the Committee will be considered and made available by one or both Councils, in line with their budgetary constraints and other business priorities. Where both Councils agree to contribute to a program or works, the proportion of funding will be negotiated at 2:1 Wollongong to Shellharbour. External grant funding may be sought to supplement council contributions.

13 REMUNERATION AND EXPENSES

There is no remuneration for members.

Reasonable expenses incurred by the Lake Illawarra Estuary Management Committee members in relation to their responsibilities as members of the Committee will be met by prior approval. These expenses should relate directly to tasks completed for the Lake Illawarra Estuary Management Committee business and will be reimbursed at the discretion of one or both Councils.



File: OSI-30.10.001 Doc: IC19/748

ITEM 2

APPOINTMENT OF WOLLONGONG CITY COUNCIL INDEPENDENT DIRECTORS TO DESTINATION WOLLONGONG BOARD

On Wednesday, 23 October 2019, Council released an Expression of Interest (EOI) for the two vacant Wollongong City Council Appointed Independent Directors on the Destination Wollongong Board. 11 applications were received by the closing date, Friday, 9 November, and considered by the panel.

This report seeks Council's endorsement of Ms Amy Harper and Mr Wayne Morris as the Council Appointed Independent Directors on the Destination Wollongong Board.

RECOMMENDATION

- 1 Council endorse the appointment of Ms Amy Harper and Mr Wayne Morris as the Council Appointed Independent Directors on the Destination Wollongong Board until 30 June 2021 (ie the final date of the current funding agreement).
- 2 Should a vacancy arise on the Destination Wollongong Board over this period, the next highest ranked applicant will be offered a position as a Council Appointed Independent Director.

REPORT AUTHORISATIONS

Report of: Sofia Gibson, Manager Community Cultural + Economic Development (Acting)
Authorised by: Sue Savage, Director Community Services - Creative + Innovative City (Acting)

ATTACHMENTS

There are no attachments for this report.

BACKGROUND

Under section 14.2 of the Wollongong City of Innovation Ltd (trading as 'Destination Wollongong') Constitution, the board consists of:

- a. three Council appointed directors
- b. two Council appointed officer directors
- c. four member directors

Section 14.5 of the constitution states that:

- (a) Wollongong City Council may appoint:
- a. Three Council Appointed Directors, who must be persons independent of Wollongong City Council (not Councillors or Officers) and who have demonstrated an interest and capacity to act in the general interests of the Wollongong community.

The four year terms of Ms Amy Harper and Mr Wayne Morris expired on 24 August 2019.

On Wednesday, 23 October 2019, Council released an EOI for the position of two Council Appointed Directors to the Destination Wollongong Board. As part of the recruitment process, a suite of selection criteria was developed, including:

- 1. Broad business or corporate experience.
- 2. Proven experience in establishing and maintaining strategic partnerships and networks.
- 3. Superior communication skills.
- 4. Experience in corporate and strategic planning.
- 5. A demonstrated commitment to Wollongong 2028.
- 6. Previous board experience.



7. Relevant qualifications in Commerce, Governance, Public Administration or other relevant area.

A media release was included on Council's website which included a link to the selection criteria, and advertisements were placed in the Illawarra Mercury and the Wollongong Advertiser.

A panel chaired by the Manager Community Cultural and Economic Development was established to undertake the recruitment process. The panel assessed each applicant against the selection criteria and scored accordingly.

PROPOSAL

The report recommends Council endorse the appointment of Ms Amy Harper and Mr Wayne Morris to the Destination Wollongong Board as the Independent Council Appointed Directors until 30 June 2021.

If a vacancy arises on the Destination Wollongong Board over this period, the next highest ranked applicant will be offered a position as the Council Appointed Independent Director on the board.

CONSULTATION AND COMMUNICATION

Legal Services

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 core business activities as detailed in the Community Cultural and Economic Development Service Plan 2019-20, 'Managing the Destination Wollongong Funding Agreement 2016-21'.

RISK ASSESSMENT

The nomination of suitable candidates to fill the vacant position will enable the board to function to its full capacity and deliver on the Destination Wollongong Constitution.

FINANCIAL IMPLICATIONS

There are no direct financial implications associated with this report.

CONCLUSION

The nomination process undertaken for filling the positions of Council Appointed Independent Director to the Destination Wollongong Board has been undertaken in accordance with the Destination Wollongong Constitution.

On this basis, the report is submitted for Council's endorsement of the recommended candidates.



File: IW-075.150.04.011 Doc: IC19/743

ITEM 3 EMISSIONS REDUCTION TARGET - GLOBAL COVENANT OF MAYORS

Wollongong City Council is one of 26 Councils in Australia to commit to greenhouse gas reduction through the Global Covenant of Mayors for Climate and Energy (GCoM). Under the GCoM initiative Council is required to adopt a science-derived emissions reduction target on behalf of the City of Wollongong.

At its meeting on 23 September 2019, Council considered a report on a proposed target of *net zero emissions by 2050*. Council resolved to defer a decision on the target until after a period of public consultation.

Engagement with the community, businesses and industry was undertaken between 14 October and 8 November 2019. In response, a total of 18 written submissions and 426 online comments were received. Feedback supported the *net zero emissions by 2050* target, however a significant proportion of respondents have urged Council to set a more ambitious target to achieve net zero emissions sooner.

This report proposes that Council adopt an emissions reduction target for the City of Wollongong of *zero emissions by 2050*, consistent with a significant number of other councils, government agencies and corporations across Australia and the world.

In addition, it is proposed a more ambitious "aspirational" emissions reduction target be adopted for Council operations of *net zero emissions by 2030*. This organisational target will demonstrate leadership and support Council's recent recognition that we are in a State of Climate Emergency that requires urgent action by all levels of government. Working towards an aspirational 2030 target would requirement a whole of Council commitment in potential offset costs depending on the success of Council initiatives.

Following adoption of a target and under the auspice of the GCoM framework, Council is required to develop an action plan to reduce emissions through an investigation and consultation process. The action plan will include a range of actions to reduce Council and the City's emissions. To assist Council through this process and meeting its commitments under the GCoM it is further proposed to join the Cities Power Partnership Program.

RECOMMENDATION

- A science-derived greenhouse gas emissions reduction target of *net zero emissions by 2050* for the City of Wollongong be submitted to the Global Covenant of Mayors secretariat. Noting that Council is submitting this target on behalf of the community, for the benefit of the entire community and that Council is not solely responsible for the implementation of actions to achieve this target.
- 2 That Council work towards an aspirational greenhouse gas emissions reduction target of *net zero emissions by 2030* for organisational operations and that this commitment be reviewed in five (5) years to enable consideration of progress towards the target.
- 3 That Council develop a Climate Change Mitigation Action Plan in collaboration with key stakeholders to assist all sectors of the community achieve the emissions reduction target for the Wollongong local government area.
- 4 That Council join the Cities Power Partnership Program.

REPORT AUTHORISATIONS

Report of: Chris Stewart, Manager City Strategy

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

ATTACHMENTS

- 1 City of Wollongong Science Derived Targets for Greenhouse Gas Emmissions Report
- 2 Emissions Reduction Target Engagement Report
- 3 Australian Global Covenant of Mayors Councils Targets



BACKGROUND

In August 2017 Council became a signatory to the GCoM initiative. The GCoM is an international alliance of cities and local governments with a shared long-term vision of promoting and supporting voluntary action to combat climate change and move to a low emission, resilient society.

The GCoM commits Council to respond to the risks and opportunities presented by climate change. The science-derived emissions reduction target must be calculated according to specific protocols derived from the Intergovernmental Panel for Climate Change by an accredited consultant. Wollongong Council's Science-Derived Target for Greenhouse Gas Emissions Report has been completed (Attachment 1).

At its meeting on 23 September 2019, Council considered a report on a proposed emissions reduction target of *net zero emissions by 2050*. Council resolved:

This Item be deferred until after a period of public consultation on the attached reports.

This report presents the outcomes of this consultation and recommends a science-derived greenhouse gas emissions reduction target for consideration by Council.

PROPOSAL

Emissions Reduction Target for the City of Wollongong

As a result of the community consultation work it is proposed that a target of net zero emission by 2050 be set for the community of Wollongong. The proposed target will -

- Incorporate an initial reduction target to extend the carbon budget to 2050
- Beyond 2050 the target will be adjusted to net zero emissions.

The initial reduction target equates to a linear reduction of approximately 2.7% or 74,251 tonnes per year. By 2050 a net zero community emissions target is proposed on behalf of and for the benefit of the Wollongong community. The proposed emissions reduction target is expressed in Table 1 below -

Table 1 – Wollongong's carbon budget and proposed community emissions reduction target

Carbon Budget (t CO ₂ -e)	49,200,000	
Pre 2050 target		
Rate of reduction (pa) 2.7%		
Annual reduction (t CO ₂ -e)	74,251	
Post 2050 target		
Annual reduction (t CO ₂ -e)	Net zero emissions	

The proposed target is consistent with all Australian state government targets (with the exception of Western Australia and the Northern Territory). It is also consistent with a growing number of other councils and cities across the world including the City of Sydney and City of Adelaide. A list of the emission targets proposed by other Australian GCoM Councils is provided as Attachment 3.

Under the GCoM framework Council will re-inventory its emissions every two years, this will also provide Council with the opportunity to review and update its target in response to progress and emerging technology.

In order to leverage actions, which yield the highest emission reductions, Council will need to work in partnership with major industry, business and the community. In this regard Council is likely to be responsible for actions associated with advocacy, stewardship, education and engagement for emissions reduction for these sectors, such as supporting the establishment of neighbourhood collaboratives.



Emissions Reduction Target for Council Operations

A significant proportion of community submissions advocated for Council to set a more aggressive emissions reduction target either for the City or Council operations. The percentage breakdown of Council emissions is depicted in Figure 1.

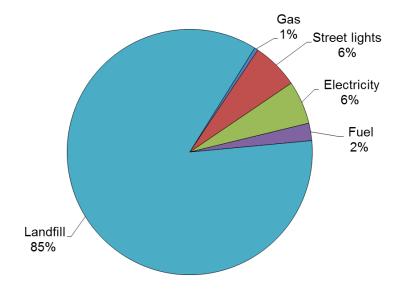


Figure 1 - Percentage breakdown of Council's operational emissions by source

A range of activities are proposed or have the potential to be pursued by Council over the next ten years to reduce its operational emissions, including landfill gas capture, FOGO and conversion to LED street lights. The forecast emissions reductions envisaged by these actions are presented in Table 2.

Table 2 - Forecast emissions reductions for planned and proposed activities.

Planned/proposed activity	Projected Emissions reduction (t CO2-e)	Percentage reduction of Council emissions	Project residual emissions (t CO2-e)
Renewable Energy Facility (1MW power station) Whytes Gully	47,000	32%	
FOGO collection across the City	17,000	12%	
LED street lighting initial roll out	1,488	1%	
Total Planned	65,488	45%	~81,000
Additional 1MW power unit for Whytes Gully	47,000	32%	
Additional LED lighting (planned when technology is available)	4,500	3%	
Purchase of renewable energy (based on residual electricity need if all above are implemented)	17,181w	8%	
Alternate Fuel Vehicles (eg EVs)	Difficult to quantify at this stage		
Increased Solar PV on buildings	Difficult to quantify at this stage		
Total for planned and potential actions	134,169	88%	~18,000
Planned Propos	ed by Council staff	Potential Expansion	n Ontions

Planned Proposed by Council staff

Potential Expansion Options



Based on these projections Council will achieve a 45% emissions reduction over the next ten years, through the implementation of planned activities. This does not factor in the possibility of a second 1MW renewable energy unit at Whytes Gully, replacement of high wattage street lighting, increased solar panels on Council buildings, alternate fuel vehicles in Council's passenger and heavy vehicle fleet and other technological evolution. When these proposed activities and the potential for purchase of a renewable energy (through a mechanism such as a Power Purchase Agreement) are considered Council is project to achieve an 88% reduction in its emissions profile.

Despite Council's commitment and future efforts in emissions reduction for its operations, technology does not currently exist to eliminate all emissions from Council operations, for example there will be residual emissions from landfill. Therefore, in order to achieve net zero emissions Council may wish to invest in carbon offsets. Australian offset schemes currently offer offsets for ~\$3.75 per t CO2-e. The projected residual emissions following implementation of planned activities and planned plus proposed activities are shown in Table 2 above. The cost to offset these residual emissions, based on the current minimum market rate for offset activities in Australia, would be around \$300,000.00 p.a and \$66,000 p.a respectively. It should be noted that Council is not obligated to undertake offsetting. Council may also consider other net positive initiatives to offset residual emissions as they emerge and are validated.

It is recommended that Council work towards an aspirational emissions reduction target for Council operations of *net zero emissions by 2030* to demonstrate leadership and support Council's recent declaration of a State of Climate Emergency. Progress towards this target would be monitored and continuing commitment to the 2030 target could be reviewed in five (5) years.

Climate Change Mitigation Plan and Cities Power Partnership Program

Following adoption of a target and under the auspice of the GCoM framework, Council is required to develop an action plan to reduce emissions through an investigation and consultation process. The action plan will include a range of initiatives to reduce Council's and the City's emissions. To assist Council through this process and in meeting its commitments under the GCoM it is further proposed to join the Cities Power Partnership (CPP) Program.

CPP is administrated by the Climate Council, a climate change communications organisation. It is a network of local government organisations working together to transition to a clean energy future. Participating councils who join the partnership have six months to select five key actions from 39 potential partnership pledges focused around renewable energy, efficiency, transport and advocacy. Many of the pledges involve actions that Council is already committed to progressing such as adopting an emissions reduction target.

The benefits and opportunities offered through the program include -

- Collaboration, knowledge and experience sharing with other councils
- Access to information and international experts in clean energy
- Access to funding, grants and incentives
- Promotion of Council's activities and achievements through media, awards ceremonies and community events
- Access to tailored monitoring tools.

There is nil cost to join CPP and currently 115 councils across Australia are a part of the program including Shellharbour, Shoalhaven, Kiama and Wingecarribee Councils. CPP membership will enable us to work with our fellow ISJO councils on partnership projects for example, a power purchase agreement under the same auspicing program and potentially access to funding for these initiatives.

CONSULTATION AND COMMUNICATION

The methodology, activities and outcomes of the public consultation are represented in the Emissions Reduction Target - Engagement Report (Attachment 2). Direct contact was made with the Illawarra



Business Chamber, i3net and BlueScope Steel, however no formal submissions were received. Council also specifically wrote to 151 organisations, groups and individuals.

In total 444 submissions were received, comprising of 18 written and 426 online submissions. Feedback overwhelmingly supported the *net zero emissions by 2050* target. Only three comments were received objecting to a target.

There was a significant proportion of comments (75%) urging Council to set a more aggressive target of *net zero emissions by 2030* for emissions from the Community and Council operations to support its declaration of a State of Climate Emergency. While an aspirational 2030 target is recommended for Council operations in response to submissions, a Community target of 2050 is considered to be appropriate as it is more realistic and consistent with the targets set by other jurisdictions.

A submission was received from the University of Wollongong, who have offered assistance to Council in achieving the target through the Sustainable Buildings Research Centre and the Smart Infrastructure Facility. South 32 Colliery advised that they are committed to their Climate Strategy, which sets a target of *net zero emissions by 2050*. Healthy Cities Illawarra and the Wilderness Society have urged Council to set a more aggressive target, such as 2030 or 2040 as supported by the latest scientific data.

Feedback was also sought on suggested actions to reduce emissions within the City. An online ideas board was used to enable community members to post ideas for actions to reduce emissions, comment on and vote for other's suggestions.

A large number of ideas for actions to reduce emissions were provided, including renewable energy sources for Council operations, businesses and the community, sustainable transport options, waste and FOGO, trees and Council demonstrating leadership in relation to climate change. These thoughts and suggestions will be used to inform the development of the Climate Change Mitigation Plan and Adaptation Plan.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2028 Goal 1 – 'We value and protect our natural environment', Goal 2 – 'We have an innovative and sustainable economy', Goal 6 – 'We have sustainable, affordable and accessible transport'. It specifically delivers on the following objectives -

- Objective 1.1 Our natural environment, waterways and terrestrial areas are protected, managed and improved
- Objective 1.2 We practice sustainable living and reduce our ecological footprint
- Objective 1.5 Set targets and reduce our greenhouse gas emissions through our participation in the Global Covenant of Mayors for Climate and Energy.
- Objective 2.2 The regions industry base is diversified

It specifically delivers on the following Strategies and Actions –



Community Strategic Plan	Delivery Program 2018-2021	Operational Plan 2019/20	
Strategy	5 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	1.2.1.1.1 Coordinate community environmental programs including: Rise and Shine, Clean Up Australia Day, World Environment Day, National Recycling Week, International Composting Week and other waste education activities	
	1.2.1.3 Methods to reduce emissions are investigated and utilised	 1.2.1.3.3 Monitor and report on organisational water, energy and greenhouse gas emissions trends 1.2.1.3.4 Implement and review annual water and energy saving actions 	

Community Strategic Plan	Delivery Program 2018-2021	Operational Plan 2019/20	
Strategy	5 Year Action	Operational Plan Actions	
1.2.2 Government and community work together to mitigate 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	1.2.2.1.3 Develop a project and work with partners to further explore the United Nations Sustainable Development Goals and how they align to the community's goals with funding to be considered through the business proposal process	
		1.2.2.1.4 Implement resourced priority actions from the Environmental Sustainability Strategy 2014-22	
		1.2.2.1.5 Review the Environmental Sustainability Strategy	
1.5.1 Participate in the Global Covenant of Mayors and set	ant of Mayors and set reduction target and	nant of Mayors and set reduction target and	1.5.1.1.1 Complete a Climate Change Vulnerability assessment
emissions reduction targets for the City carry out actions to reduce greenhouse gas emissions throu the Global Covenan Mayors		1.5.1.1.2 Set an emissions reduction target that is in alignment with the Global Covenant of Mayors compliance requirements	
		1.5.1.1.3 Develop a Climate Change Adaptation Action Plan and an Emissions Reduction Action 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	2.2.1.1.1 Seek out opportunities to incorporate green technologies in Council's projects and contracts	

Reducing greenhouse emissions is also a priority in the Environmental Sustainability Strategy 2014-2022 -

- Focus Area 2 Reducing our ecological footprint Reducing emissions from Council operations
- Focus Area 5 Demonstrating Sustainable Leadership and Governance Complying with Global Covenant of Mayors requirements, which includes setting emissions reduction targets and developing an action plan to achieve the target.



The adoption of an emissions reduction target will support the achievement of the following United Nations Sustainable Development Goals -



Ecological Sustainability

Compliance with the GCoM requirements will mean that Wollongong is contributing to avert the impacts of climate change. These impacts will significantly affect vulnerable communities, infrastructure and asset viability and management, biodiversity and water availability. Setting an emissions reduction target for Wollongong will support Council's August 2019 Climate Emergency Declaration.

RISK ASSESSMENT

There will be significant environmental and social risks associated with not addressing climate change. Council is the owner of significant assets including roads, bridges, coastal infrastructure, buildings and facilities that will be affected by the impacts of climate change.

There is a reputational risk if Council does not adopt an emissions reduction target following the recent Climate Emergency declaration. Council will also be non-compliant with the GCoM requirements and will need to reconsider its commitment to the GCoM.

FINANCIAL IMPLICATIONS

Whilst there is nil cost associated with adopting an emissions reduction target, the cost of implementing actions to reduce emissions is yet to be determined. Council is only directly responsible for 5% of community emissions and therefore the role of Council in achieving a target for the City is mainly one of advocacy, stewardship, education and engagement. Efforts to secure grant funding will be a focus of Council staff in collaboration with ISJO councils, particularly through the CPP Program, should Council become a member.

Funds will be required to deliver on actions associated with emissions reductions for Council operations regardless of whether Council adopts an emissions reduction target specific to its operations or chooses to just be a part of the City-wide target. A range of emissions actions have already been identified for implementation through the current Delivery Program, such as gasfire capture at Whytes Gully landfill. These actions are likely to result in cost savings to the organisation associated with reduced energy consumption and associated costs and there is the opportunity to reinvest these savings into further emission reduction actions.

CONCLUSION

Adoption of a science-derived greenhouse gas emissions reduction target on behalf of the City of Wollongong is a requirement for the GCoM. Public consultation has been undertaken seeking feedback on a proposed emissions reduction target of *net zero emissions by 2050*. As a result of the consultation

444 submissions were received communicating overwhelming support for the target in addition to urging Council to consider setting a more aggressive target.

Based on the Paris Accord and GCoM protocols it is proposed that Council, on behalf of and for the benefit of the Wollongong community, set an emissions reduction target of net zero emissions by 2050. Noting that achieving the target is not the sole responsibly of Council. It is further proposed to set an emissions reduction target of net zero emissions by 2030 for Council operations. The adoption of the proposed targets will demonstrate leadership and support Council's recent declaration of a State of Climate Emergency.

Should Council resolve to adopt a target, Council staff will proceed to action the subsequent commitments associated with the GCoM, which includes the development of a Climate Change Mitigation Plan in consultation with key stakeholders. In this regard it is recommended that Council join the Cities Power Partnership Program to assist Council and the City in achieving the emissions reduction targets.





City of Wollongong Science-Derived Targets for Greenhouse Gas Emissions





Prepared for

Wollongong City Council

Version	Author	Date	Description of changes
V0a	Hannah Snape	20/05/2019	First draft
V0b	Alexi Lynch	25/05/2019	Review
V1a	Hannah Snape	31/05/2019	Final report for Council
V1b	Hannah Snape	30/09/2019	Revised report for Council

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About Ironbark Sustainability

Ironbark Sustainability is a specialist consultancy that works with government and business around Australia by assisting them to reduce energy and water usage through sustainable asset and data management and on-the-ground implementation.

Ironbark has been operating since 2005 and brings together a wealth of technical and financial analysis, maintenance and implementation experience in the areas of building energy and water efficiency, public lighting and data management. We pride ourselves on supporting our clients to achieve real action regarding the sustainable management of their operations.

Our Mission

The Ironbark mission is to achieve real action on sustainability for councils and their communities.



Ironbark are a certified B Corporation. We have been independently assessed as meeting the highest standards of verified social and environmental performance, public transparency, and legal accountability to balance profit and purpose.

Item 3 - Attachment 1 - City of Wollongong Science Derived Targets for





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Background 1.

At the United Nations Framework Convention for Climate Change (UNFCCC) Paris Conference in 2015, the Australian Government signed an international agreement between 195 countries to keep any temperature rise "well below 2°C", and to drive efforts to keep warming below 1.5°C higher than pre-industrial levels. This Paris Agreement, entered into force on 4 November 2016, explicitly recognises and engages local and subnational governments and their critical role in supporting the transformation, including setting goals and strategies aligned with the science.

Climate science tells us that warming beyond 1.5°C threshold is likely to have increasingly severe social, economic and environmental impacts, especially on a water scarce continent like Australia. As of October 2018, the IPCC announced that there were no longer any scenarios for remaining within this temperature increase-range without the use of carbon removal technologies.

Item 3 - Attachment 1 - City of Wollongong Science Derived Targets for

In becoming a signatory to the Paris Agreement, Australia now has a limited, established carbon budget within which to operate in order to meet its commitment. The development of science-derived targets for councils enables us to understand the scale of action that is required at a municipal level to stay within this budget.

An emissions reduction target for an organisation, entity or community is considered "sciencederived" or "science-based" when it is aligned with the broader emissions reduction required to keep global temperature increase below 2°C compared to preindustrial temperatures, as described in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).

1.1 Role of Targets

In considering science-derived targets for reducing greenhouse gas (GHG) emissions at the community level, it is useful to explore their role and application. In application with carbon mitigation strategies, there are three key types of target:

Aspirational - a 'call to action'

The Aspirational Target is set according to political or other considerations and will typically involve something memorable or easy to communicate. It may not consider if this target is necessary, or what is needed to achieve the target. The primary motivation for this target is to establish a common rallying point and encourage all stakeholders to get motivated. An example of this type of target is, "We will achieve 20% carbon emissions reduction by 2020"

Top down - what needs to be achieved (Science-Derived Targets)

The Science-Derived Target is determined from an external requirement (in this instance, the recommendations of the IPCC to avoid catastrophic climate change). It may be better thought of as a limit, rather than a target. It is independent of political or other considerations and does not consider how difficult (or otherwise) the target will be to achieve. The primary motivation





for this target is to avoid some negative outcome. An example of this type of target from other fields is, "Do not descend below 8,000m otherwise the submarine will implode".

3. Bottom up - what we can achieve (Action-plan Based)

The *Action-plan Based Target* is one that is constructed from what can be achieved from the actions being considered in a council's action plan. It can be ambitious; however, its scope is directly derived from planned actions. An example of this type of target is, "Our factory will produce 10,000 widgets this quarter".





2. Methodology

2.1 Global Carbon Budget

Item 3 - Attachment 1 - City of Wollongong Science Derived Targets for

The IPCC, the leading authority on current climate change scientific knowledge, has developed long-term emission scenarios which show a range of potential emissions trajectories and impacts based on highly detailed and rigorous modelling. These scenarios indicate the maximum total emissions allowable to limit the increase in global average temperatures to 2°C, which is considered the threshold for avoiding dangerous climate change. The IPCC reports that for climate stabilisation to occur (2°C), industrialised countries need to reduce their greenhouse gas emissions by approximately 85% by 2050.

Based on the above, the world's "carbon budget" is the total volume of greenhouse gases that can be emitted while providing a degree of confidence that temperature rise will be limited to a relatively safe and manageable 2°C. The accepted global carbon budget established by the IPCC is 1,701 Gt CO₂-e for the period 2000-2050.

2.2 National Carbon Budget

There is no international agreement on the division of the global carbon budget between countries. In apportioning a national carbon budget, there are a number of approaches. The Australian Climate Change Authority (CCA) has used an approach that they consider fair and equitable. This approach ensures that:

- developing countries are initially allowed an increased per-capita carbon budget to allow for additional emissions whilst they grow their economy; and,
- high per-capita emitters (such as Australia) are allowed time to adjust to their reduced carbon budget, rather than setting them up to fail with an allowance that is considerably lower than their current emissions.

Based on this methodology, CCA recommended a national carbon budget of $10.1~Gt~CO_2$ -e for the period 2013-2050. As at September 2018, 7.26 Gt CO₂-e of this budget remains.

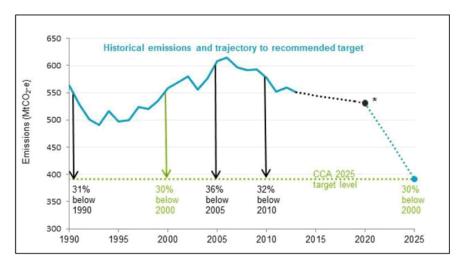


Australia's current targets for reducing greenhouse gas emissions are 26-28% reductions on 2005 levels by 2030. In its 2015 reports to the Minister for the Environment on Australia's future greenhouse gas emissions reduction targets, the CCA recommends Australia commit to the following science-based targets:

- a 2025 target of 30% below 2000 levels; and
- further reductions by 2030 of between 40 and 60% below 2000 levels.







Item 3 - Attachment 1 - City of Wollongong Science Derived Targets for

Figure 1: Historical emissions and trajectory to recommended target

Source: CCA 2015, Final Report on Australia's Future Emissions Reduction Targets, https://goo.gl/s4CYvb

2.3 Municipal Carbon Budget

In determining a municipal budget for greenhouse gas emissions, there are again a number of methodologies that can be employed. Most simply, it is possible to divide the national carbon budget according to population so that a municipality with a bigger population would be given a larger budget than a smaller municipality. However, this neglects a number of important factors that influence a municipality's ability to reduce emissions.

In developing a science-based target for Wollongong, Ironbark has applied the following considerations:

- 1. Australia's current carbon budget at September 2018 is calculated as 7.26 Gt CO_2 -e. This is the CCA's national carbon budget minus all emissions that have occurred since the budget was derived, per the National Greenhouse Gas Inventory.
- The carbon budget is adjusted to account for the sources considered in Wollongong's community emissions profile (stationary energy, transport, agriculture, solid waste and wastewater). This is done by applying the proportions of each sector from the most recent National Greenhouse Gas Inventory.
 - This means that sectors which have not yet been modelled (land use change and forestry, industrial processes and product use) are not included in the budget, but can easily be added as the data become available.
- This adjusted national carbon budget is then scaled down to the municipal-level based on the percentage of emissions for the included sector that occurred in Wollongong according to the most recent data.





2.4 Scaling the Budget

Greenhouse Gas Emmissions - Report

Once a total carbon budget for Wollongong was calculated, further scaling factors are applied. This is to ensure the allocation of budgets across Australian municipalities is fair and provides the greatest chance of success.

Item 3 - Attachment 1 - City of Wollongong Science Derived Targets for

2.4.1 SEIFA Scaling

The municipal carbon budget is scaled to account for socio-economic differences using the Socio-Economic Index for Areas (SEIFA) as follows:

- Municipalities with a higher than average SEIFA score are allocated a larger share of the national carbon budget.
- Municipalities with a lower than average SEIFA score are allocated a smaller share of the national carbon budget.
- This allows us to account for the fact that councils with a highly disadvantaged community are expected to find it more difficult to reduce emissions.

2.4.2 Scaling for Growth

The municipal carbon budget is then scaled to account for projected population growth as follows:

- Municipalities with a higher than average growth rate are allocated a larger share of the national carbon budget.
- Municipalities with a lower growth rate are allocated a smaller share of the national carbon budget.
- This accounts for the fact that councils experiencing higher growth rates are expected
 to find it more difficult to reduce emissions.





3. Targets

3.1 Science-Derived Target for Wollongong

Item 3 - Attachment 1 - City of Wollongong Science Derived Targets for

In October 2018 Wollongong's science-derived target was calculated by Ironbark. The outcomes are in Table 1.

Table 1: Scaled science-derived target for Wollongong, as calculated in October 2018

Remaining budget for Wollongong (kt CO ₂ -e)	49,185
Remaining years without change (years)	18.2
Required linear annual reduction (t CO2-e)	74,251
Required linear rate of reduction (p.a.)	2.7%

The Remaining budget for Wollongong is 49,815 kt CO2-e.

The *Remaining years without change* (18.2 years) calculates how long this carbon budget would last, based on the emissions released in the 2017/18 financial year.

The Required annual reduction and Required rate of reduction shows that Wollongong's emissions need to reduce by 74 kt CO2-e (2.7%) per year until 2050, if the carbon budget is to be used in a linear fashion over this time period. To give an idea of the scale of action required, Sunshine Coast Council's 15MW solar farm has saved just under 30 kt CO2-e in the 1.5 years since its installation.

When re-calculated in 2019, the remaining budget in tCO₂-e had changed. This is due to reductions in the overall budget available based on emissions released nationally drawing from the Australian carbon budget. It is also because of changes to data sources, data sets and methodologies. Ironbark is committed to ensuring methods are regularly updated to remain in line with best practice and to utilise the more relevant, accurate and transparent data available. These changes applied to all muncipalities.

Whilst the numbers for the carbon budget are quite different, the remaining years without change and % reduction required are similar. This is because the updates that have been applied to the calculation of the science-derived target also apply to the calculation of the Wollongong community emissions profile.





4. Next Steps

4.1 How to Use a Science-derived Target

Item 3 - Attachment 1 - City of Wollongong Science Derived Targets for

The methodology that Ironbark uses to develop science-derived targets has been designed to allow all municipalities the greatest possibility of success. Whilst the targets are challenging, they are targets that *must* be met in order to avoid catastrophic climate change and represent the true scale of action that is required within each community. This target should not be considered aspirational, rather it should be considered essential to avoiding the negative effects on Wollongong's community, environment and economy.

Whilst understanding the necessity of meeting this target, it is also important to understand Council's level of accountability. Reducing greenhouse gas emissions must be a whole of community effort and actions taken by state and federal governments and emissions intensive industries will be key in ensuring Australia stays within its national carbon budget. Council may advocate for and support these actions or engage in collaborative planning with key stakeholders, but ultimately is not solely responsible for meeting the full municipal emissions target.

In engaging with stakeholders, it is important that the communication of the science-derived target is undertaken strategically. Whilst aspirational targets have been used to educate and motivate for many years, the science-derived target can be most useful as a tool for climate planning and understanding relevant carbon budgets and timeframes.

4.2 Monitoring a Science-derived Target



Historically, success in achieving action towards targets may have been measured by the reduction of a municipal greenhouse gas profile. However, this is not the approach that we currently recommend, due to the potential fluctuation of the emissions profile related to factors entirely outside of Council's influence, such as the state electricity emissions factor. Instead, targeted monitoring on specific greenhouse gas mitigation activities can provide Council with a measure of success in the effectiveness of programs and greenhouse gas emissions reductions.

4.3 Action Planning for Community Emissions Mitigation

The community emissions profile previously developed by Ironbark Sustainability for Wollongong, coupled with the science-derived target presented in this report are important tools for climate planning. Used together, they allow Council to understand the scale of the impact of their municipality, the breakdown of sectors responsible for the emissions and the magnitude of the reductions needed. They provide the necessary foundation that advances and

Greenhouse Gas Emmissions - Report





enables Council to engage specific sectors or stakeholders in actions to reduce emissions and develop a plan to reduce emissions.

Item 3 - Attachment 1 - City of Wollongong Science Derived Targets for

When considering community emissions mitigation against a science-derived target, it is clear that the scale of reductions required is exceptionally high. For this reason, it's important for Council to carefully consider how best to leverage resources. Most often, direct action by Council will not be the most efficient way towards achieving the target. However, there are a number of ways that Council can engage and work with stakeholders and other levels of government to facilitate the required emissions reductions.

In Ironbark's experience, there are twelve key interventions that councils can employ to support the reduction of community emissions. These are:

- 1. Administration and strategy
- 2. Advocacy
- 3. Development of new policy or regulation
- 4. Education
- 5. Facilitation
- 6. Monitoring and reporting
- 7. New implementation of policy or regulation
- 8. Performance or supply contracting
- 9. Provision of incentive schemes or grants
- 10. Provision of loan schemes
- 11. Purchase and deployment
- 12. Strategic planning

4.3.1 Ironbark's Community Action Planning Tool

Ironbark has developed a Community Action Planning Tool (CAPT), which allows us to develop a list of actions that will target a specific emissions source and sector. CAPT is a natural extension to the work we have been doing to develop community emissions profiles and provides a more complete solution to the community-scale carbon management system. CAPT is capable of:

- Calculating the best action list for a specific municipality, down to the estimated spend (or in reverse, if councils have a predetermined budget, CAPT will be able to estimate how much abatement can be achieved)
- Representing uncertainty of outcome, a critical component for mutually aggregate
 actions that can have either a guaranteed outcome (such as installing solar on
 councils' own assets) to ones that cannot be certain at all (such as advocacy for
 closing down coal power plants). This uncertainty is represented in a "descending
 confidence" table, that maps the amount of carbon a program will mitigate against
 the probability of achieving success.

Greenhouse Gas Emmissions - Report





Grouping of all identified activities into "actions", which are activities that actively
reduce emissions, and "interventions", which are activities that a stakeholder
undertakes to effect the action. Examples of an action is "install EV charging
infrastructure in public-accessible locations", and corresponding interventions may be
"finance and deploy", and "facilitation".

CAPT is specifically designed for councils, and our intent is for the tool to quantify all the interventions currently being planned or implemented by councils across Australia. As we expand this resource, more and more of the initiatives we are seeing across the country will be available for objective comparison and application to your municipality. Please get in touch to find out more about how to be involved.

4.4 Further Resources

The following resources may also be useful in developing and assessing actions for Wollongong's community emissions mitigation planning:

- The Rocky Mountain Institute's website (<u>www.rmi.org</u>) has a number of useful resources, including The Carbon-Free City Handbook (2007), which reveals 22 actions and associated resources for cities globally to move toward climate-neutrality and see results within a year.
- The World Bank's CURB Tool is an interactive tool that is designed to help cities take
 action on climate by mapping out different action plans and evaluating their cost,
 feasibility, and impact. See https://bit.ly/1SeZoS2.
- Beyond Zero Emissions is an Australian think tank that has a number of publications covering municipal-wide emissions reduction solutions (https://bit.ly/2QDcoWz), as well as a Local Government Climate Review (2018).
- Energy Innovation LLC (<u>www.energyinnovation.org</u>) is an energy and environmental policy firm based in the United States with a number of useful resources on designing carbon solutions. Among other things, they have developed free online computer model to help design packages of policies to reduce carbon emissions (https://www.energypolicy.solutions/). Although it is not yet pre-populated with Australian data, the model provides a good visualization of key policy settings and their impacts in other regions like the US and Canada.
- The Global Covenant of Mayors is beginning to collate data on emissions, targets and actions at: https://www.globalcovenantofmayors.org/global-covenant-cities-data



Emissions Reduction Target

ENGAGEMENT REPORT

November 2019





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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.



Background

Wollongong City Council is one of 26 Councils in Australia to commit to carbon reduction through the Global Covenant of Mayors for Climate and Energy (GCoM). Under the GCoM initiative, Council is required to adopt a science-derived emissions reduction target on behalf of our community

Council has completed an inventory of local government area (LGA) wide emissions, with the majority of emissions identified as being derived from the industrial sector. The inventory determined that the Wollongong Local Government Area has a carbon budget of 49 Mt CO₂-e, which it must stay within in order to contribute its fair share in avoiding catastrophic climate change. If the city of Wollongong continues to emit carbon at the current rate our carbon budget (49 Mt CO₂-e) will be exhausted in just over 18 years.

On 12 August 2019, Council resolved to declare a State of Climate Emergency.

A report to Council on 23 September recommended the adoption of an emissions reduction target of Net Zero Emissions by 2050 concurrent with targets that have been adopted by a range of agencies and organisations including the NSW State Government. It should be noted that Council is attempting to establish this target on behalf of the community, for the benefit of the entire community and that Council is not solely responsible for the implementation of actions to achieve this target. The proposed emissions reduction target will strongly support Council's Climate Emergency declaration.

Following consideration of the report Council resolved to defer consideration of the target until after a period of public consultation on the proposal.

In response to the Council resolution of 23 September community and business engagement was undertaken from 14 October to 8 November 2019. Feedback was sought on the proposed emissions reduction target as well as suggested actions to reduce emissions within the City.

This report summarises the feedback received and the results of this engagement process.



Methodology

Engagement Period - 14 October to 8 November 2019

Methods	Details			
Communication Methods				
The Advertiser	Details about the engagement were made available in Council's Community Update pages.			
Media release	A media release was distributed.			
Frequently Asked Questions	A series of FAQs were developed which provided an overview of the project and how people could get involved.			
Email	An email was sent to identified external stakeholders informing them of the exhibition and how they can provide feedback. The list of stakeholders is provided in Appendix 1.			
Register of Interest	An email was sent to all participants with registered interest in Environment.			
Info packs	Info packs FAQ and hardcopy surveys were made available at libraries and customer service.			
Social Media	ocial Media Posts about the engagement were made to Facebook, Linkedin and Twitter.			
Engagement Methods				
Engagement HQ Website	community members to comment and vote for ideas that they supported			
Feedback Form	A hard copy feedback form was developed and made available at libraries and engagement activities.			
Direct Contact	Teleconferences were held with i3net and the Illawarra Business Chamber in relation to obtaining comments from member businesses and industry. Staff attended the BlueScope Community Consultative Committee meeting and liaised with BlueScope staff.			



Results

This section provides details on the participation at engagement activities and the feedback received during the engagement period.

Engagement Participation

Details of the number of participants for each engagement activity are presented in Table 2. Table 2 - Engagement participation results

Engagement	Activity	Participation
Teleconferen	ces/meetings	3 organisations
Emissions Re	and comments eduction Target educe Emissions	227 199
Written subm	nissions	17
Online Partic Aware - Total Informed - Engaged-	I number of users who viewed the project page Total number of users who opened a hyperlink or read a document	811 465 277



Feedback Results

By Stakeholder

*	
Group/ Individual	Summary of response
How many community members and what did they say in general	227 responses were received. Approximately 75% of respondents supported a 2050 target but urged Council to set a more ambitious target. Conversely 1% of community respondents did not agree with establishing a target.
•	
Paul Scully MP	Supports the proposed target of net zero emissions by 2050, noting it is consistent with NSW Government and international agreements. Recommends that Council set a target for its own operations. However, Council should consider options and prepare a plan prior to establishing a scientifically credible and practically deliverable target.
University of Wollongong	Are committed to climate action but have not set a target. Offered assistance to Council in achieving the target through the Sustainable Buildings Research Centre and the Smart Infrastructure Facility.
Illawarra Coal - South32 Colliery	Committed to Climate Strategy and will review its emission reduction approach every five years from 2021, in line with IPCC updated scientific reports, to ensure transition toward the global goal of achieving net zero emissions by 2050.
Regional Development Australia – Illawarra	Not in a position to make official comment or provide response until following next meeting in December.
Neighbourhood Forum 6	Support the setting of targets: net zero emissions from the community by 2050 and net zero from Council operations by 2030. Request that Council develop action plans focused on mitigation and adaptation and take a leading role in the community to implement climate action strategies.
ClimateWorks Australia	Asked a number of questions on the target but didn't provide a definitive response.
Renew Illawarra	Provided no comment on the target however they held a workshop with their members to identify actions to reduce emissions in the community. They will submit these actions in December.
Food Fairness Illawarra	Supports the emissions reduction target of net zero emissions by 2050, including the need for urgent action by all levels of government, industry and the community. Makes several recommendations for actions involving community support and education around food security, food waste and sustainability.
Healthy Cities Illawarra	Support the target but indicate that a 2040 target is achievable. They also indicated that many of their programs focus on areas of high vulnerability to climate change.
Wilderness Society	Support a more aggressive target such as zero 2030, which is supported by
Illawarra	the latest scientific data.



Emissions Reduction Target

The following key points were raised by the community in responding to the emissions reduction target:

- Support and commendation for Council for taking steps to combat climate change in the absence
 of strong Federal and State political direction.
- The 2050 target is not in alignment with Council's recent declaration of a State of Climate Emergency.
- Approximately 75% of respondents requested that Council act with greater urgency and adopt a 2030 net zero emissions reduction target for the community and for Council operations to reduce the impacts of climate change on Wollongong and the rest of the world.
- · Scientific evidence supports the need for more urgent action to be taken.
- A number of respondents believed that scientific data used in the calculation of the carbon budget and target may be out of date since the IPCC has since scaled down the global carbon budget and there may be significantly less time to reduce emissions.
- As Wollongong is a coastal city that is also bush fire and flood prone the impacts of climate change will be felt with greater intensity and severity than other cities.
- First nations countries have a very low capacity to adapt to climate change and many may become climate change refugees.

Suggested Actions to Reduce Emissions

Respondents were asked to offer suggestions on the actions that could be taken by Council and the city to reduce emissions and respond to climate change. The suggested actions have been summarised below and grouped into theme areas.

Renewable Energy Sources

- Increased investment in renewable energy sources and projects, including:
 - Installation of solar panels on all Council facilities
 - Council purchase green power or participate in a Power Purchase Agreement
 - Council replace current street lights with LEDs
 - Installation of solar panels on residential, government and commercial buildings
 - Provision of rebates or subsides, low interest payment plans for renewable uptake
 - Replacing gas with solar energy
 - Requiring minimum solar power systems for new developments.
- Leveraging the uptake of renewables by the community and businesses.
- Investigating opportunities for the development of green industry and green jobs, including the installation of community batteries.

Sustainable Transport

- Installation of EV infrastructure to support the uptake of electric vehicles, to combat range anxiety - a major barrier to people purchasing an EV.
- Connectivity and better access to wide cycle paths and shareways around the City
- Providing access and adequate facilities in the CBD to complement public transport and alternatives to motor vehicles.
- Improvements to public transport access, timetables and infrastructure (including expansion of the Gong Shuttle) to reduce cars in the CBD.
- expand and allocate parking for ride/car share schemes in the City.



Leadership

- Council allocate additional staffing and budget resources to properly address climate change issues such as establishing a Climate Change Unit
- Council join the Cities Power Partnership Program.
- Council 'immediately elevate climate change issues and risks (environmental, economic and social) in decision-making processes', so that every section of Council is operating and planning in the context of a climate crisis.
- Improvements to planning controls to provide for EV charging, solar panels, improved design outcomes and 'energy positive' buildings.
- · Install a climate/emissions monitor for the City
- All buildings be required to have a building energy rating.
- Council should do all that it can to reduce emissions before considering offsets.

Waste

- · Institute FOGO and keep organics out of landfill
- reduce waste to landfill
- Reduce plastics use and create/encourage recycling industries.
- Gas capture from landfill.

Trees and Vegetation

- · Plant trees to sequester carbon
- Revegetate pocket parks and unused land to reduce emissions and improve the quality of urban environments.
- Accelerate implementation of the Urban Greening Strategy
- Additional funding for coastal wetland activities.
- Increase stock and access to Greenplan at the Botanic Garden to assist community members to revegetate private land.

Water

 Increased investment in water conservation, tanks and water recycling to reduce the impacts of climate change and assist in adaptation.



Appendix 1

External stakeholders contacted through the exhibition process -

Lee Evans MP
Stephen Jones MP
Ryan Park MP
Paul Scully MP
Gareth Ward MP
Hon Sharon Bird MP
Anna Watson MP
University of Wollongong
Illawarra First
Ports Authority of NSW
Wollongong Coal
Peabody Metropolitan Mine
Illawarra Coal - South 32
Urban Development Institute of Australia
Illawarra Business Chamber
Property Council
Regional Development Australia - Illawarra
i3net
Bluescope
Neighbourhood Forums
Sustainable Illawarra
Wollongong Climate Action Network
Surfrider Foundation
Australian Youth Climate Coalition
Helensburgh & District Landcare Group
Tullimbah Land Care
Landcare Illawarra
ClimateWorks Australia
Food Fairness Illawarra
Stop CSG Illawarra
Illawarra National Parks Association
Renew Wollongong
Wilderness Society Illawarra
Stop CSG Illawarra
Bella and the Break Free Illawarra Climate
Coalition Coalition
All primary and high schools within the LGA
Healthy Cities Illawarra
Wilderness Society Illawarra
Sustainable Illawarra



Attachment 2: Australian GCoM Councils Emissions Reduction Targets

Council	Emissions Reduction Target		
ACT	Net zero emissions by 2045		
Adelaide	Matching state target of zero net emissions by 2050		
Byron	30% by 2020		
Darebin	Carbon neutral by 2020		
Glen Eira	Net zero emissions from the community by 2050 Net zero emissions from council operations by 2030		
Hobart	Zero net carbon emissions by 2020		
Hobsons Bay	Zero net greenhouse gas emissions by 2020 Zero net emissions community by 2030		
Joondalup	Corporate target: Reduce net greenhouse gas emissions by 5% per capita below 2012/13 emissions by 2018/19		
Mandurah	Carbon neutral 2020		
Manningham	Council: 100% carbon neutral by 2020 Community: 20% GHG reductions		
Maribyrnong	No target found		
Melbourne	Zero net emissions by 2020		
Melton (Australia)	Zero net emissions from council operations by 2025		
Melville (Australia)	48% emission reduction from council operations by 2025		
Moreland	Zero carbon community by 2040		
Mornington Peninsula Shire (Australia) Zero net carbon emissions for council operations by 2021 Minimum community greenhouse gas emission reductions tar 2.9% annually			
Mount Barker (Australia)	No target found		
Newcastle (Australia)	30% carbon footprint reduction by 2020 for council operations		
Horrodollo (Maditalia)	30% reduction in per capita carbon emissions below 2008 levels		
Penrith	40% reduction in greenhouse gas emissions below 2008 levels		
, ,	. ,		
Penrith	40% reduction in greenhouse gas emissions by 2030 Reduce City of Perth operational emissions by 30% by 2030 Work with the community to achieve 30% reduction in city-wide GHG		
Penrith Perth (Australia)	40% reduction in greenhouse gas emissions by 2030 Reduce City of Perth operational emissions by 30% by 2030 Work with the community to achieve 30% reduction in city-wide GHG emissions by 2030 Zero net council carbon emissions by 2020		
Penrith Perth (Australia) Port Phillip (Australia)	40% reduction in greenhouse gas emissions by 2030 Reduce City of Perth operational emissions by 30% by 2030 Work with the community to achieve 30% reduction in city-wide GHG emissions by 2030 Zero net council carbon emissions by 2020 50% reduction in per capita community carbon emissions by 2020		
Penrith Perth (Australia) Port Phillip (Australia) Sydney	40% reduction in greenhouse gas emissions by 2030 Reduce City of Perth operational emissions by 30% by 2030 Work with the community to achieve 30% reduction in city-wide GHG emissions by 2030 Zero net council carbon emissions by 2020 50% reduction in per capita community carbon emissions by 2020 Net zero emissions by 2050 The goal of reducing corporate greenhouse gas emissions to 20% below 1996 levels by 2010 The goal of reducing community greenhouse gas emissions per capita to		



File: CST-100.02.074 Doc: IC19/708

ITEM 4

WEST DAPTO PLANNING CONTROLS REVIEW - POST EXHIBITION

The West Dapto Vision 2018 was adopted by Council on 10 December 2018. The Vision includes a number of implementation actions including the need to review the controls in Wollongong Development Control Plan 2009. As a result, staff have reviewed draft Chapter D16: West Dapto Release Area and draft Chapter B2: Residential Subdivisions. Staff also proposed to introduce the draft West Dapto Open Space Design and Technical Manuals to provide more guidance for planners, developers and the community.

On 22 July 2019 Council resolved to exhibit the Draft Chapter D16, Chapter B2 and the draft Open Space Design and Technical Manuals. The draft documents were exhibited from 2 August to 2 September 2019. Council received 12 submissions to the draft DCPs and seven addressing the draft Manuals. This report summarises issues raised in submissions, some of which have resulted in changes and improvements to the draft documents.

It is recommended Council adopt the amended draft Chapter D16: West Dapto Release Area, draft Chapter B2: Residential Subdivisions, draft West Dapto Open Space Design Manual and draft West Dapto Open Space Technical Manual. All three documents will allow for improvements to be made based on 10 years of working knowledge and contribute to achieving the Vision for West Dapto.

Following adoption, it is suggested that further refinement is required to Chapter D16 relating to the precinct planning process. This work should not delay adoption of the substantive amendments made and exhibited to begin guiding development in the release area.

RECOMMENDATION

- 1 Council note the issues raised through submissions during exhibition held 2 August to 2 September 2019.
- 2 Council adopt Draft Chapter B2: Residential Subdivision and Draft Chapter D16: West Dapto Release Area as revised for inclusion in the Wollongong Development Control Plan 2009 and give notice of its adoption.
- 3 Council adopt the Open Space Design and Technical Manuals.
- 4 Staff further review Section 14 and 15 in the Draft DCP Chapter D16: West Dapto Release Area relating to precinct planning and progress to public exhibition for a minimum 28 days. The outcomes of the exhibition process be reported to Council with recommendations for consideration.

REPORT AUTHORISATIONS

Report of: Chris Stewart, Manager City Strategy

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

ATTACHMENTS

- 1 Draft Development Control Plan Submissions Table
- 2 Draft Open Space Manuals Submission Table
- 3 Draft Chapter D16: West Dapto Release Area
- 4 Draft Chapter B2: Residential Subdivision
- 5 Draft West Dapto Open Space Design Manual
- 6 Draft West Dapto Open Space Technical Manual



BACKGROUND

West Dapto is the region's largest urban release area. In December of 2010, Part D of the Development Control Plan 2009 – D16 West Dapto Release Area commenced outlining key requirements for planning and guidance for development of the release area.

In December 2018, Council adopted a revised West Dapto Vision. The revised document includes a vision statement and eight (8) key principles relating to transport, water management, conservation, open space, community facilities, town centres, housing and employment. A detailed review of the DCP provisions was identified as part of the next step in implementing the principles in the West Dapto Vision.

The DCP review process has highlighted several issues with the DCP D16 West Dapto Release Area and B2 Residential Subdivisions in terms of its consistency. Based on a working knowledge and stakeholder feedback gained over the past 10 years, several improvement opportunities were identified.

To create a more focused and detailed network of open space in the release area, the Draft West Dapto Open Space Design and Technical Manuals were developed to guide the design process of these important public spaces ensuring quality outcomes for the release area.

At the meeting held 22 July 2019, Council resolved that:

- 1 Council endorse the draft DCP Chapter D16: West Dapto Urban Release Area, draft DCP Chapter B2: Residential Subdivisions, draft Open Space Design Manual and draft Open Space Design Technical Manual for public exhibition for a minimum 28 days.
- 2 A further report outlining the submissions received from the public exhibition process with recommendations regarding progression of the draft DCP amendments be prepared for Council's consideration.

CONSULTATION AND COMMUNICATION

Council staff held internal workshops in early 2019 to understand challenges experienced during assessment and interpretation of the key West Dapto release area aspects of DCP 2009. The revised draft Chapter D16 and Chapter B2 were reported to Council on 22 July 2019.

Following Council's resolution at the 22 July 2019 meeting, notice was given in the local newspaper (The Advertiser 31 July 2019) of the exhibition process. There was additional media coverage, an article written in the Mercury on 22 July 2019 with Councils resolution to exhibit and information of the exhibition included. The endorsed documents were placed on exhibition from 2 August to 2 September 2019. The exhibition was available via two pages set up on haveyoursaywollongong.com.au and hard copies available at Wollongong Central Library, Dapto Library and the Administration building front counter. Submissions were accepted until 16 September 2019. There were several consultation activities conducted during this time, including briefings to Neighbourhood Forum 8 and specific stakeholder groups. A range of stakeholders provided comments and submissions.

Council received 12 submissions to the draft DCPs and seven addressing the draft Manuals. The table below outlines a summary of issues raised in submissions, Council comment and actions or changes made to the draft documents. More detailed table of submissions relating to DCP Chapter B2 and D16 is included in Attachment 1 and for the Open Space Manuals in Attachment 2.

Theme raised	Council comment	Action
Riparian Corridors Corridor buffers and Asset Protection Zones	Riparian corridors are subject to other chapters of the DCP also. Controls included were carried over from current DCP Chapter.	Modified and updated the draft controls regarding riparian corridors to better reflect their strategic functions.
Heat Island Effect	Noted. Important point when planning for sustainable liveable communities.	Principle point added under housing principles.



Theme raised	Council comment	Action
Yallah, Marshall Mount Vision	Precinct planning still to be done for Stage 5 of the release area.	Wording added to reflect the YMM vision in section 4 of DCP.
Facilitating housing density	Noted, there will need to be some areas of high and medium housing densities in the release area. These areas should be near centres and open space and considered in precincts and centre planning. The principles include requirements for master planned centres and housing principles to support planned housing density.	No action required.
Role of built environment and chronic illnesses and disease	Council takes these comments seriously and are attempting to promote a focus on quality outcomes for our open space and community facilities.	Continue supporting involvement and coordination with the Illawarra Shoalhaven Local Health District.
Open space and green infrastructure	A focus on method, planning and guiding principles in the DCP will be used to inform discussions during planning and assessments as well as application decisions.	Promote green and blue infrastructure to be developed in the release area.
Open space - need for indicators to evaluate and monitor delivery	Noted.	Following the adoption of the DCP, the Urban release team propose to develop metrics for a range of different objectives to inform the evaluation, monitoring and reporting on delivery of development in the release areas.
Active transport and planning for community health	A key component of the transport principles is active transport at Section 6.3.	No action required.
Urban form, pedestrian amenity.	Council understands how important it is to create built environments that are safe for pedestrians. That was a key consideration in the new road cross-sections included in the Chapter B2 amendments. Further to this, D16 promotes an active transport network (walking/riding etc) as a key outcome and focus for the release area.	No action required.
Small lot housing	While it is noted that this will be an important component of housing delivered in the release area, small lot housing will need to be located appropriately nearby centres and community hubs. The housing principles are relevant when considering small lot housing in the release area. Small lot housing will also need to be addressed more specifically and while it is important there is small lot housing in the release area, it is not the intent of this chapter to outline the requirements/objectives of this typology	Additional reviews of Chapter B1 and B2 will be needed.



Theme raised	Council comment	Action
	specifically.	
Road design and desired outcomes Strengthen denied access road controls Intersection designs and spacing	Road design guidance from Council staff has varied overtime with various draft and final versions applying. This has been reviewed with extensive input from across council departments to provide a consistent set of cross sections, relevant to the whole LGA but also to establish desired built environments in the release area that respond to land use, are inclusive and accessible street environments.	Slight changes to B2 in response to submissions. Some additional diagrams added to improve communication.
Coal wash reject material reuse	This material is not discussed in either chapters that have been revised and drafted.	No action required.
Cut and fill strategy	All comments are noted. Based on a working knowledge of subdivision works, council has identified an area within policy that has resulted in undesirable built form outcomes and legacy challenges. Changing approach to cut and fill is needed to protect and promote the areas character, heritage, maintain hydrological behaviour (ecological impacts when these are significantly altered) planned housing and quality development outcomes.	Amendments to Chapter B2 in response to a need to connect the key driver to cut and fill considerations, by combining Section 5 Topography, Landform Conservation and Section 8 Cut and Fill land Reshaping works.
Landform modification	Related to the above response. Landforms of the release area are important to conserve and should be maintained to prompt housing design diversity in response to landscape features.	As above.
D16 transitional arrangements for precinct process	Transitional arrangements were to explain the change from Neighbourhood Planning to precinct plan approach.	Place section 14 and 15 on hold. Staff to review precinct arrangements reexhibit an approach.
Defining precinct areas	Council understands this is a major challenge and success of precinct planning relies on a useful scale and practical application of an approach.	Place section 14 and 15 on hold. Staff to review precinct arrangements reexhibit an approach.
Scope of supporting information required in precinct plans	The scope of detail required during precinct planning will vary depending on site features. Initially, the information will need to demonstrate a level of investigation to inform the land uses and urban layout, infrastructure locations (in line with Structure plan, DCP and Section 7.11 plans), centre designs considering walkability and a masterplan, diverse subdivisions to encourage diverse housing products and demonstrate delivery of the West Dapto Vision 2018.	Council is happy to consider providing further advice around analysis and supporting information scoping during precinct/neighbourhood planning and prelodgement.
Water management	Submissions raised the need to add some further clarity to the water management principles and update NSW government references.	Amendments made to Section 7 water management of D16 in response.
Application of	Council proposed precinct planning, which added	Place section 14 and 15 on



Theme raised	Council comment	Action
Chapter D16	some requirements and increased the rigour	hold. Staff to review
Increase higher order planning	around precinct boundary formation but generally, reflected the neighbourhood planning process.	precinct arrangements re- exhibit an approach.
layers, require initial development applications be	It is understood that a Concept DA is required to address the Development Control Plan. Council would still require that a Concept DA delivers the	
Concept Development applications.	requirements of D16 and specifically demonstrates its planned connections and infrastructure provisions, amongst the other relevant chapters of the Wollongong DCP 2009.	

PROPOSAL

This report presents the main themes raised in submissions and the elements of the draft DCP and Open Space manuals that address the themes or changes made to improve how the draft documents address the themes. To fully address the concerns raised in submissions staff propose a two-stage approach.

Stage 1 (subject of this report)

Adopt the draft DCP Chapter B2 (Attachment 4) and an interim draft DCP Chapter D16 (Attachment 3) as part of the WDCP 2009 and notify the adoption with an enforcement date.

The interim draft DCP Chapter D16 will be -

- Introducing the use of the new Open Space Manuals.
- Holding off on draft Sections 14 and 15 while staff draft revised provisions.
- Withholding the existing Neighbourhood Planning requirements from current instrument.

Develop a brief explanatory note regarding the precinct process review and re-exhibition.

The final Open Space Design and Technical Manuals are to be adopted during this stage 1.

Stage 2

Review the precinct area boundaries included in the exhibited draft and identify a method most appropriate to form precincts within the release area.

Review and consider how to include additional information that relates to new precinct areas.

Propose an approach to a transitional arrangement to the precinct planning process.

Re-exhibit draft DCP D16 with Section 15 updated following reviews of precinct boundaries and transitional arrangements.



PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 goals "1. We value and protect our environment", "2. We have an innovative and sustainable economy", "6. We have affordable and accessible transport.". It specifically delivers on the following —

Community Strategic Plan		Delivery Program 2018-2021		Operational Plan 2019-20	
	Strategy		3 Year Action	Operational Plan Actions	
1.3	The sustainability of our urban environments is improved	1.3.1.2	Develop planning controls and Town Centre and Neighbourhood Plans with regard to the economic, social and environmental impacts	Continue the review of the West Dapto Land Release area including the Vision, Structure Plans and Local Infrastructure Plans	
2.1.5	West Dapto urban growth is effectively managed to balance employment and population growth	2.1.5.2	In collaboration with key agencies, facilitate the West Dapto Taskforce to deliver the first stages of the West Dapto Urban Release Area	Continue to implement the Infrastructure Delivery Program to support the West Dapto Urban Release Area	
6.3	Provide connected and accessible places and spaces	6.3.1.1	Plan and implement projects to improve connectivity	Develop a Community focused Active Transport Program	

Ecological Sustainability

The Wollongong DCP 2009 already includes Chapter A2 Ecologically Sustainable Development (ESD) which is applicable to the whole LGA and reflective of broader legislative setting. Amendments included in the draft Chapter D16: West Dapto Release Area, comprise principles including environmental conservation, heritage conservation.

RISK ASSESSMENT

The shift towards principles in planning has occurred across NSW planning, in case law and more broadly over the past 10-15 years. The draft DCP D16 aims to reduce the risk of undesirable development and poor-quality outcomes by promoting principles to communicate the outcomes Council would like to achieve for the release area, implementing the West Dapto Vision 2018.

The changes included through Draft Chapter B2 address long standing challenges found reviewing assessment processes as well as changes that mean requirements for subdivisions within the release area are consistent with principles and desired outcomes.

The Open Space Manuals will provide important guidelines and specifications for developers when designing and costing subdivision proposals. Developers will be able to price open space provision more accurately and ensure that the features and infrastructure proposed are appropriate to the relevant park category and reduce the likelihood of unnecessary maintenance burdens being passed on to Council.

CONCLUSION

The Draft DCP Chapter D16 and B2 and the Open Space Design and Technical Manuals were exhibited from 2 August to 2 September 2019. Generally, the documents were well received with praise given regarding the overall intent and direction that has been taken. There were a range of issues raised through submissions. Some submissions have resulted in amendments and improvements to the drafts. These amendments have been relatively minor in nature with one exception. The major amendment action following exhibition has been the removal of Section 14 and 15 from Chapter D16 in relation to precinct planning to allow for further review and future re-exhibition. This work should not delay adoption of the substantive amendments to Chapter 16 which are required as soon as possible to guide development and help to achieve the Vision for West Dapto. The revised Section 14 and 15 will be reported back to Council following re-exhibition in early 2020.



DRAFT DEVELOPMENT CONTROL PLAN SUBMISSIONS TABLE

Subjects/ Submission Themes	Submission Comment	Council Comment	Action
Riparian corridors, corridor buffers and APZs	It's noted and supported how sub section 8.1 Environment conservation aligns with the WD Structure Plan content and Vision Principles. Concern is raised re the content of sub section 8.3 Riparian Corridors 'Controls', '4. The Riparian Land Management Area can include land used for bushfire mitigation activities' as follows: In its current form, this wording particularly 'can' instead of 'may' and 'activities' ie on going actions, in the context the draft revised DCP. Section 8 Conservation Principles does not align with any of the 3 principles that underpin the sub section 8.1 Environment conservation. Further the content and wording does not seem to acknowledge, or consider, the improve biodiversity outcome envisaged for riparian lands through the strategic initiative of Biocertification through the Biodiversity Conservation Strategy for the WDURA noting that the preliminaries of sub section 8.1 discuss 'A BCS provides opportunity for Council to achieve biodiversity certification (bio certification) in a coordinated approach for the whole release area, improving the overall conservation outcomes beyond what would be achievable developing site by site. Council will continue to work closely with the NSW Office of Environment and Heritage and Department of Planning and Environment to achieve this strategic outcome. The principles should also be used to guide site by site considerations.'	Riparian Corridor controls: remove controls 2 and 4 and re-phrase remaining 2 controls to better align with principles language.	Meeting 27/9/19 with Flood/stormwater engineers to discuss 8.3 Riparian Corridors. Action: 8.3 Riparian corridors: remove control 4 and edit control 2 to reflect intent around revegetation works rather than flood risk (secondary issue and not main role for riparian corridors in the release area).



Subjects/ Submission Themes	Submission Comment	Council Comment	Action
	In the content of sub section 8.3 Riparian Corridors 'Controls', 'No 4' it doesn't reflect; the attached highlighted content from Councils 'Bushfire Prone Land' and which I understand is a 'general' policy position for Council and with the content drawn from Councils 'Development on Bushfire Land Fact Sheet'. the content of Section 3.4.1 Asset Protection Zones (APZs) in WCC (2018) Vegetation Management Guidelines for Development Applications and Unauthorised Works https://wollongong.nsw.gov.au/ data/assets/pdf file/002 3/30875/Vegetation-Management-Guidelines-for-Development-Applications-and-Unauthorised-Works.pdf		
Heat island effect and roofing materials	See attached article. https://lgfocus.com.au/editions/2019-06/heat-study-reveals-climate-change-impact.php Dark coloured roofing materials increase the urban heat island effect in developments. There is a dual effect to this – ambient air temperatures increase, and roof cavity temperatures also increase. I am not sure if there is anything that can be done with the DCP or planning controls to favour light or bright roof colours.	This concept sits within Housing Principles, "Principle 3: Establish Sustainable, energy efficient, appealing and functional residential living". It is not specifically listed. Council is happy top include this consideration.	Housing principle 3 .3 wording added to encourage light coloured roofing. Consider review of DCP Chapter B1. Comments are relevant to a review of B1 Residential Development.



Subjects/ Submission Themes	Submission Comment	Council Comment	Action
Urban form, Pedestrian amenity Yallah, Marshall Mount development Facilitating Housing Density	Concerns the provisions in the document do not adequately facilitate development of small lot housing. Setbacks to large in the plan, no provision for zero lot lines for terrace housing. Concern to road design, YMM vision for town centre promotes walkability and pedestrian friendly environment. Road hierarchy in the plan is predominately focused on cars. Good design outcomes require narrow streets to reduce vehicle speed. Concerns the DCP may not be flexible enough to achieve the vision for YMM.	Small lot housing will be achieved subject to appropriate zones, neighbourhood plans and town centre master planning processes. All Town centres of West Dapto will require further site specific planning prior to development which will need to address the DCP D16 principles such as housing and transport. As for design guidance for small lot housing or 'medium density', while Wollongong DCP 2009 doesn't have detailed guidance for small lot housing at the current time, there is a mechanism in the EP&A regs for the more appropriate design guide to be applied. EP&A Regulations 2000 Part 6, Division 8, Clause 92 (1) For the purposes of section 4.15 (1) (a) (iv) of the Act, the following matters are prescribed as matters to be taken into consideration by a consent authority in determining a development application— (e) in the case of a development application— (e) in the case of a development application for development for the purposes of a manor house or multi dwelling housing (terraces), the Medium Density Design Guide for Development Applications published by the Department of Planning and Environment on 6 July 2018, but only if the consent authority is	Additional wording added to include more of YMM vision content to guide town centre and other precinct planning of the Stage 5 area in Chapter D16.



Subjects/ Submission Themes	Submission Comment	Council Comment	Action
		satisfied that there is not a development control plan that adequately addresses such development. Road cross sections have been developed to encourage slower speeds in local roads, however narrow roads do not always achieve other design objectives (refer Landcom Street Design Guidelines). Minimum width standards also need to be met to allow for garbage & removal truck access, emergency vehicle access (eg fire trucks) and kerbside parking. Problems have arisen in other locations where streets are very narrow (eg Bulli Brickworks site) and the new road cross sections have been developed to avoid these issues. It should be noted that the new road sections incorporate a higher level of footpath and shared path provision than other new release areas (eg Calderwood, Sydney release areas (eg Calderwood, Sydney release areas etc). The verge widths for the new local road cross sections are wider than the current road cross section policy, and for the main local road Type 5, the carriageway width is slightly less than the current policy.	



Subjects/ Submission Themes	Submission Comment	Council Comment	Action
OS Manuals Role of Built environment and Chronic Diseases Encouraging walking for transport Planning for new community health gains	Promoting healthier liveable West Dapto with good access to public open space as green infrastructure. 1. connectivity of streets (more intersections, fewer blocks, walkway shortcuts etc 2. higher number of local living destinations such as parks, public transport, facilities etc Endorses the objectives of the manuals. recommendations to consider: - key indicators to evaluate and monitor open space requirements - prioritise urban design framework (such as precinct plans??) - mechanism for early acquisition for open space - requirement for developers to consult with health and community services and consumers around open space proposals to help ensure they align with healthy built environment principles long-term strategy for timely delivery of open space infrastructure - ensure fresh drinking water in public spaces planting edible landscapes (bush tucker and fruits n veg) best practice of UV protection.	Council considers this very important, particularly to the development of town centres and open space networks. Town centre planning requirements enhanced in draft exhibited to support the creation of healthier liveable communities.	Ongoing project to develop indicators and work with industry and government stakeholders.



Subjects/ Submission Themes	Submission Comment	Council Comment	Action
B2 Subdivision Chapter comments Small lot housing not facilitated Strengthen denied access road controls.	Lot aspect, size and pattern, need for building envelopes for smaller lots - Section 6.5 Road design - clearer around denied access to collector roads (ideally provide a clause and plan/diagram for desired outcome, image example included in submission). DCP (here or in another chapter) needs to provide guidance for studio apartments on rear lanes (fonziflats).	There is need to revisit the DCP to facilitate Small lot housing however the appropriate DCP chapter would be B1. The LEP residential zones through associated controls work to define patterns of density described further in Chapter D16 housing principles (p.43). Subdivision chapter comments have been incorporated where appropriate. The review of B2 Subdivisions was only intended to be minor in view of current practice challenges. Accommodating small lot housing is another issue to be addressed with a Review of DCP Chapter B1 and potentially a future section addition to B2.	Incorporate changes in response to comments made where appropriate. Council will consider next project examining Chapter B1 and update to B2 for small lot housing controls.
B2 pedestrian infrastructure	Chapter B2Section 14 should be corrected to pedestrian blisters or similar, as by definition a threshold (and these treatments) is raised.14.6 - Development Control 9. Safe pedestrian crossing points should be provided at each bus stop by the introduction of non-raised pedestrian thresholds and refuges and in accordance with the requirements of Council.	Comments noted and changes made.	Change incorporated. Retain "blisters and/or refuges".



Subjects/ Submission Themes	Submission Comment	Council Comment	Action
D16 and B2 Coal wash rejects reuse Cut and fill strategies Landform modification	Beneficial use of Coal wash Reject for fill. Inclusions that raise concern with potential to impact metallurgical coal operations within the Illawarra and Wollondilly Regions. In discussion, Beneficial use of coal washery reject, " has multiple benefits" etc.	The Draft documents do not mention coal wash reject material. Cut and fill controls were strengthen based on the review of current practice and staff experience, identified weaknesses and gaps in controls and contemporary understandings of the consequences and the accumulative impacts occurring.	
D16 and B2 Coal wash rejects reuse Cut and fill strategies Landform modification	Inclusions raise concern with potential to impact on future development of 464 Bong Bong Road. In discussion the Certainty in the Land Development Process - "ambiguous policy, with the potential prohibition of land form modification presents significant impediment to development".	Landform modification is already discouraged in the DCP. The wording needed further clarification and staff are now more comfortable with how this would be applied to help meet the original intent, to retain the scenic quality and existing landscape values.	
D16 and B2 Coal wash rejects reuse Cut and fill strategies Landform modification	Changes not supported. Recommends adding a statement to the controls that outlines matters to be addressed to justify landform modification, including visual assessment supported by montages illustrating pre and post earthworks landforms, with supporting civil engineering detail. Landform modification controls should state that cut and fill is supported, if it is demonstrated that the earthworks will not have an adverse impact on the broader visual character of the Urban release areas landscape. Noting that strategic intent is to facilitate residential development. Noted concern to proposed changes in	Council is comfortable that the controls as they are written do not prohibit cut and fill but enlist the applicants to be more considered in design responses and prioritise response to existing landforms rather than to modify it first. This is important for many environmental reasons, and in achieving liveable, sustainable future communities. D16 objectives, and specifically b) is in line with state and federal legislation promoting ESD. This is important to achieving resilient sustainable environments for the new communities.	

Subjects/ Submission Themes	Submission Comment	Council Comment	Action
	B2: Section 5 Topography, landform conservation 5.2 controls B2: Section 8 Cut and Fill Land reshaping works, 8.1 objectives and 8.2 controls D16: Objectives b) and e) D16: Section 6 - Transport 6.1 the road network, Principle 3 - design roads to complement environment "ensure roads fit with the landform (topography), complement local character/ land use and minimise visual, ecological and noise impacts.	Objective e) is important to ensure conservation of ecological communities, heritage values and other existing qualities of the landscape. West Dapto, while it may have contemporary vision for and developing denser urban landscape it is also an existing environment with some current rural use, rich aboriginal and European heritage and unique ecology and must be planned with respect to existing environmental values.	
D16 Transitional arrangements between NP and PP Landower developing draft NP for submission Precinct Areas	 Transitional arrangements alarming, given their current preparation of a Neighbourhood Plan. Propose a time frame to the transitional arrangements. Precinct Planning areas as mapped in the Draft D16 - do not agree with the boundaries. Propose alternative boundary precincts around their landholdings (potentially two precincts along east west boundaries of proponent's properties, largely aligning with West Dapto Rd and decommissioned rail spur. Council to extend discretion re: precinct boundaries and potential consolidation to also include redefining boundaries more generally including making the areas smaller. 	While the proponents draft NP area appears to be smaller than the precinct outlined in the Draft, the landholder intends to submit the Neighbourhood Plan likely prior to the draft DCP reporting for adoption. Council can amend maps to reflect area of NP or advise the landholder to include indicative details for additional properties, encourage additional landholders participation in the neighbourhood planning.	Meeting was held with proponents to discuss their plans. Transitional arrangements have been removed from draft and boundaries for precincts has been placed on hold for re-exhibition. Retaining neighbourhood planning although additional requirements from precinct planning the draft are instated.

Subjects/ Submission Themes	Submission Comment		Council Comment	Action
precinct areas Scope requirements of investigations and studies Water management B2 cut and fill intersection spacing Riparian corridors	 D16 and Precinct Plans Supported. Should allow flexibility to boundaries (when not all owners want to develop) to prevent delays and additional costs. Review precincts so no individual owners property is split between precincts. No vehicle to accommodate staging and collaborating between landowners, and costs borne to 'first cab off the rank' and overly burdensome to the keenest developing landowner. Further clarify what is required in studies for precincts. B2 Further clarification regarding what quantifies and qualifies "excessive earthworks" Request a review of intersection spacing distances, its unclear what is required. Water management includes unnecessary infrastructure (with ESAs), WSUD and road design not recommended as results in large number of small assets to maintain. Riparian corridors - changes need to be accounted for in analysis of flood plain storage. Enhancements could work to change manning values and hence flood storage in creeks. 	3 4 5	Council has identified a need for more leadership in this space following review of previous Plans, the processes followed and the role they played in facilitating development. Council is happy to revisit the precinct boundaries so long as there is similar logic in aligning properties and sub catchment boundaries. Council considers this to be a key challenge and one that needs more leadership. still considering the resources for council to provide more solutions here (councils pilot site etc). These requirements will vary from site to site on the scope for studies depending on constraints and strategic plans (such as West Dapto Vision 2018). The regarding cut and fill has been reviewed and additional objectives have been added to clarify intent. Controls under 14.2 are referring to intersections between LOCAL roads in a subdivision, ie. Road Types 5 to 8. Road junctions within subdivisions are usually simple T -junctions and not controlled with roundabouts or signals. Section 14.8 talks about Roundabouts and road junctions, ie. those that are more significant than local subdivision	Workshop on 24 oct for precinct response. Respond to "excessive works" by combining section 5 and 8 of Chapter B2 to link the feature (landform) with development action (cut or fill response). Re-exhibition is planned after revisiting precinct boundaries and the defining process. Intersection distances reviewed, an additional graphic to support content included.

Subjects/ Submission Themes	Submission Comment	Council Comment	Action
		intersections, and it specifies distances between access (local) roads and COLLECTOR roads, which is different to that in 14.2.	
		 7 This is also relevant to the Contributions Planning and the Mullet Creek Flood risk management study and Plan occurring. The water management assets planning in the release area will be subject to the outcomes of the before mentioned review projects. 8 Works in riparian corridors subject to E23 not all of which can be engineered to increase water storage performance. Their functions are not 	
D16 Review	Provide 5 key recommendations — 1 Council clarify whether the planning principles in the West Dapto DCP must be addressed in development applications. 2 The West Dapto DCP be revised to ensure the objectives reflect an appropriate balance between housing delivery and environmental protection. 3 Delete references to draft/unfinished policies including risk-based framework for stormwater management and biodiversity conservation strategies. 4 Dwelling density controls be minimums only and increased to align more closely with Landcom (2011)	for floodplain storage alone. 1 Council to review the chapter with application at DA in front of mind. 2 There is a definite need for balance, and in striving for balance there has been identified a need to strengthen some controls in our known problem areas such as landform modification and cut and fill in B2 amendments. 3 The risk-based framework approach is not draft policy (although the mullet creek plan is not yet complete). The approach is formal and applied state wide. As for the Biodiversity Conservation strategy, Council has	Review D16 in terms of DA application relevance. Double check Conservation principles for BCS language updates if relevant with council application. Internal workshop for potential concept DA solution to challenges with



Subjects/ Submission Themes	Submission Comment	Council Comment	Action
	gross residential densities and Sydneys Growth Areas. 5 Replace the requirement for Neighbourhood Plans by including all higher order planning layers in the West Dapto DCP now, and requiring all initial development applications to be Concept Development Approvals.	formally adopted to progress, has been working with OEH and has submitted its application for Biocertification. To omit this information would not be consistently representing Council or NSW Government's formal position. 4 Densities are controlled through the LEP minimum lot sizes and FSR. Agree this could be reviewed in context of release area work but not a DCP issue alone. 5 This was initially considered in Feb 2019. Internal stakeholders felt this was to risky at that point in time. Through EP & A Act 4.22 Concept DA approach has merit. this will be discussed in a workshop held on 24 October.	Neighbourhood Plans.
Flooding and water quality	Detailed comments relating content for flooding, water quality and general of water principles.	Council reviewed content and made minor changes to align with comments made.	Comments and suggested changes incorporated where required.



Submission comment

1. The street frontage requirements-

The street frontage requirements for both the District Park and local park, make the incorporation into contiguous open space areas very difficult. We would recommend flexibility in the wording to require at least one frontage to be a public road, with a desire for more, but not make it a "must" have.

2. Fencing off parks and open spaces

The need to fence off parklands can be a huge expense / cost burden for limited return.

Fencing should be limited to very selected areas and only if deemed absolutely necessary.

3. Passive facilities

The neighbourhood park description provides a comprehensive range of facilities, including active and passive recreation.

It would be helpful to have more clarity around the exact extent of the passive facilities.

- 4. **Lighting**: There is a considerable difference in cost to training vs competition standard lighting. This would be useful to clarify.
- 5. **Field sizes:** The field sizes nominated are at the top tier end of the size scale most suitable to A grade / professional grade sport.

It also requires very large sites. Any constraints on shape and area could make it difficult meet as it has on our site.

Potentially it could possibly have a range of sizes rather than an absolute size provisions.

6. **Sports field Turf:** Guidance should be given on sports field media depth to assist with design and costs.

For an active sports field, the turf underlay make up and depth will be quite different to amenity turf depth shown on page 65 of the technical manual. Suggest you add a sports turf section to the technical manual.

Flexibility of use is important as is the option to subdivide full size fields to a range of younger age groups.

The department of local government, Sport and Cultural industries WA,

Council comment

- 1. We disagree with this suggestion. The Manual requires '75%' road frontage ie. 3 sides minimum for Neighbourhood Parks. This allows connection with contiguous open space (eg Riparian or Natural Areas). Local Parks are required to have 4 frontages for CPTED compliance.
- 2. In the Local Parks reference in the manual there is no requirement for fencing, other than if a playground is too close to a road frontage. In Neighbourhood Parks fencing is only required to define entry points for maintenance and emergency access. In Natural Areas there is an existing and ongoing problem of illegal vehicle entry, which leads to erosion, tipping, weed entry, etc, so there is a definite requirement for vehicle control on the perimeters. The most effective form of vehicle control in these situations is a vehicle barrier as specified in the Technical Manual.
- 3. The examples of passive facilities in the Design Manual are intended to indicate the range of improvements that are required to be considered, not necessarily all provided.
- 4. The requirement to provide competition or training lighting will be an issue to be specified during design development.
- 5. The field sizes specified are drawn from standard sized fields (not professional or A Grade only) as per the Transport Canberra and City Services Design Standards for Urban Infrastructure and are a requirement.
- 6. Agreed, item will be added to Technical Manual.
- 7. It isn't possible to provide a rough guide as each context is different depending on the design of the subdivision and amenities provided. There is a need for the developer to undertake an assessment of future parking demand.
- 8. Agreed. Reference is made to this issue in 'Sports Field Requirements'
- 9. Agreed. Scoreboard reference will be deleted.
- 10. As detailed in the Design Manual, change facilities are required subject to an assessment of potential demand.
- 11. Reference to Wind Shelters in the Manual is referring to the integration of wind break tree planting.
- 12. Agreed, as per Point 6 above.

also has a good range of sporting amenity sizes.

https://www.dsr.wa.gov.au/support-and-advice/facilitymanagement/developing-facilities/dimensions-guide

- 7. Car park spaces: While each facility would need to review the likely car parking demand, is it possible to provide rough guide to assist in space allocations?
- 8. Water Supply consider opportunities to reduce council's potable water demand by use of on site stormwater and other measures
- 9. Scoreboards not usually necessary can it be reconsidered?
- 10. Public Amenities / Change Facilities may not need to provide change and shower facilities as often not used.
- 11. Wind Shelters are they mandatory?
- 12. Reference to Sports Field Turf as per point 6 above.
- 13. E2 Bushland Zones Clarify reason for fencing requirements is it for pedestrians, vehicles, predators, etc?
- 14. Fencing Query as per point 2 above, and requirement for F2 fencing
- 15. Riparian Corridors WCC requirements appear to conflict with Water NSW guidelines with regard to issues such as corridor widths and the priority of community and recreational benefits.
- 16. Riparian Zone limited recreation and amenity provision no permanent works shown within the corridor, no allowance for offsetting, no third order stream catered for, APZ constraints.

- 13. As per Point 2 above. 14. As per Point 2 above.
- 15. WCC adopted DCP E23 lists the requirements applicable.
- 16. Agreed, changes have been made to the Design Manual.

- 1. Page 6 general principles creating opportunities for green walls, and green infrastructure as well as blue infrastructure...
- 2. Page 8 reference to S94 is no longer the right legislative reference. Replace with Development Contributions Plan
- 3. Incorporating heat refuges for people and ecology (page 10?)
- 4. Utilising light and natural colours for pavements and surfaces to reduce heat absorption (page 10?).
- 5. P16 Natural areas planning for its primary ecological functions animal habitats and breading supports,

fauna crossings, supporting experiential education and restricting access to sensitive receivers etc.

- 1. This issue is covered in detail in DCP Chapters E13 and E14 and these chapters are referred to in the Design Manual, we feel this is sufficient.
- Noted and changed.
- 3. Urban Greening references and repeated requirements for shade tree planting in the Design Manual address this issue.
- 4. Agreed, in the Design Manual a reference to lighter colours in pavements will be added in Section 5.4. and the Technical Manual already states that WCC would consider other colours.
- 5. Agreed, we will clarify in Section 4.0 that the primary need for application of CPTED principles is adjacent to pathways, and pathways are kept to the perimeters, which will encourage and allow the development and protections

6. P17 CPTED – this is already its own DCP chapter with higher ranking than a manual. Maybe referencing this here only.

Also this concept is at odds with the intent of biocertification and prioritising the structural improvements to ecological functions in much of the release areas E2 and E3 lands.

7. P25 promoting green infrastructure, heat refuges and planting for connected canopies.

of appropriate habitats.

- 6. Agreed, the Design Manual can reference that chapter. Regarding the comment of CPTED being at odds with ecological needs, see point 5 above.
- 7. Agreed, this is already addressed in Section 4.3 Urban Greening Strategy Objectives

The overall approach to open space management represented in the Technical Manual and Design Manual falls short of robust protection and enhancement of the area's ecology.

Points of particular concern are: failure to address the acute threats posed by urbanisation to the area's Ecological Endangered Communities, and to individual threatened faunal and floral species; failure to appreciate the need for some of our more vulnerable natural areas to be protected, short term or long term, from human recreational activities, and vandalism; failure to provide for native groundcover and mid-storey vegetation.

- Maximising the use of local native species for our street and open spaces trees has unique benefits, not least the preservation of local biodiversity. Local natives would provide botanic connectivity with our bushland remnants and the Escarpment, thus more strongly augmenting, in quality and quantity, local biodiversity and wildlife habitat.

The Design Manual has been revised with regards to: inclusion of additional local native trees, revision of some of the exotic species included. An email response was sent.

Street Trees

- 1. The requirement to install trees "after 80%" construction is confusing. Does this mean road and infrastructure or housing construction, as with downturn in housing market, you may not have street trees installed for 5 years? This would then need to be a bond for Council to install them. I have assumed you mean 80% of developer subdivision contract works. I would prefer trees were the very last thing to go in.
- 2. Tree guards around street trees are not specifically mentioned, though the guards on Paynes Road are illustrated in the design manual. The original requirement of 4 posts was a condition of DA. We found that as the posts would need to be installed without concrete (any future removal due to knocks to posts would damage tree roots), we
- 1. Design Manual adjusted in Section 4.3 to include "80% of the dwelling construction".
- 2. Agreed, Technical Manual will also have a tree guard detail added to cover Village and Town Centres where needed.
- 3. As tree planting occurs at 80% of construction of subdivision, and the street trees are bonded, there is no need in normal circumstances to install a guard, and therefore the Technical Manual shows a detail without a guard.
- 4. Agreed, the Technical Manual will include a comment in the tree planting details to allow for staking and tying of trees where approved by the project arborist due to severe site conditions.
- 5. Agreed.
- 6. Agreed, comment added to Design Manual Section 4.3.



needed to cross brace these with a rail.

3. Street trees planted in front of areas such as open space reserves, detention basins, natural areas, sports fields, may only need 2 posts to limit car door damage and pedestrians (2 perpendicular to kerb in line with tree) (or 3 in a triangle where planting width is narrower than 1200)

whereas street trees planted where there are residential lots and building contractors would need minimum 4 and a cross brace.

- 4. I am not sure what you could recommend if street trees need to be planted in August. Due to winds, staking of trees on windward side with ties at several places along the trunk would limit the snapping of trunks that we experienced, or 200 litre trees totally blowing over.
- 5. I note minimum street tree size is now 100 litre (p26 Design Manual). I applaud this as the 200 litre street trees we have installed at Sheaffes Road have been damaged by house construction. The larger size hasn't made much difference to the percentage of damage to trees. I would only go larger where there is no adjacent residential lot and the developer wants a more significant statement (adjacent parks, drainage reserves, sports fields, etc).
- 6. Street Tree planting in subdivisions is rarely in natural soil as the developers are balancing their cut and fill. Adjacent trenches are often backfilled with clay soils after services so there is often not more than a100mm site topsoil layer in most of the footpath at all. I am not sure if there is a detail you would draw to show street trees planted in clay fill? On one site that was very rocky I detailed a street tree trench full of topsoil but with lesser quality topsoil away from the tree pit itself.

At least the roots would venture along the strip and hopefully not under the kerbs.

- 7. You have no root barriers shown in the details?
- 8. From my experience, trees are routinely installed over water mains which are 600mm deep. We installed a root barrier along the top of water mains where we had 200 litre trees in 500 deep bags sitting directly over services. I am not sure how effective this will be in the long term.
- 9. In some cases, at Sheaffes Road we had only 725 from back of kerb to

- 7. Advice from our WCC Urban Greening Team is that root barriers are not normally preferred. The one instance where we will add a shallow root barrier is adjacent to footways, and a note as such will be added to the Technical Manual.
- 8. WCC specifications do not recommend any planting of trees over water mains.
- 9. Road cross sections specified in the latest DCPs allow for a minimum of 1200mm between kerb and footway / shared path, so we don't see the need for a special detail of a longer pit.
- 10. Agreed. Technical Manual section shows 1200 from back of kerb, however, a change can be made to the DCP cross sections to reflect this as well.
- 11. At this time the specification for soils in the Technical Manual is that they must comply with AS4419, and at this stage we are happy to keep it with this reference.
- 12. Agreed, the reference in the Technical Manual will be adjusted to specify 'hardwood chip' due to the windy conditions often present.
- 13. Edges Comment Design Manual specifies the need for a masonry edge to mass planting beds.
- 14. The need for paths will depend on the individual situation, however, the preference for path placement if needed is to locate them at the top of banks.
- 15. The Design Manual includes requirements for design in general terms there may be individual cases where these requirements will need to be reconsidered at the time of subdivision / drainage design.
- 16 Reference to an irrigation system in some cases is agreed, but we don't see the need for a policy on this issue as it will be a design consideration for the individual sites.
- b. Agreed, Sports Field Turf detail has been added to the Technical Manual.

edge of footpath where we had cycleways. (This is the case in the photo on page 26 of the design manual.) In this instance I increased the tree pit length to 3m and used a smaller tree. This will happen in lots of other instances in West Dapto where there is a shareway, so maybe a detail requiring a longer trench would be helpful.

- 10. Where the footpath is located 1200mm off the kerb, it is usually assumed by engineers to be the face of kerb as that is the edge of the width of road and start of the "verge". Tree planting grassed strip is often then only 1050mm wide and includes subsoil drains and some compacted road base extending beyond the kerb. So, detail showing 1200 width in reality is likely to be less than 1200mm.
- 11. It may be useful to reference you topsoil requirements for street trees to the "Soils for Landscape Development" specification by Simon Leake and Elke Haege (CSIRO 2014)?
- 12. Mulch I have found the "Eucymulch" style mulch blows away less than the "Hortbark". The contractor topped up an area of mulch with hortbark and it was almost all gone is 24 hours. I'm not sure how that equates to the "hardwood" mulch you have specified on p48 design manual.

13. Edging in Basins

Could you clarify where masonry edging is required? P48 design manual. Where a planted basin bank joins grass, we added some where the banks joined a "park", but then extended it to include all grass areas. Where banks joined grass at base of basin or along grass swale, we used no edge. I assume there will be lots of other basins in West Dapto, and this may crop up.

14. Basins

I didn't find any guidelines on paths in basins? We had to put a path through the SE basin as the volume of the basin extended into the EEC area. We didn't in the northern basin. Is it something you will leave to individual cases?

15. Drainage swale

We have a riparian swale that was fully planted but will need to be retrofitted with a rock base as the planting is washing out. Guidelines in the riparian section may be useful? (This may be an engineering decision rather than landscape?).

16. Sports field Construction

a. The ACT manual mentioned includes irrigation. We were advised not to include irrigation, but to include subsoil drains. It would have been very little additional cost to include an irrigation system at the time of installation of drains, and some contractors tendered to include it, as it would have been useful to establish the grass. Sports fields in the Inner west of Sydney are being retro-fitted with irrigation and watered with grey water. I'm not sure if that is a possibility in new areas like west Dapto? I note you have "explore options" in the Design Manual. Could there be a policy on this? b. The soil for a sports field is very expensive, but not specified in the ACT guidelines. We have used the C2 "Active High Traffic Turf" Soil Specification from "Soils for Landscape Development" by Simon Leake and Elke Haege (CSIRO2014). A higher use oval would need a C3 specification but I'm not sure you will have these in West Dapto?

ISLHD strongly endorses the objectives and elements of the West Dapto Open Space Design Manual and Technical Manual, including the requirement for:

- High priority on open space planning by developers with an interconnected network of open spaces
- Ensuring the distribution and type of public open space is within reasonable distances of houses and workplaces
- Providing a flexible network of public open spaces to support an increasing diversity of activities ranging from passive enjoyment to formal sport and active recreation
- Designing for a series of well-located and accessible parks and public open spaces that provide for the desired range of recreation opportunities and catchment sizes

All points made are agreed with.

- Agreed, however for this to be possible there is a need for a revision of the 2007 West Dapto Social Cultural and Recreational Needs Study to confirm number and type of sporting and recreational facilities required. Also coordinating Precinct/Neighbourhood Plan for each precinct in the WDURA.
- 2. Agreed there is a clear need and benefit for Neighbourhood Plans to be formulated by WCC.
- 3. Agreed, see above comment.
- 4. Agreed, but unclear how this would be arranged.
- Agreed, this would be addressed by the revision of the Needs Study and precinct plan creation as noted above.
- 6. Agreed, this connectivity is already a key requirement in the Design Manual and could be a factor of the Neighbourhood Plans proposed.



- Identifying borders, riparian corridors, lanes and service corridors as supplementary open spaces that provide a range of opportunities for connection to nature
- Ensuring that any land proposed for recreation use is fit for purpose, high quality and with good amenity
- Ensure sustainable ongoing maintenance costs and achieving long lifecycles.
- Prioritising use of natural shade by considering existing mature vegetation and planting advanced stock of suitable trees to provide future shade
- Application of Crime Prevention Through Environmental Design (CPTED) principles

The following recommendations aim to increase the health gains of the new communities' use of open spaces. Consider:

- 1 Consider implementing a robust set of key indicators in order to evaluate and monitor the delivery of open space requirements –
- 2 Prioritise an urban design framework for a strategic overview to ensure the objectives can be achieved. The diversity and number of landowners in West Dapto provides many challenges to connectivity, open space and town centres. Larger scale planning would minimise cross boundary issues.
- 3 Consider a mechanism to ensure sufficient early acquisition of land areas for efficient provision of open space and ensure investment is targeted where needed.
- 4 Include a provision requiring developers to consult with Health and community services and consumers to ensure that their open space plans align with healthy built environment principles and offer the greatest opportunity to promote physical activity.

- 7. Agreed, requirement incorporated into Design Manual and Technical Manual.
- 8. Agreed with regard to fruit trees and bush tucker plants reference can be added to the Design Manual.
- 9. Agreed, already an important consideration in the Design Manual.

Submissions to Open Space Design Manual and Technical Manual

- 5 Ensure a long-term strategy to oversee the timely implementation of open space infrastructure.
- 6 Linking with the Regional Walk Alliance which has been recently formed with the four Councils of the Illawarra and Shoalhaven, ISLHD and the National Heart Foundation. This could support the proposed 'best practice' solutions to the new developments by setting and achieving a 'walkability' target for West Dapto.
- 7 Ensure fresh drinking water is available in all public spaces. Access to water via refill stations is important in this environment.
- 8 Plant edible landscapes (e.g. fruit trees and bush tucker plants) on public land, riparian corridors, and parklands to increase exposure to fruit and vegetables.
- 9 Developing best practice of UV protection for facilities in outdoor areas such as sporting grounds, playgrounds and parks.

Graham Burgess- National Parks Association (NPA) Open space Manual

National Parks Association (NPA) Illawarra Branch take an active interest in urban developments near the Illawarra escarpment and those which may impact on remnant bushland on the coastal plains, particularly those that provide any opportunity for biodiversity corridors linking to the escarpment. The West Dapto development is very much an example of this.

1. We note pages 44 and 45 of the draft West Dapto Open Space Design Manual has a section on "Trails" for walking, on-trail cycling and off-road cycling. We support the need for an active community and trails should be provided to encourage this. A mixture of on-trail and off-road cycling may well be able to be incorporated into the area and we note the Design Manual refers to requirements of "The Australian Mountain Bike Trail Guidelines for trail planning, design and construction" but we are concerned there is nothing said about the likely need to prevent, police and reinstate illegally formed trails and the associated costs.

Agreed.

WCC intends to manage all mountain bike trails created through the subdivision design process, including the management of illegal trails. Regarding the image that includes a bike with a racing number, this was illustrative only as WCC agrees that bike racing is not appropriate in riparian corridors, and the image will be replaced.

Submissions to Open Space Design Manual and Technical Manual

The creation of illegal trails is a common problem in many places where urban development is close to bushland reserves.

This has become a big problem at Helensburgh and Heathcote for example. At first a somewhat blind eye is turned by Council or other landowners.

then in time the problem becomes so large it is near impossible to manage with vast areas of bushland destroyed.

We also submit that the photograph on the bottom right of page 45 in the Design Manual, which shows a mountain bike rider on a single trail with racing number attached, sends the wrong message in this document. There is no way the riparian corridors of West Dapto should ever be turned over to mountain bike racing events.

- 1. Is there possibility to include the easement in active transport infrastructure? There are great examples in Perth.
- 2. I am concerned that the focus on turf over mass plantings in local parks will create a high irrigation and mowing burden and be a lost opportunity for increasing native groundcover like the woody meadow in Melbourne or Harold Park landscaping in Forest Lodge Sydney.
- 3. Could provisions be made for dead or dying trees to be retained and arborists cut hollows in them?

Technical manual

- 4. Indicative tree species list
- seems that the "with additional species as recommended" proviso negates the tree species list. I support the stated aim of a preference for local native species. Street trees indicative list 5, would like more natives.
- 5. wonder if there should be delineation between the large species are best suited to open spaces and nature strips eg Coachwood or Brushbox suited to the former.
- 6. Will Council's Natural Areas team, experienced Botanic Gardens staff and native vegetation experts be consulted to further develop this list?

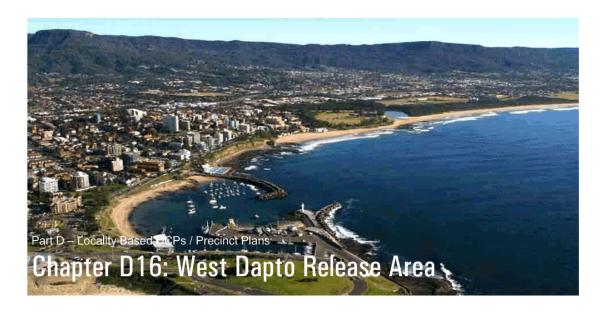
- 1.Yes, the easements across the release area will be utilised for active transport. There may be preference where possible to underground easements, but when not possible, alternative uses such as active/public and generally other transport network connections will be prioritised.
- 2. The Design Manual will include a reference to the use of native grasses in Section 4.0.
- 3. Agreed. The Design Manual includes requirements for habitat trees and associated vegetation communities to be retained and protected in Natural Areas (E2 and E3 Zones)
- 4. The indicative tree species list includes a reference to other species that will be considered as recommended by WCC Parks and Open Space Manager, which seems appropriate as additional species are under consideration by that group.
- 5. Appropriate mature sizes of species used is an important issue. The indicative species list is intended to be a starting point only, and ultimate size of trees specified will need to respond to individual sites.
- 6. Yes, other Council teams have input and were consulted.
- 7. All DA submissions are required to be prepared by Landscape Architects and are reviewed by WCC tree experts within the design team.

Submissions to Open Space Design Manual and Technical Manual

- 7. How is it ensured that the final planting choices need to be informed by people that know where a particular species is suited to the local conditions?
- 8. Can Council require a bond for landscaping that is refundable once the plantings are established?
- Object to listing of species that are known weed species at local bushcare sites like Acer Negundo 'Sensation' and Ulmus parvifolia 'Todd' Chinese Elm
- 10. Worth including many more natives such as PEGS Planchonella, Eleodenfron australe, Guioa semiglauca, Streblus plus Alectryon subcinereus, Toona ciliata, Celtis paniculata, and Pouteria australis.
- 11. How fire safe is fibre reinforced polymer? I have heard that the plastic burnt during the Royal NP bushfires and left lots of fibre debris.
- 12. The recommended turf can become a bushland weed, so should be confined and separated from plantings of native vegetation where possible.
- 13. Bin post mount could be made a double to enable public place recycling bins to be installed.
- 14. Garbage bin enclosures should be specified as recycling and landfill, with the lid shape differentiated.
- 15. Bike rings are currently being installed on parking sign poles throughout suburban centres. Could they be included or would that be dealt with elsewhere in the town centre design?
- 16. Would the same amenity, safety and function be achieved if recycled concrete and brick aggregate was used for pathways?
- 17. Could the tree planting specifications be improved to increase passive irrigation? Such as provided in these examples? https://waterbydesign.com.au/news/water-wise-street-trees

- 8. Yes, this is currently applied.
- 9. The Dept of Primary Industries Weed wise website does not list these species as weeds, and as they are both developed cultivars, the risk of them becoming weeds is negligible, therefore at this stage, these species can be retained on the list.
- 10. Agreed, these species have been added.
- 11. It is known that the fibre reinforced polymer will melt in fires, wooden structures will burn, and metal will degrade, warp, and discolour, so in a hot fire any structure will need to be repaired or replaced, no matter the material of construction.
- 12. Agreed.
- 13. Agreed.
- 14. Agreed, comment will be added to the Technical Manual.
- 15. Agreed.
- 16. This is possible if the material size meets safety specifications.
- 17. Agreed, this reference will be included in the Technical Manual.





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Document Control Document ID: Wollongong DCP 2009 - D16 West Dapto Release Area Rev No Adoption **Revision Details** Date date 14/12/10 17/12/12 1 Adopted 2 27/7/11 3/8/11 Incorporate Shone Ave Neighbourhood Plan 3 26/11/12 8/12/12 Update Wongawilli North Neighbourhood Plan 4 27/5/13 1/6/13 Incorporate Sheaffes Rd Neighbourhood Plan 5 9/12/13 14/12/13 Incorporate Reddalls Rd Industrial Neighbourhood Plan 6 24/3/14 2/4/14 Incorporate Darkes Rd South West Neighbourhood Plan and updated road network diagrams 7 3/8/15 12/8/15 Incorporate Avondale Road North, Huntley Neighbourhood Plan 8 24/8/15 9/9/15 Incorporate Shone Avenue / West Dapto Road Neighbourhood Plan 9 19/10/15 24/10/15 Incorporate West Dapto Rd / Sheaffes Rd (south) Neighbourhood Plan 10 Draft May 2018 20/12/2018 11 19/11/18 Incorporate Bong Bong South Neighbourhood Plan 12 10/12/18 20/12/2018 Incorporate the West Dapto Vision, Structure Plan 2018 and planning principles 13 9/12/2019 XXXX Whole document review and restructure



Chapter D16: West Dapto Release Area

1 INTRODUCTION

This chapter of the Wollongong Development Control Plan 2009 (DCP) is intended to provide structure and guidance for the future development of the West Dapto Release Area. It is aimed at achieving the vision for West Dapto which is:

West Dapto will grow and develop as a series of integrated and connected communities. Set against the spectacular Illawarra Escarpment and a landscape of riparian valleys, these communities will integrate the natural and cultural heritage of the area with the new urban form.

The communities will be healthy, sustainable and resilient with active and passive open space accessible by walkways, cycleways and public transport. To support these new communities, local centres will provide shopping services, community services and jobs while employment lands will facilitate further opportunities for the region.

West Dapto will be supported by a long-term strategy to oversee the timely implementation of infrastructure to deliver sustainable and high-quality suburbs with diverse housing choices.

Other parts of this DCP continue to apply to the West Dapto Release Area in conjunction with this chapter. Part A of the DCP contains the Introduction and Part B Land Use Based Planning Controls. Part C provides Specific Land Use Controls and Part E General (City Wide) Controls.

This document is set out around groups of planning principles. The principles are designed to outline expectations around elements for consideration while planning for development of the West Dapto Release Area. The principles, objectives and any applicable controls will guide the growth of new suburbs and neighbourhoods, protect the environment and integrate with existing communities.

2 LAND TO WHICH CHAPTER APPLIES

This chapter applies to all land within the West Dapto Release Area (Figure 1).



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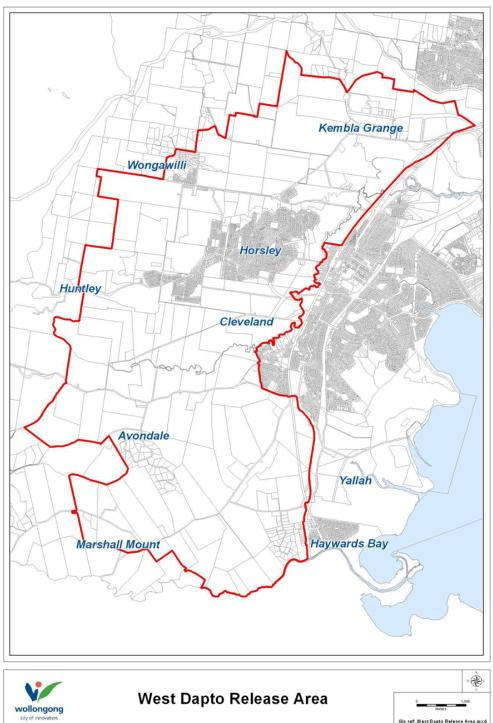




Figure 1. West Dapto Release Area



Chapter D16: West Dapto Release Area

3 OBJECTIVES

The objectives of this chapter are to:

- (a) enable the development of the West Dapto Release Area for residential, employment, industrial and environmental conservation areas in a manner consistent with the Wollongong LEP 2009 the West Dapto Vision 2018 and the West Dapto Structure Plan (Figure 2).
- (b) ensure the development of the West Dapto Release Area is carried out following the principles of Ecologically Sustainable Development, promoting retention and enhancement of the release areas unique environmental features to shape desired future urban setting outcomes.
- (c) support the provision of safe and efficient road networks that promotes long term sustainability and active transport, with public transport services which link the surrounding areas to and throughout the release area.
- (d) implement Water Sensitive Urban Design (WSUD) for effective water management and protect development in the area from flooding.
- (e) recognise existing environmental and landscape qualities and establish future urban characteristics desired for and shaping the ongoing development of the release area.
- (f) protect, conserve and enhance riparian and environmentally sensitive areas and only allow for development compatible with the conservation values of these areas.
- (g) protect areas of high scenic value, notably the Illawarra Escarpment and Lake Illawarra with developments that contribute and promote the areas visual and aesthetic values.
- (h) conserve and enhance the environmental, cultural and built heritage of West Dapto.
- guide the development of open space to meet future community needs and facilitate a network of open space connected by off road cycleways and shared paths throughout the release area.
- (j) ensure that development in the Darkes Road, Bong Bong and Marshall Mount town centres contributes to the creation of retail, business, commercial and community hubs and provides significant local employment and community service opportunities.
- (k) provide village centres with localised businesses and higher density residential opportunities at key places / intersections were bus stops, community facilities and open space come together as local urban focal points.
- ensure the community social and cultural needs are met through the provision of a range of community facilities across the release area (co-located with other facilities in 'hubs', creating urban focal points).
- (m) guide planning and development of well-located schools, childcare centres, and adult education facilities to support the community educational needs.
- stimulate diversity in development types and styles to provide a range of different dwellings to increase housing choice and design quality in the Illawarra region.
- (o) ensure the creation of safe, secure, liveable and resilient urban environments are established considering future climate and other potential environmental vulnerabilities.
- (p) improve employment opportunities and economic growth in the Illawarra region whilst ensuring that commercial and industrial development is of a high design standard, ecologically sustainable and energy efficient.



Chapter D16: West Dapto Release Area

4 STRUCTURE PLAN

The West Dapto Structure Plan (**Figure 2**) shows the landuse setting which will house the future urban structure and guide the development of the release area.

It is characterised by a series of residential precincts estimated to generate around 19,500 dwellings. The precincts come together to form five distinct stages, separated by riparian corridors connecting through the release area from the Illawarra Escarpment framing the western extent to Lake Illawarra in the east. The release area will also include protection and integration of heritage landscapes and items into the urban structure.

The West Dapto Structure Plan identifies:

- Town and village centres
- Conservation land
- Heritage items and potential curtilages
- Transition land (environmental constraints exist but may be appropriate for some appropriate developments)
- Development land
- Employment land
- Large open space facilities (neighbourhood parks 2-5 ha, and district parks 5-8 ha)
- Structural road network
- Creeklines and flood extents (1% AEP)

The Wollongong LEP 2009 has Stages 1 & 2, a portion of Stage 3 and all of Stage 5 of the release area zoned for existing and potential residential development (see **Figure 3**). There is also 175 hectares of employment land zoned at Kembla Grange (in Stage 1, see **Figure 3**).

Stage 1 and 2

Stages 1 & 2 are located in the northern extent of the release area (Figure 3). There are a number of unique features to these stages of the release area including:

- Potential development of around 6700 dwellings.
- Employment land (industrial zones) located within close proximity to Unanderra light industrial area and well connected to Dapto Regional Centre along the Princes Highway, the Port of Port Kembla and the M6 Motorway.
- South of the employment lands will be home to Darkes Town Centre with approximately 7500m2
 of commercial/retail floor space providing for a range of shops and services as well as community
 facilities and active open space for community recreation.
- Protection and rehabilitation of riparian corridors and conservation areas (vegetation and heritage
 conservation depending on site features and opportunities) to improve water quality, recreational
 opportunities and connectivity of remnant vegetation along these structural spurs through the
 release area.
- Structural road network that will connect from outside the release area, through Stages 1 and 2 and into the southern reaches of the release area.
- Active transport facilities (cycleways/shared paths) connecting residential areas with open space provisions via riparian corridors and along the structural road network.
- Two village centres (Wongawilli and Jersey Farm) that will provide local convenience shops and urban focal points within the residential areas of Stage 2.
- Two primary schools, one located close to the Darkes Town Centre and one located in the Wongawilli/Jersey Farm Road area to service the future residential families.
- Bong Bong Town Centre, at the southern extent of Stage 2 on the south side of Bong Bong Road will provide retail needs, local services and community facilities with employment opportunities in



Chapter D16: West Dapto Release Area

the local context. It will be the urban focal point supporting opportunity for denser housing products located convenient to public and active transport links.

Stage 5 or Yallah-Marshall Mount Precinct

The vision for the Yallah-Marshall Mount Precinct is to create a vibrant, compact, environmentally sustainable village atmosphere. The precinct will be centred around a compact, walkable village centre reflecting low carbon footprint principles. The Yallah-Marshall Mount precinct will utilise traditional urban design principles, with relatively high densities around the town centre and concentrated along the main access roads. The precinct will have a diverse range of housing types and densities.

The bulk of higher density development will be focussed around the proposed village centre, with opportunities for small lot housing along the main transport links through the precinct. The fringe areas will contain rural and rural-residential development. The aim is to have the new community focussed on transport links, rather than a 'blanket' of suburbia. The desire is to have a variety of housing types and styles to provide for a wide diversity in population, allow for increased "ageing in place" opportunities and make an interesting urban environment. The biodiversity corridors and Duck Creek will be significant attributes of the new community, with the escarpment as a visual backdrop.

Yallah-Marshall Mount precinct is characterised by:

- Potential development of around 4,000 new dwellings.
- Marshall Mount Town Centre comprising approximately 3,500 sqm floor space in a traditional main street format to provide for retail shops, local convenience needs, local services, community facilities and the like.
- Connection of the precinct into Avondale and Cleveland, with access via an extension of Yallah Road (Road No. 8) as part of the overall West Dapto road network.
- Protection of significant vegetation and unique landscape features of the area.
- Utilisation of Duck Creek as a focal feature of the community.
- A primary school located near Marshall Mount Town Centre to meet the educational needs of the future residential families.

Stages 3 & 4

Stages 3 and 4 are located in the existing rural suburbs of Cleveland and Avondale, in the middle of the release area south of Horsley and well connected to Dapto Regional Centre to the East via Fowlers Road into Cleveland Road. Part of Stage 3 has been rezoned and combined with the remainder of Stage 3 and 4 will ultimately include:

- Potential development of approximately 8,800 new dwellings.
- Community facilities including a district level recreational centre and youth services facility.
- Two primary schools meet the educational needs of the future residential families.
- Three well connected village centres (Fowlers, Huntley and Avondale) that will provide local convenience shops and urban focal points within the residential areas.
- Unique Mullet Creek Catchment environmental features providing the riparian corridor spur supporting and defining the surrounding urban form.
- Structural road network that will connect from the southern extent of Stage 2 at Bong Bong Town
 Centre down to the southern extent of Stage 4 and into Stage 5 of the release area. There will
 also be road connections spanning from Dapto Regional Centre into the release area along the
 east, branching into the village centres supporting surrounding residential development.
- Active transport facilities (cycleways/shared paths) connecting residential areas with open space provisions via riparian corridors and along the structural road network.
- High School and primary school facilities for the future population of the stages. Ideally the School
 will be located near Bong Bong Town Centre (in either Stage 2 or 3) to create a relationship with
 the town centre and provide education services for the future children and youth population
 residing between Stage 1, 2 and 3 of the release area.



Part D – Locality Based DCPs / Precinct Plans Chapter D16: West Dapto Release Area

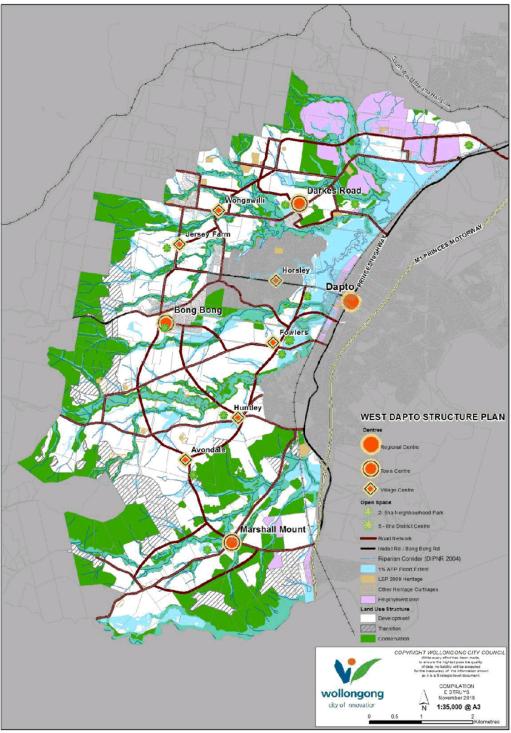


Figure 2. West Dapto Structure Plan 2018

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Part D – Locality Based DCPs / Precinct Plans Chapter D16: West Dapto Release Area

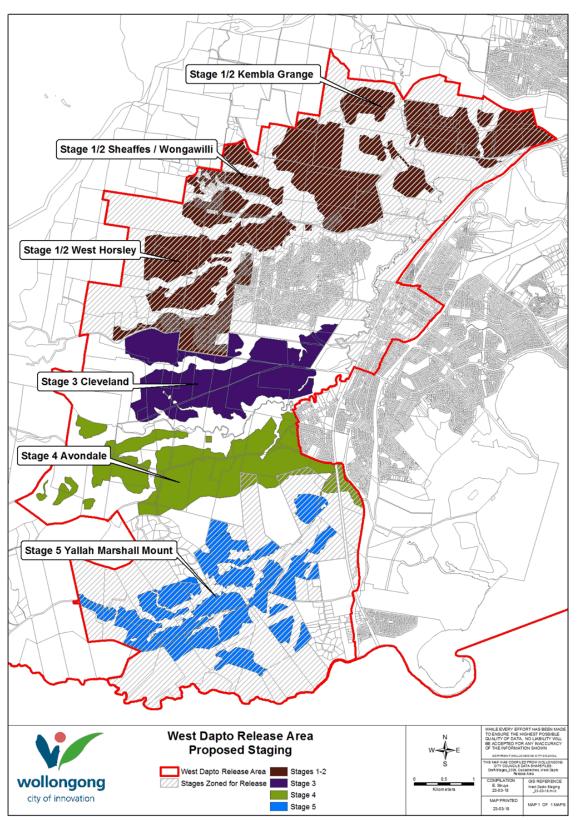


Figure 3. Stages of West Dapto Release Area



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5 PLANNING PRINCIPLES

The West Dapto Planning Principles are intended to guide landuse planning decision associated with the release area. They provide a statement of a desirable outcome for the development of the release areas and provide a basis of reasoning to support making planning decisions. Principles are important considerations when there may be more than one interpretation or contradictions between any qualitative requirements or development controls defined in other chapters of the DCP.

There are eight groups of principles originally outlined in the West Dapto Vision document 2018. This chapter is structured in a similar way building on principles with some additional requirement details. **Figure 4** outlines the key components and how they relate to Council planning policies.

The group of principles include:

- Transport
- · Water management
- Conservation
- Open space

- · Community and education
- Town centres
- Employment
- Housing

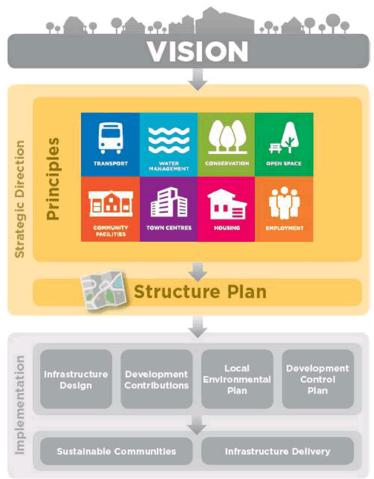


Figure 4. Structure and relationships of principles to planning tools

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6 TRANSPORT

6.1 The road network

The future road network for West Dapto will be the 'backbone' of the community, providing for all types of access and movement through the release area. The road network form and provision contribute significantly to achieving the vision of long-term sustainability.

An integrated transport system is proposed that caters for the private car, 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 future urban land uses and deliver a safe, connected and legible transport framework that compliments the natural environment and facilitates sustainable transport outcomes.

The Structure Plan (Figure 2) outlines the structural road network through the release area. The Road network structure was modelled in TRACKS to understand the demand and supply requirements to service the release area. The modelling informed road typology requirements for the structural road network as shown in Figure 5 and Figure 6. The road typology for the release area is informed by road hierarchy and cross sections which detail how the roads are configured for designs. Road Hierarchy and cross sections are covered in DCP Chapter B2 Residential Subdivision.

In accordance with the following road network principles (specifically 2 and 3), the release area needs to be accessible in emergency situations. Flooding events present a specific challenge to urban development in a flood plain area and specific design response is needed provide safe and connected residential areas. **Figure 7** illustrates which structural roads or sections of road will be designed and constructed to provide 1% Annual Exceedance Probability (1% AEP) flood immunity.

Principle 1 - Supportive land use patterns

- 1.1 Plan higher residential densities and mixed land use in & adjacent to town and village centres and major public transport nodes, to reduce reliance on the private car and reduce overall road network requirements and costs.
- 1.2 Plan the co-location of compatible land uses to reduce reliance on the private car and reduce overall road network requirements and costs.

Principle 2 - A safe, connected and legible road network for all users

- 2.1 Provide a road network based on the modified grid layout to maximise accessibility and efficiency.
- 2.2 Implement a clear hierarchy of road types (see DCP Chapter B2 Residential Subdivision) that responds to relevant transport requirements and road function, creating a highly legible road network for all users (Figure 5 Road Typology and Figure 7 Flood access roads of the structural road network).
- 2.3 Implement intersection designs appropriate to the road types (**Figure 5**), surrounding land uses and environments.
- 2.4 Ensure the structural road network supports the town and village centres hierarchy within West Dapto.
- 2.5 Ensure the integrated road system, caters for all road users including private cars, freight, public transport (buses), pedestrians and cyclists.
- 2.6 Implement driveway access restrictions and manage on-road parking on the higher-order roads (access-denied roads) to improve traffic efficiency and pedestrian/cyclist safety and amenity.
- 2.7 Ensure built form controls on adjacent properties to roads deliver active frontages to maximise passive surveillance and personal safety in the road environment. For example, road layouts that include lanes, service roads and so on to ensure houses front the primary road.
- 2.8 Ensure roads and intersections are designed to meet requirements of the DCP Chapter B2: Residential Subdivision, AustRoads and Australian Standards.

Principle 3 - Design roads to compliment the environment

3.1 Ensure roads fit with the landform (topography), compliment local character/land use and minimise visual, ecological & noise impacts.



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- 3.2 Ensure road alignments take advantage of views and visual stimuli for the motorist to enhance legibility, sense of place & create a positive experience in movement.
- 3.3 Consider the role of road networks in structuring precincts, including both transport and community needs to maximise liveability and quality urban outcomes.
- 3.4 Incorporate Water Sensitive Urban Design (WSUD) into transport infrastructure design and consider options to increase permeability of hard surfaces.

Principle 4 - Quality infrastructure

- 4.1 Use robust and durable materials, quality finishes and ancillary infrastructure, with neat, uncomplicated designs that minimise maintenance requirements and discourage vandalism.
- 4.2 Consider the use of innovative technologies in road & transport infrastructure design, construction and operation.

Principle 5 - Road network to support sustainable transport outcomes

- 5.1 Staging of additional car based infrastructure to encourage public/active transport and maximise use of existing infrastructure.
- 5.2 Use an established 15% transport mode shift target when planning for road network requirements within West Dapto, to encourage a shift towards reduced car dependence.
- 5.3 Ensure that roads are designed to provide a high level of safety, access and amenity for pedestrians, cyclists and public transport (bus services).

6.2 Bridge and culvert design

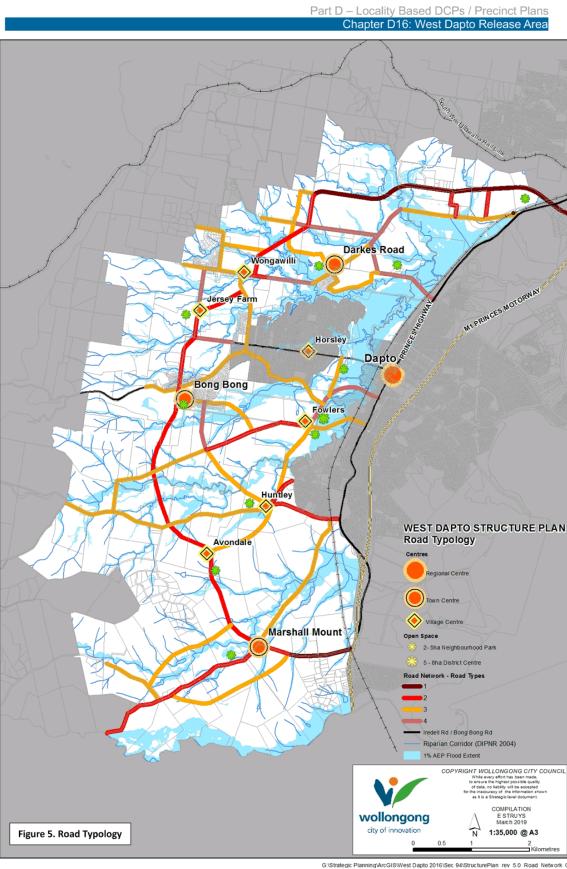
Bridges and culverts form important structural components supporting the road network as it traverses the flood plain landscape. While there are design limits and prefabrication conditions the infrastructure are built to, it is also important that design decisions on materials, placements, modification to standards and any other specifics take into account desired outcomes for the areas they are in and who they will cater to.

Principle 1 - Good design is context sensitive design

Design that is sensitive to context is valued by communities. Bridges/culverts that are functional and fit the landscape are good for community pride and local identity.

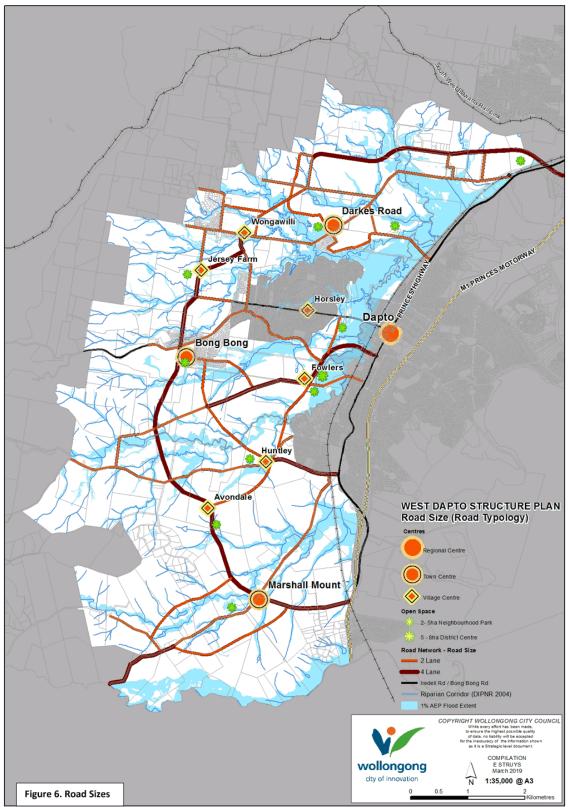
- 1.1 Consider influence of locational context and functional requirements in the design process. For example, if the crossing is traversing land that is zoned E2 or E3 and there are known ecological communities or fauna groups recorded there, fauna crossings should be a component of design and construction must be done sensitive to these outcomes.
- 1.2 Bridge/culvert alignment should integrate with environmental features.
- 1.3 Construction over or within waterways should have regard to the Fish Passage Guidelines developed by NSW Fisheries.
- 1.4 Ensure storm immunity standards are met and design/construction provides longevity and minimises maintenance requirements.
- 1.5 Design and finishes and overall appearance should respond to and incorporate character of the area.







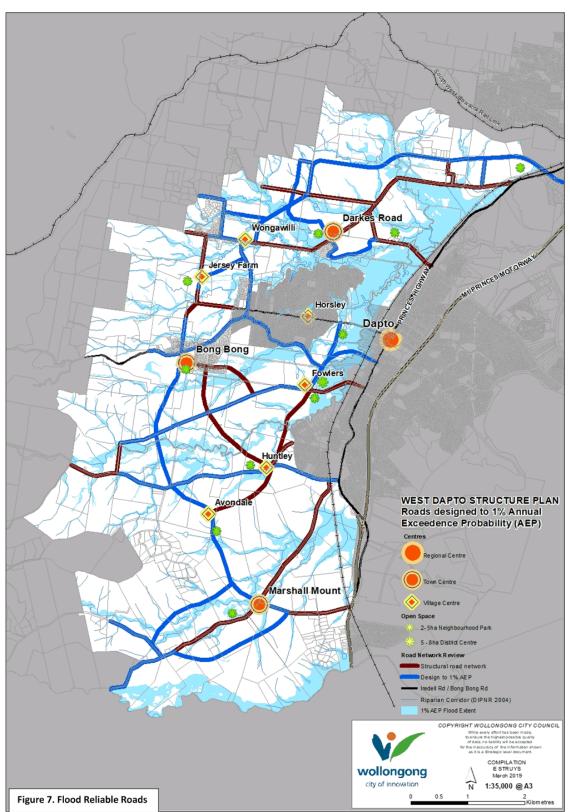
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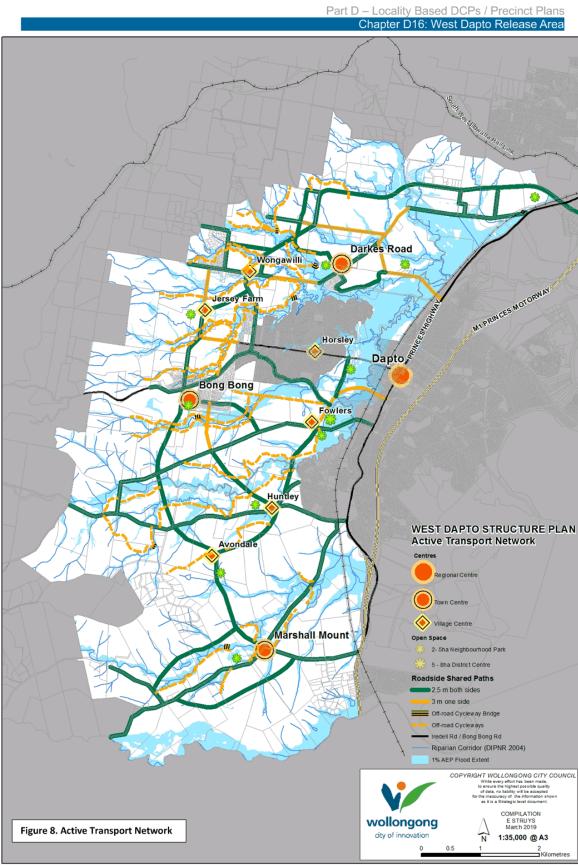
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6.3 **Active transport**

Walking and cycling (referred to as Active Transport) will be an important component of the future West Dapto transport system, contributing significantly to achieving the vision of a 'sustainable' community. An emphasis on the design and planning for West Dapto has been the notion of walkable communities which enable sustainable living to occur. Walking is also an important factor in the success of public transport.

Active transport at the local level will deliver convenient and attractive travel options especially for short trips, which will not only assist in reducing the reliance on, and impacts of private car use, but will contribute to the health and resilience of the community.

The riparian corridors will be structural open space areas, as a 'spine' to convey water and connect ecology, to promote walking and cycling with a series of pathway systems clearly linking key destinations such as schools from residential areas to promote walkability.

Map shown in Figure 8 identifies routes for off-road cycleways, as well as links for active travel on shared paths as part of the road network (road cross sections include roads with shared paths outlined in DCP Chapter B2 Residential Subdivision) connecting neighbourhoods and residential areas to parks and town centres. The shared paths and cycleways should be located outside of the 'core' riparian areas with selected cycleway bridges spanning riparian core land connecting key destinations through an open space network (see active transport map Figure 8).

Principle 1 - Supportive land use patterns

- 2.1 Plan residential land use close to town and village centres and major public transport nodes, with higher residential densities adjacent to these locations to maximise walking and cycling catchments
- 2.2 Promote shared parking across uses in town/village centres to encourage walk trips when undertaking multiple activities in these centres. Avoiding fragmented parking will also improve utilisation of spaces and improve walkability through more compact town centre layouts and fewer driveway crossings.

Principle 2 - Connected, functional pedestrian & cycle network

- 2.1 Provide a convenient and legible movement network for pedestrians (including those with disabilities) and cyclists, ensuring excellent connectivity and directness between residences and attractors such as schools, shops, public transport nodes, sports ovals and employment centres.
- 2.2 Include footpaths/shared paths on all roads in the road types hierarchy except laneways and minor access streets (refer to Road Network Principles and DCP Chapter B2: Residential Subdivision)
- 2.3 Take advantage of easements, riparian areas and open space areas to create convenient pedestrian and cycle links (or "short-cuts") that maximise accessibility between different precincts /land uses.
- 2.4 Implement a wayfinding strategy to provide clear and coordinated information for access to facilities and services within the West Dapto Release Area and surrounding areas.
- 2.5 Provide safe and secure bicycle parking or storage facilities at key destinations in town & village centres, sports ovals, community facilities, transport interchanges and key open space
- 2.6 Include bicycle parking and end-of-trip facilities as part of the development of employment sites, business and commercial sites particularly those in town and village centres.
- 2.7 Ensure that the West Dapto cycleway network integrates with the wider surrounding regional cycle routes.

Principle 3 - Attractive and safe environment

- 3.1 Design streets to provide a high level of pedestrian and cyclist amenity and safety, creating public space where people want to be.
- 3.2 Provide convenient and safe road crossing points, traffic calming (where appropriate) and tree planting to enhance the pedestrian and cycle environment.
- 3.3 In high pedestrian demand areas such as town and village centres, further increase pedestrian amenity and safety through path widening, driveway access controls and other site-specific actions to improve pedestrian priority.



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- 3.4 Incorporate Crime Prevention Through Environmental Design (CPTED) principles in the planning of walking and cycling facilities.
- 3.5 Consider innovative technologies for lighting key off-road paths, including solar lighting and luminescent pathway materials etc.
- 3.6 Construct pedestrian and cycle infrastructure according to AustRoads and Australian Standards, with attractive & durable materials and well-designed landscaping treatments.
- 3.7 Incorporate supporting infrastructure such as seats, bike rails, shade structures, bubblers and viewing/rest areas into the active transport network where appropriate.

As part of Council's commitment to the transport principles and active transport outcomes, additional initiatives will be explored that will help promote and encourage the take up of active transport in our community.

6.4 Public transport

The establishment of efficient and attractive public transport options for West Dapto is imperative to achieve sustainable growth outcomes. West Dapto Release Area presents an opportunity to promote 'best practice' in public transport and non-motorised modes, reducing reliance on the private car, contributing to a mode shift target and creating a more resilient, interesting and liveable community.

These high level principles inform & guide public transport planning for the new growth area, to ultimately ensure that the vision for sustainable transport in West Dapto is achieved. This will also require partnerships beyond council, with public transport providers and Transport for NSW.

Neighbourhood Plans and Development applications must demonstrate they have planned to facilitate public transport by responding to these principles at each level of development planning.

Principle 1 - Accessible public transport

- 1.1 Major public transport nodes located in town and village centres where the greater residential densities and employment opportunities are centred.
- 1.2 Ensure that major generators of travel are well serviced by public transport.
- 1.3 Promote co-location of different destination assets around public transport nodes and in centres, to enable multiple trip purposes.

Principle 2 – Effective bus network, service provision & integration

- 2.1 Provide coordinated, frequent & reliable bus services to destinations within and surrounding West Dapto.
- 2.2 Create an efficient, seamless travel experience through integrated ticketing, minimising transfer times, and intuitive and easily accessible service information.
- 2.3 Ensure street networks are interconnected and allow permeability for buses.
- 2.4 Ensure the bus network is highly accessible and services the majority of residences (with bus stops every 400m, see DCP B2 Residential Subdivision), town and village centres, employment areas, sporting facilities and Dapto Station.
- 2.5 Incorporate bus priority measures as necessary to ensure highly efficient, prioritised bus transport.

Principle 3 - Quality infrastructure

- 3.1 Provide comfortable, attractive, safe and secure buses and bus related infrastructure with clear timetable/service information and cater for all users including disabled/elderly.
- 3.2 Ensure pedestrian and cycle links to bus stops are of a high standard (refer also Active Transport Principles).
- 3.3 Encourage the use of innovative and efficient public transport technology.



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7 WATER MANAGEMENT

This section outlines the guiding principles, objectives, outcomes and development controls relating to Water Management across the West Dapto Release Area.

The approach behind 'water management' is to consider both floodplain and stormwater principles in an integrated way to achieve a better overall 'water management' strategy for the West Dapto Release Area.

West Dapto is bisected by a series of watercourses that form part of the Mullet Creek and Duck Creek catchments. During heavy rain they can experience intense floods of short duration (rapid rise & fall of the creek levels). The residential areas of West Dapto will be designed to be above the 1% Annual Exceedance Probability (1% AEP) flood level and include provisions to protect future residents against flood risk.

Principle 1 - Integrate floodplain and stormwater management into the urban development process.

Objectives

- Adopt a 'water management' approach by integrating floodplain and stormwater management, which meets the needs for hydraulic capacity, managing floods and maintaining water quality.
- Develop an overall 'water management' strategy for the urban release area by integrating both stormwater and floodplain management strategies, to guide progressive development within West Dapto without causing adverse impacts to downstream areas by way of flooding or reduction in water quality.
- Manage stormwater runoff such that flood damage and adverse effects on both development and the natural environment is minimised.

Outcomes

- The creation of a water management strategy for West Dapto with consideration of but not limited
 to existing and new urban development, flooding, stormwater runoff, minimising impact of flooding
 and stormwater, water sensitive urban design, the environment, and water quality in receiving
 waters including Lake Illawarra.
- The successful implementation of a water management strategy for West Dapto.

Principle 2 - Improve the management of water quantity relating to urban development inclusive of stormwater, wastewater, water supply and recycled water.

Objectives

- Maintain or minimise changes to natural hydrology of catchments which drain to waterways or neighbouring catchments.
- Manage stormwater runoff using a combination of at-source and regional systems rather than a single scale system where possible.
- Minimise stormwater runoff volumes.
- Incorporate Water Sensitive Urban Design principles in managing stormwater quantity.
- Mitigate potential stormwater impacts from future urban development.
- Reduce the probability and impact of downstream flooding to a level acceptable to the community.
- Manage stormwater discharge in a manner that minimises impacts on downstream receiving waters.
- Ensure that stormwater runoff is treated as a valuable resource and that its use for non-potable purposes is encouraged.
- Encourage stormwater reuse and harvesting.
- Reduce potable water consumption.



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Outcomes

- Any retention/detention basins, if required, are strategically located within the neighbourhood, precinct and/or regional scale to attenuate flows to pre-development conditions for events between the 1 year and 100-year storm events.
- Developments which use re-use water, infiltration, retention and/or detention strategies to limit the increase in runoff volume.
- Limiting the increase in stormwater runoff volume from urban development through the use of water sensitive urban design measures.
- Minimised impervious areas to 60% on individual lots to promote infiltration and reduce peak flows downstream
- Grassed swales incorporated at the subdivision scale to promote infiltration and reduce peak flows downstream.
- Rainwater tanks utilised on a large scale on individual lots for house and garden reuse to reduce runoff volume and reliance on potable water supplies.
- The use of buffers such as landscaping, detention and retention structures between impervious surfaces and receiving waters.
- The use of landscaped features to direct runoff from impervious areas into vegetated areas.

Principle 3 – develop the floodplain and surrounding areas in a sustainable way.

Objectives

- Develop strategies that will cater for progressive urban development within West Dapto without causing adverse impacts to downstream areas by way of flooding, increase in flow rates or reduction in water quality.
- Identify the extent of the floodplain based on post development flooding scenarios to enable key
 planning for sustainable urban development.
- Prevent the intensification of the use of floodways, watercourses and overland flow paths for residential/commercial/industrial development use.
- Design development layouts with consideration to the existing floodplain and natural landform.
- · Promote multifunctional and appropriate land use of the floodplain.
- Address the potential impacts of climate change.
- Increase the public awareness of flooding within the West Dapto Release Area and existing urban catchment of Dapto.
- Ensure that flood fringe areas are sustainably managed.

Outcomes

- Urban developments which are located in the release area and are resilient to flooding in both the short and long term.
- Residential developable areas that are located outside of the 1% AEP flood extents and elevated
 using a freeboard of 500mm plus a predetermined climate change factor, based on a detailed
 catchment wide flood investigation for the post development (ultimate) flooding scenario.
- Urban developments which are designed with minimal disturbance to the natural land form.
- Recreational open space areas which are located adjacent to riparian areas and/or within the natural floodplain storage areas.
- Development which has been controlled by specific guidelines to ensure sustainable development in the floodplain.
- Increased public awareness of the hazard and extent of land affected by all potential floods, including floods greater than the 1% AEP event and to ensure essential services and land uses are planned appropriately in recognition of all potential floods.



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No adverse impacts to downstream areas from either flooding or reduction in water quality.

Principle 4 - Preserve the natural function of the floodplain, natural waterways and riparian corridors.

Objectives

- Ensure that the natural function of the floodplain to convey and store floodwaters during flood events is preserved and enhanced where possible along with any associated flood dependant ecosystem.
- Prevent any filling and/or development within high flood risk areas.
- Ensure no net increase in fill within the floodplain.
- Protect key creeks and riparian corridors from degradation and improve their environmental function where possible.
- Ensure that rehabilitation of key riparian corridors is consistent with the adopted 'water management' strategy for West Dapto and the DCP Chapter E23 Riparian Land Management.

Outcomes

- All residential/commercial/industrial development is located outside of the identified flood conveyance and flood storage areas.
- The revegetation of riparian corridors does not increase flood risk to the existing surrounding urban areas.
- Natural drainage paths and infiltration basins utilised as much as possible.
- Revegetation of key riparian areas is undertaken in accordance with the Riparian land management chapter in the Wollongong DCP.
- · Waterways are protected by providing a vegetation buffer to urban development.
- Potential increase in developable land within the shallow floodplain (< 0.5m depth in a 1% AEP event and of low hydraulic hazard) by way of implementing a local cut/fill strategy only where compliance with all relevant floodplain management controls can be demonstrated.
- The natural functions of flood dependant ecosystems are preserved where possible.

Principle 5 - Protect people and property from flooding in a strategic way.

Objectives

- Minimise the risk to human life and property damage caused by flooding through appropriately locating urban development.
- Ensure flood risk and flood impacts to both existing and future development within West Dapto and surrounding catchment areas are minimised.
- Minimise the risk to human life by ensuring the provision of safe vehicular access/egress for residents and emergency services in times of flood.
- Develop practical floodplain and stormwater management solutions for future urban development and associated infrastructure within West Dapto.
- Locate residential urban development areas outside of the 1% AEP flood extents and elevate
 using a freeboard of 500mm plus a predetermined climate change factor, based on the post
 development (ultimate) flooding scenario.
- Design specific roads within the urban release area to achieve a 1% AEP flood event immunity including a pre-determined climate change factor or greater flood event.
- Ensure new development does not increase the flood risk to existing development areas.

Outcomes

 Specific guidelines which have been created to locate development within West Dapto without putting people and property at flood risk.



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- Residential developable areas that are located outside of the 1% AEP flood extents and elevated using a freeboard of 500mm plus a predetermined climate change factor, based on a detailed catchment wide flood investigation for the post development (ultimate) flooding scenario.
- Floor levels for all residential habitable buildings are set at or above the post development flood planning level corresponding to the 1% AEP flood level plus 0.5 metre freeboard plus a predetermined climate change factor.
- Specific roads (identified on the map in Figure 7) are designed to connect urban development and provide safe vehicular flood access to higher ground in times of flood up to and including the 1% AEP event plus a pre-determined climate change factor, or where feasible the Probable Maximum Flood (PMF) event:
- Identification of potential flood risks to people and property in West Dapto through the undertaking of a detailed Floodplain Risk Management Study.
- Sheltered refuge areas are incorporated into building designs, with the floor level of the refuge set above the PMF where applicable to protect occupants from extreme floods.

Principle 6 - Protect water quality of surface and groundwater from urban development and avoid any adverse effects on water quality to downstream watercourses and Lake Illawarra.

Objectives

- Enhance the long-term environmental protection of the receiving waters and Lake Illawarra.
- Manage stormwater quality using a combination of at-source and regional systems, rather than single scale systems where possible.
- Incorporate best practice Water Sensitive Urban Design (WSUD) and proven innovative solutions to ensure there is no adverse impact on water quality discharging from the site or to natural streams.
- Utilise higher stormwater quality targets through best practice stormwater treatment systems, as proposed by the stormwater risk management framework being developed for the Lake Illawarra catchment.
- Prioritise stormwater quality management strategies to meet load reduction targets for nitrogen, the limiting nutrient for water quality issues in the receiving waters.
- Manage stormwater in accordance with the Lake Illawarra Coastal Management Program.

Outcomes

- The use of appropriate WSUD measures both at the source of subdivision runoff and at a regional scale to minimise the water quality impacts downstream.
- The use of a treatment train approach including systems such as bio-retention, swales, wetlands and raingardens which exceed current stormwater quality targets.
- No reduction in water quality in Lake Illawarra related to stormwater arriving from the release area.
- A water quality monitoring system that monitors the effectiveness of stormwater treatment systems within the urban release area, the quality of water entering receiving waters and agreed systems and processes for addressing any inadequate water quality issues.
- Stormwater quality reduction targets are verified through focussed monitoring, evaluation and reporting activities.
- The flood risk to existing development is not increased.

Principle 7 - Integrate stormwater management into the natural and urban land form in an unobtrusive way.

Objectives

- Manage the flow of stormwater from the urban release area using both natural and artificial drainage networks to a formal point of discharge.
- Integrate Water Sensitive Urban Design (WSUD) into roads, landscape and open space only



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where practical to collect and treat runoff prior to discharge into receiving waters and Lake Illawarra.

- Identify, manage and enhance the function of existing watercourses and natural trunk drainage paths where possible.
- Make provision in the Neighbourhood Planning phase of the urban release area for adequate proportion of land that serves stormwater management functions.
- Minimise the use of 'hard engineered' stormwater infrastructure. If this type of infrastructure is necessary, avoid locating 'hard engineering' stormwater infrastructure within existing vegetation or riparian corridors where possible.
- Ensure stormwater systems are safely integrated with parks, conservation areas and riparian buffers in a visually appealing way to achieve quality environmental and social outcomes.
- Promote the community acceptance of places which integrate stormwater systems with the environment.

Outcomes

- A network of interconnected multi-functional drainage corridors within West Dapto which act as watercourses, floodways, flora and fauna habitat and water quality treatment areas.
- Stormwater treatment systems which are integrated within public open spaces and streetscapes to enhance visual and public amenity.
- Online stormwater basins only where environmental impacts are minimised, and development benefits maximised.
- Artificial drainage infrastructure which has been designed and landscaped to mimic natural ponds and waterways, and also provides public amenity.
- · Places which are safe, visually appealing and encourage active/passive use by the community.
- Places that provide access to and awareness of the total stormwater system for the community.
- Native vegetation used within stormwater management infrastructure.
- Road corridors located above the 1% Annual Exceedance Probability (AEP) which have incorporated WSUD measures.

Principle 8 - Provide efficient and sustainable stormwater infrastructure for the urban release area.

Objectives

- Develop regional stormwater management solutions in combination with at-source based systems where possible.
- Ensure that the stormwater infrastructure is practical, cost effective and maintainable, with preference given to options achieving the maximum benefit-cost ratio over their lifecycle.
- Ensure stormwater infrastructure is designed to remain viable for the long term and under the widest range of probable climate futures.
- Ensure that lifetime maintenance costs are factored into decision making processes and strategies are in place to ensure adequate maintenance over the life of the system.
- Incorporate best practice stormwater management principles and strategies in developments, including monitoring regimes that can demonstrate the effectiveness of the system.
- Discourage interim stormwater management solutions unless it can be replaced with an ultimate strategic solution.
- Ensure that stormwater management systems applied within West Dapto achieve aesthetic, recreational, environmental and economic benefits and avoid introducing social risks;
- Achieve a uniform standard of stormwater drainage design for all urban developments.
- Increase public convenience and public safety as well as protection of property.
- Ensure stormwater infrastructure is designed with consideration to blockage and maintenance



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access.

Outcomes

- The overall number of stormwater systems is tailored for the neighbourhood and regional zones to detain or retain as much of the catchment runoff as possible.
- Infrastructure such as swales, basins, wetlands and gross pollutant traps which have been
 designed with consideration to maximum functionality and longevity, minimal construction and
 ongoing maintenance costs, infrequent maintenance periods and low potential for attracting
 mosquitos and algal blooms.
- Stormwater infrastructure such as trunk drainage and basins that are designed to fit within the
 existing topography, with minimal impact upon the environment.
- Reduced capital costs due to implementation of soft engineering treatments.
- Installation of stormwater infrastructure which has been designed with consideration to climate change in a practical, sustainable and cost-effective manner.
- Stormwater infrastructure designed and constructed with consideration to the ultimate strategic stormwater plan for West Dapto.

Principle 9 - Preserve the natural environment and enhance where possible in keeping with stormwater quantity and quality management objectives and targets.

Objectives

- Protect and enhance the habitat value of the surrounding environment and downstream waterways, by controlling water quality and water quantity.
- Improve key riparian corridors and ensure the ecological values of the creek systems are enhanced without flooding impact on existing development.
- · Protect and enhance where possible natural watercourses, riparian corridors and wetlands.
- Minimise the disturbance to the natural landform and existing vegetation.
- Reduce the impacts typically associated with urbanisation on receiving waterways and wetlands, including a reduction in streamflow erosion potential.
- Adopt the treatment of all watercourse corridors including widths according to the Riparian land management chapter in the Wollongong DCP.
- Maintain riparian connectivity of key category 1 watercourses by using piered deck structures where road crossings are proposed.
- Minimise the number of road crossings across category 2 watercourses to preserve riparian connectivity.
- Minimise the edge effects at the riparian corridor / urban interface by the provision of a suitable riparian corridor width and integrated transition at the urban and riparian interface (for example, perimeter roads with houses fronting, gentle batters if needed, otherwise avoid batters and retaining walls).
- Protect and rehabilitate existing waterways into 'living' waterways.
- Enhance urban areas by applying Councils 'Urban Greening Strategy'.
- Enhance the appeal of the natural environment to the community by introducing adjacent open spaces.

Outcomes

- Key watercourses within development neighbourhoods which have been enhanced with natural bed stability and sympathetic re-vegetation to minimise erosion and promote habitat without causing adverse impacts to surrounding urban development in times of flood.
- Watercourses protected by providing a buffer of natural vegetation to urban development.
- Urban development which has minimal disturbance to soils and vegetation by maintaining the natural landform.



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- Waterways that are rehabilitated and provide fish habitat, pools and riffles and adequate riparian buffers in line with best practice.
- Appropriate monitoring systems in place to demonstrate the habitat value of downstream waterways is being protected including agreed systems and processes to manage stormwater quality and/or quantity if the habitat values are shown not to be protected.
- Community open space areas located adjacent to riparian buffers that provide a natural visual backdrop.
- Clear connectivity between riparian corridors and residential areas / roads by avoiding steep batters and retaining walls or opaque fences.
- Community access to selected waterways.

Principle 10 - Promote liveability and amenity for the community by using water in all environments.

Objectives

- Promote the community acceptance of places which integrate stormwater systems with the environment.
- Protect and rehabilitate existing waterways into 'living' waterways.
- Locate communal open space adjacent to natural and artificial waterways.

Outcomes

- Places which are safe, visually appealing and encourage active passive use by the community.
- Places that provide access to and awareness of the total stormwater system for the community.
- Waterways that are rehabilitated and provide fish habitat, pools and riffles and adequate riparian buffers. in line with best practice.
- Safe community access to selected waterways.

Other General requirements

- A water cycle management report is to be submitted with Development Applications for subdivision in accordance with the currently adopted Water Cycle Management Study and Floodplain Risk Management Study and Plan for the urban release area. The report must address water cycle management, water quality management, watercourse and corridor management, conservation and rehabilitation of aquatic habitat, and floodplain management.
- Land that remains below the 1% AEP flood level for the post development flooding scenario as approved by the consent authority is not suitable for residential development. The post development flooding scenario refers to the ultimate development scenario inclusive of a fully developed catchment across the urban release area, riparian corridor enhancement and floodplain management works (e.g. basins).
- Subdivision of land is not to create any additional flood affected residential allotments. A flood
 affected allotment is defined as being wholly or partly below the Flood Planning Level (FPL) (i.e. the
 1% AEP flood level plus a freeboard of 500mm) or the Probable Maximum Flood (PMF) whichever
 is the greater.
- 4. There is to be no net increase in fill within the floodplain.
- 5. There is to be no filling or development located within the high flood risk areas.
- 6. Compensatory excavation may be used to offset fill; however, the compensatory excavation must be taken from an adjacent area of similar flood function that is lower in the floodplain (i.e. at a lower AEP inundation extent) than the proposed fill areas. Cut and fill drawings and volume calculations must be supplied to Council.
- 7. Filling of individual sites within the floodplain in isolation without consideration of the cumulative effects is not permitted unless the floodplain risk management plan (FRMP) for the catchment has been adopted which allows filling to occur. Where no FRMP is applicable, any proposal to fill a site must be accompanied by an analysis of the effect on flood levels of similar filling of developable



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sites in the area.

- 8. Any development and/or filling proposed within the floodplain shall be commensurate with the land use, flood risk, flood hazard and hydraulic category.
- 9. Enhanced riparian corridors cannot be used to offset any floodplain storage in the flood modelling.
- 10. The minimum habitable floor level of buildings to be set at the post development flood planning level (FPL) (i.e. the 1% AEP flood level based on the post development flooding scenario plus a freeboard of 500mm plus a predetermined climate change factor). Note: the allowance for climate change is determined from the current and relevant Flood Risk Management Study and Plan.
- 11. Subdivisions are to be designed according to Water Sensitive Urban Design principles. Development applications are to include a detailed statement indicating how the proposed design complies with these principles. Refer to Chapter E15: Water Sensitive Urban Design.
- 12. Detention basins created offline to watercourses are required as necessary where peak flows are predicted to increase. Consideration will be given to proposals for larger basins that serve multiple precincts and sub-catchments or other innovative design. The location of basins needs to be agreed to by adjoining land owners as part the Neighbourhood Plan. Where a basin is on an adjoining property, owner's consent and the creation of an easement is required.
- Developments shall be demonstrated to have reliable access in a 1% AEP event to Council's designated flood reliable roads within the West Dapto Release Area.
- 14. Development Proposals shall consider flood events larger than the 1% AEP event.
- 15. The Lake Illawarra Risk Based Framework water quality targets shall be used as a minimum for all water quality modelling. Note: This general requirement is subject to the outcome of the Office of Environment and Heritage (now Department of Planning, Industry and Environment) Project: Applying the OEH / EPA Risk Based Framework in the Lake Illawarra Catchment.
- 16. Refer to Chapter E13: Floodplain Management and Chapter E14: Stormwater Management and Chapter E15: Water Sensitive Urban Design for additional controls relating to floodplain and stormwater management.



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8 CONSERVATION PRINCIPLES

8.1 Environment conservation

In adopting the concept of ecologically sustainable development (ESD, see DCP Chapter A2), regionally significant releases, such as the West Dapto Release Area, present opportunities to preserve remanent vegetation and enhance its ecological connectivity (structural and functional). This section identifies the strategic environmental priorities to guide planning and development of the West Dapto Release Area integrating conservation priorities with opportunity for a future West Dapto Biodiversity Conservation Strategy (BCS) and Biodiversity Conservation Strategy Structure Plan (BCSSP).

A BCS provides opportunity for Council to achieve biodiversity certification (bio certification) in a coordinated approach for the whole release area, improving the overall conservation outcomes beyond what would be achievable developing site by site. Council will continue to work closely with the NSW Office of Environment and Heritage and Department of Planning and Environment to achieve this strategic outcome. The principles should also be used to guide site by site considerations.

Principle 1: Prioritise areas that offer high environmental value for conservation

Consider information that identifies areas of threatened ecological communities or stands of habitat greater than 4 ha (considered to present high environmental value in terms of habitat size and area) and avoid impacts as a result of land use changes to these areas.

Principle 2: Connectivity of habitat areas

Connecting patches of habitat that have high biodiversity value will provide opportunity for ecological migration over time as well as opportunity for improvement to habitat quality and values. These are more commonly known as biodiversity corridors providing strategic connection of larger and better condition patches of vegetation either by re-establishing continuous native vegetation cover in one or more stratums over an alignment or designing stepping stones of habitat that traverse local corridors recognised in planning instruments and studies.

Principle 3: Protect Environmental Values

Community values of environmental function in a landscape are aided by planning and providing complimentary land uses alongside conservation sites to assist in improving and protecting the ecological function of the site and enhancing its resilience.

Secure areas that present high environmental value as areas for conservation and long term management (ideally through a bio certification process).

Main development interfaces with the escarpment on the western edge of the release area are considered environmentally sensitive and zones reflect E2 Environment Conservation. Environment Conservation land will form a transitional development edge with lower densities of development adjacent to these areas. Increased opportunity for planting will be accommodated to complement the wooded slopes and riparian corridors.

Development interfaces with the predominantly west-east running riparian corridors which are considered to be where revegetation and ongoing management is required, or will be, zoned E3 Environmental Management.

Environmentally sensitive design and siting will be required for development in the E4 Environmental Living zone.

Refer to Chapter E17: Preservation and Management of Trees and Vegetation, Chapter E18: Threatened Species, Chapter E23: Riparian Land Management.

8.2 Heritage conservation

Understanding and conserving the heritage values of the West Dapto presents an opportunity to enrich the social values of the release area and to promote cultural understanding of our shared heritage.

The Australian Heritage Commission (2000) states the aim of both natural and cultural heritage conservation is to retain the significance of place and in the case of West Dapto the natural and cultural heritage values are deeply entwined and cannot be separated. (Australian Government, Department of Environment and Energy, 2017). Impacts to heritage significance are a key consideration for development of the release area at each planning stage. Land use changes should retain, integrate and enhance heritage values. The principles for West Dapto aim to promote heritage conservation and meaningful



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consideration of the significance of place to ensure future development enhances the heritage values of West Dapto.

Principle 1: Prioritise the Conservation of Heritage Items and sites of Aboriginal Heritage Significance

Local Heritage items listed in Schedule 5 of the Wollongong LEP 2009, sites of Aboriginal Cultural Heritage significance as well as areas of potential archaeological significance should be retained and conserved within new development areas and appropriate curtilages and visual settings established. Development planning should account for the significance of sites and places and their visual relationships to each other or key landforms and key sites that contribute to the historic setting or cultural significance of newly developing neighbourhoods should be retained.

Principle 2: Respect the Cultural Landscape

The West Dapto Release Area has a rich and diverse history of Aboriginal and non-Aboriginal occupation. The area retains a range of key landscape elements, landforms, natural features such as creeks and ridgelines, important views and visual connections, historic road and transport corridors that are important and unique aspects of the local area. The elements contribute to the character and significance of West Dapto through connection to Dreaming stories and by telling the stories of the area. Proposed development should be guided by an understanding of, and respect for significant features of the natural landform and historic setting, and assist new communities in understanding and appreciating the unique visual and physical connections between places and features within and outside of their development areas.

Views and Vistas

Generally, land in the release area around and above the <u>50-60 metre contours</u> is considered of High Scenic Quality. There are high levels of concern for visual resource based on visual quality assessment of the release area. Development within these areas of high scenic quality must be sympathetic to that visual quality as the ability of the area to absorb change is low.

Principle 3: Embed Local History and Character in New Communities

Developments should strive to feature historic sites and places of significance within development areas to provide a unique sense of identity and character for developing neighbourhoods. The adaptation and re-use of historic buildings in an appropriate manner that provides for their conservation and integration into new developments is encouraged. The retention and integration of significant Aboriginal sites as well as significant trees and landforms into natural area reserves, parks and as conservation areas is also encouraged. The use of historically relevant street names, integration of interpretation and the celebration of aspects of a site's Indigenous and post settlement history, are encouraged to ensure that the rich history of the area is celebrated and recognisable in the identity of developing communities.

Other Requirements

There are additional responsibilities of developers to complete various **heritage studies** to understand the significance of Indigenous and European heritage sites and the potential impacts of the proposed for development in order to determine further conservation management requirements and approval needs.

Neighbourhoods will include visual character and cultural landscapes and will ensure:

- 1. Design of subdivision patterns and road layouts are to have regard to the retention of view corridors and vistas through, and to, areas of high scenic quality.
- 2. Primary Street planting is to be undertaken and established prior to the commencement of individual lot development or housing construction to minimise the visual impacts of proposed development.
- 3. A visual impact assessment is to be prepared by the applicant and submitted with any Development Application in areas of high scenic quality (at or above 50-60m contours). The visual impact assessment is to assess any potential impact to the visual quality and how the design will respond to this. The assessment will include recommendations for the development design. The development application will demonstrate how the visual quality of the visual catchment will be protected and incorporated through design responses.
- 4. An Aboriginal Cultural Heritage Assessment Report (ACHAR) is to be prepared for any proposed development where the site has been identified having moderate to high archaeological potential or cultural significance, where an Aboriginal site or object has been recorded in the vicinity, or if an area of potential archaeological deposit (PAD) has been identified through a Due Diligence Assessment or other study undertaken on the site, The recommendations of the ACHAR should



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inform the development outcomes.

Wollongong LEP 2009 identifies a number of heritage items within the West Dapto Release Area. In addition to the statutory controls contained under the LEP the Wollongong DCP 2009 contains requirements in relation to these items.

- 1. Refer to Chapter E10: Aboriginal Heritage and Clause 5.10 of the Wollongong LEP 2009 for specific controls relating to Aboriginal Heritage.
- Refer to Chapter E11: Heritage Conservation, Clause 5.10 of the Wollongong LEP 2009, The NSW Heritage Act 1977 and The Burra Charter.

8.3 Riparian Corridors



Figure 9. Typical riparian corridor cross section

West Dapto is dissected by fast flowing creeks and extensive areas of flood prone land, and riparian corridors. These areas offer an opportunity for recreation, visual separation and conservation. The corridors will result in significant amounts of open space creating wider landscapes within easy reach of all parts of the new development areas, meaning walking, cycling, recreation and nature will form a part of daily life. These riparian corridors have been, or will be, zoned for Environment Protection with limited development being allowed in these areas.

The riparian corridors will link the escarpment to Lake Illawarra through the release area. They will be vegetated with avenues of intensive planting and water management running through the urban street pattern to create a connected web of open space. This will encourage walking and create a sense of nature interacting with urbanity (see cross section in **Figure 9**).

Land between the watercourse and the 1% Annual Exceedance Probability flood extent can either be:

- Retained in private ownership and used for grazing, recreational activities or other permissible uses, or
- Dedicated to Council at no cost to Council, for use as bushland, agricultural purposes or recreational purposes. There are no development contributions off-set for the dedication / transfer of this land.

Controls:

- 1. Neighbourhood Plans will identify proposed land use and ownership of the riparian land.
- 2. Revegetation of riparian corridors to ensure healthy ecological structure and function and enhance resilience to flooding and improving water quality.
- 3. Refer to Chapter E23: Riparian Land Management for controls relating to riparian lands.



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9 OPEN SPACE PRINCIPLES

This section establishes the open space principles for the West Dapto Release Area. This section should also be read in conjunction with Community and Education Facilities principles and at a landscape structure level, will contribute to delivering against the Urban Greening Strategy. An overarching framework with four inter-related principles is designed to achieve the open space objective for the West Dapto Urban Release Area. Open spaces need to be considered places that are designed responding to principles to ensure they provide for a resilient community.

There are more details regarding Council's specific requirements for each open space facility and subdivision requirements provided in the **West Dapto Open Space Design Manual and the West Dapto Open Space Technical Manual.**

Principle 1: Functionality

- Open space needs to be of an appropriate size and flexible footprint for multiple functions and uses (Hierarchy of facilities).
- Open space and recreation outcomes are not compromised by other competing functional elements. For example, flooding and water management, traffic and road infrastructure, cultural heritage and biodiversity.

Principle 2: Accessibility

- Walkable distances from residential areas, universal design principles used for facilities with a
 focus on 'play' and diverse experience (resident catchments).
- There is a well-distributed network of accessible (in both location and design), attractive and
 useable public open spaces and natural areas within the existing and future neighbourhoods of
 West Dapto.

Principle 3: Connectivity, movement and flow

- Open space must be connected spaces with shared paths and trails to other facilities or places of
 interest including centres, heritage sites (if not sensitive), riparian areas, natural areas,
 employment centres, transport nodes community facilities and the like.
- The open space areas are highly connected to create a network of open space with a range of functions to complement the existing landscape features and provide opportunities for ecological connectivity.

Principle 4: Value and amenity

- Future uses complement and add to existing values for example open space may present opportunities to preserve remanent vegetation or support regrowth of bushland vegetation (avoid conflicting landuse outcomes. For example, an active play facility may jeopardise a threatened ecological community, water management may restrict active use etc.).
- That public open space and natural areas will provide opportunity for interaction filling a variety of recreational, sporting, play, the physical and social needs of the community.

9.1 Hierarchy and catchments

Based on the principles of functionality, accessibility, connectivity and values, there are some guides to the level of open space based on size and characteristics of projected population and its recreational needs. **Table 1** categorises relevant population catchment distances for each level of open space provision (hierarchy) and how it generally relates to size requirements in the future urban and residential areas based on NSW Recreation and Open Space Planning Guidelines for Local Government (2010).

It is important to emphasise that any benchmark standards cannot be used as a 'one size fits all' assessment tool. Through analysis of local context and community needs, these standards can and should be varied if based on sound evidence.

Table 1. Open space provision standards (based on NSW Recreation and Open Space Planning



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Guidelines for Local Government (2010) and the Elton Report (2007) recommendations).

Function and service	Size	Catchment radius (distance)
Local Passive	0.5-2 ha	400-600m
Local Active	1-2 ha	400-600m
Neighbourhood Passive	2-4 ha	2km
Neighbourhood Active	3-5 ha	2km
District Active	5-8 ha	Southern ward of LGA
City wide Active	8 + ha	Facility to serve the whole LGA

Note: If stormwater infrastructure is proposed to be co-located with open space the general size requirements in **Table 1** should be considered with reference to Council's **West Dapto Open Space Design Manual.**

The relationship can also be understood in catchments for community populations. **Figure 10** shows proposed open space catchments of West Dapto (based on methods established in NSW Recreation and Open Space Planning Guidelines for Local Government, 2010). These catchments are indicative and are shown for illustration purposes only to guide how location of facilities will be planned to be located within a walkable catchment. In the release areas open space network, open space will need to be provided at all hierarchy and catchment levels.

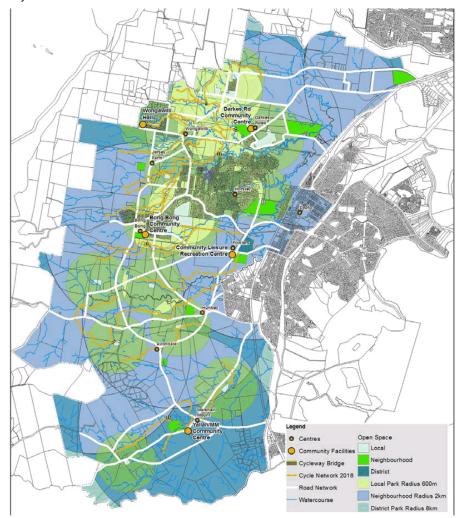


Figure 10. Planning for open space in West Dapto Release Area

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10 COMMUNITY AND EDUCATION PRINCIPLES

Community facilities are an increasingly important component of local service provision across a range of areas in the public and private sector. For example, there is a clear trend in public health and alternative education to use local community facilities for regular and specialist community services rather than develop individual facilities. Council understands this increases the importance of flexible design, location and efficiencies to be achieved by these facilities for them to make the best contribution to community outcomes.



Figure 11. Community hub concept – co-location, joint use and multi-purpose centres

Principle 1: Healthy, diverse and resilient

Community facilities contribute to quality of life to support healthy, diverse and resilient community.

Principle 2: Efficient

Making efficient use of resources through shared or co-located facilities and multiple use agreements (multi-purpose community hubs) with flexible design that can respond, expand and adapt as needs change.

Principle 3: Safety, security and adding to civic identity and sense of place

Promote safety, security and provide focal points adding to civic identity and sense of place through clustering community facilities.

Principle 4: Self-sufficient and resilient community

Community facilities provide opportunity for self-sufficiency to build capacity and social capital and to actively contribute to community resilience.

Principle 5: Vibrant and accessible

Placing facilities in convenient, central locations, adjacent to open space. Promotes access and contributes to the vibrancy of the development, and allow for overflow activities such as children's play.

Principle 6: Equitable

Provide equitable access for all sections of the population, through the distribution, design and policies of facilities.

Principle 7: Diversity

Community facilities promote diversity and encourage people from culturally and linguistically diverse backgrounds to participate in the social and economic life of the community.





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Principle 8: Viable and sustainable

Developing sustainable funding, ownership, governance, management and maintenance arrangements, including private partnership arrangements where community benefit is achieved.

Principle 9: Coordination

Council will work with the State Government and non-government schools sector to promote best-practice education outcomes for the community of West Dapto. This will include sharing data and integrating asset solutions, such as opportunity for shared and joint-use facilities.

Planning for the provision of education is important for West Dapto's growing community. In NSW, the Department of Education provides funds and regulates education services for NSW students from early childhood to secondary school. The Department of Education provided previous support for the six primary schools and two high schools based on the projected housing provision and related future population estimates.

Figure 12 shows some indicative school locations in developing or future residential areas within the release area.

The distribution pattern for the schools ideally would include two primary schools one being the current Dapto Public School plus two new schools in the vicinities of Darkes Road/West Dapto Road and Wongawilli Village.

In Stage 3 of the release area, a new secondary school in proximity to Bong Bong Town Centre supported by three primary schools potentially Jersey Farm Robins Creeks, Bong Bong/Cleveland and Avondale/Moorland.

A third secondary school potentially located in Calderwood Urban Release Area has been approved and will service a primary school in Marshall Mount area as well as the required primary schools in Calderwood.

A special needs school should be either co-located with or separate to a mainstream school in the release area.



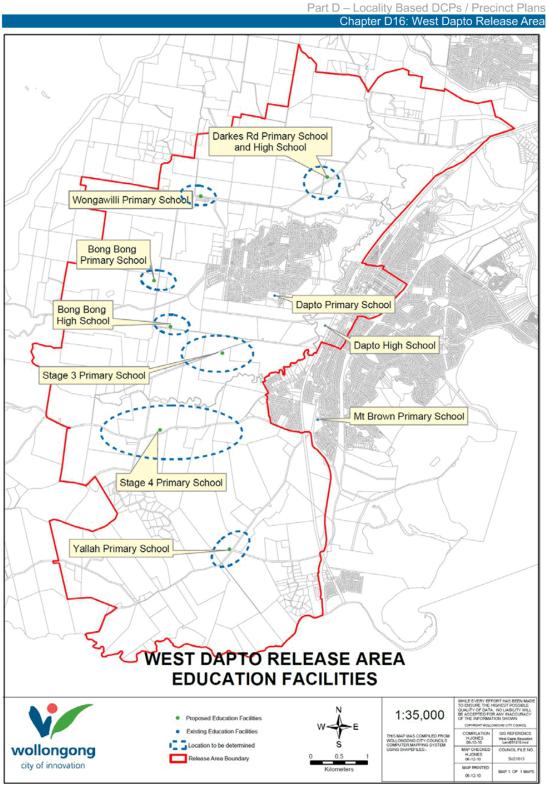


Figure 12. Potential school locations (Council Work with NSW Department of Education)



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11 TOWN CENTRE PRINCIPLES

As a new release area, there is an opportunity to ensure that the ideal treatments are made to establish sustainable, appealing and functional residential living as well as commercial and light industrial areas providing employment, social and cultural opportunities with sufficient flexibility to cater for the future populations needs. As with other previous principles the town centre principles should not be considered in isolation.

The town centres of West Dapto will fill diverse roles, functions and mixed uses. The key objective of town centre principles is to help identify centre locations, function and existence. Configurations will reflect the town centre hierarchy with a focus on pedestrian priority. Supported with a decision process (zoning, neighbourhood planning, etc.), appropriate locations will promote the social and economic functions and outcomes sympathetic to character and 'place'.

There are three principles, Hierarchy, Movement sensitive and Identity and diversity, each to be considered in planning of town centres to meet the objectives for West Dapto Release Area.

Council also expects the town and village centres of West Dapto to be:

- 1. Master planned with the plan responding to the release areas planning principles.
- Subdivision design modelled for walkability with plans that demonstrate public and employment base have easy access to active and public transport.

Principle 1: Hierarchy

Hierarchy provides a basis for which to establish functions, order, and visions as well as allowing the protection of these. Hierarchy is not the only way to understand or to set direction in planning for centres, we understand that the centres are also a connected network, which can support each other in an interlocking way.

Each level of the hierarchy represents the size and general characteristics of the centres commercial, retail and business roles (see **Figure 13**). The Hierarchy reinforces role and function, supports the Wollongong City Centre and higher order centres and provides certainty for investment decisions. Hierarchy reinforces character and identity as well as provides direction around appropriate residential density sympathetic to community facilities and service locations.



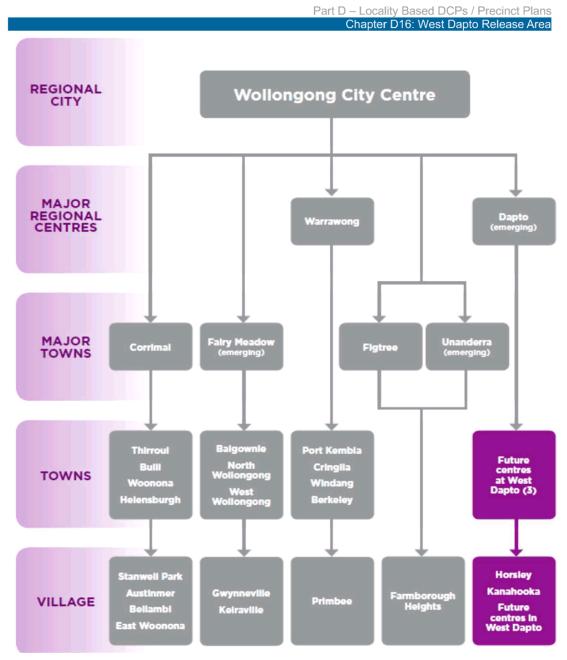


Figure 13. Wollongong Town Centres Hierarchy

Requirements for development in Business zones must comply with contents of the DCP Chapter B4: development in Business Zones. B4 outlines the Hierarchy for the LGA as well as other studies or assessments needed to support development applications.

Regional Centres

Wollongong Local Government Area has two major regional centres Warrawong and Dapto. It forms and important commercial and business centre role in Wollongong LGA.

Located in close vicinity of Dapto's existing urban landscape, will be a series of new centres. Supporting Dapto's development as a regional centre will be an important consideration in the planning of new town and village centres. These lower order centres must be sensitive to the levels of hierarchy to maintain existing functions and minimising any negative impact on the hierarchy.



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Town Centres

There are three town centres planned for the urban release area. The objective of the town centres is to ensure that development in the Darkes Road (1), Bong Bong (2) and Marshall Mount (3) town centres contribute to the creation of retail, business, commercial, and community hubs that act as public transport nodes and provide significant local employment opportunities.

Major town centres (~15,000m2) are planned within the central western (Bong Bong Road) and the southern (Marshall Mount) parts of the release area. A local town centre is planned in the northern (Darkes Road) area. These are intended to create local retail, business, commercial and community hubs providing significant local employment opportunities. They will need to complement rather than compete with the higher order major regional centre of Dapto.

Council expects the town centres of West Dapto to be master planned demonstrating how the plan responds to these planning principles.

Village Centres

The West Dapto further review of release area centres and controls (Urbacity, 2014) noted the role of Villages, as a lower order centre, is to "provide convenient alternative to the supermarket based town centres for daily goods and services with a focus on amenity for housing density and improved public transport use".

Village and local centres will develop localised business opportunities at key places / intersections where bus stops, community facilities and local open space come together to create an urban focal point for the local community. Small villages are proposed ~2,500m² of floor space and accommodate a 1,000-1,500m² supermarket and variety shops.

Principle 2: Movement sensitive

The town centres of West Dapto are expected to facilitate social contact, employment, and living needs in a sustainable manner. That is, the town centres will be located to promote active transport, public transport and healthy lifestyles. Living within 400-800 metres of a mix of destinations is consistently associated with higher levels of active transport in adults and older adults (Heart Foundation, 2017).

Movement sensitive means movement (accessibility, location etc.) will be a key consideration for colocation of a mix of destinations (or land uses) within a centre. Centres will provide a location for activity, attraction, service for people to walk or cycle to. A focal point and community hub and transport node within the neighbourhood that allows for multiple activities to be undertaken and different daily needs (i.e., live, work, play) to be met in the one location.

Centres must also be supported and surrounded by a network of connected streets, paths and cycle ways, providing and promoting opportunities for active transport, and convenient access to public transport rather than private vehicles. The network will link open space works with Open Space and Recreation principles.

Neighbourhood Plans must consider their interface with adjoining areas and their ability to develop. The Plans must consider how different land use parcels such as centres are linked by the road network and pedestrian / cycle paths within and between different residential neighbourhoods.

Principle 3: Diversity and identity

Centres will be facilitating a diverse range of activities by prioritising places and spaces for people of all ages that become vital to the social fabric of a neighbourhood where people gather, meet friends and family and engage in social activities.

Especially important for new centres are creating a vision that encourages diversity and that shapes and reflects centres character. Centres will be diverse from each other (through hierarchy, features and visions). The vision in some respects can be understood as capitalising on existing features of heritage, environment (vegetation, topography etc.) contributing to a new theme expressing the centres role in the new urban residential landscape. In other words, a vision and purpose for people to create from, understanding that activity, physical setting and meaning come together to create a 'sense of place' framed by the built forms that provide a variety of building types.

The Town Centres will have a variety of building typologies with urban characteristics such as increased



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height, minimal or zero street setbacks and street level awnings and verandahs. The public domain is intended to reflect an urban character, with high quality hard and soft landscape and paved footpaths with advanced planting of shade trees. Parking will be at the rear of blocks and underground as well as good on street provision of kerbside parking – building setbacks to accommodate front parking lots will not be permissible, as these detract from the street qualities sought in these centres.

Other Chapters of Wollongong DCP 2009 containing development controls relating to the developments within the town and village centres include:

- 1. Chapter B3 Mixed Use Development for specific controls relating mixed use developments.
- Chapter B4 Development in Business Zones for specific controls relating to business and town centre developments.

11.1 Town centre development controls

Development in the West Dapto Town Centres is to comply with the following development controls:

- Establish a strong urban form that clearly distinguishes the centre / local node from surrounding areas.
- 2. Taller buildings of 4-6 stories are encouraged in the core of the town centre. Lower scale buildings up to 3 stories in height should surround and support the core.
- 3. The street wall height should have a 2-3 storey building form.
- Building setbacks on main streets to be nil (zero) while other streets are generally to have a setback of between 0 – 2.5 m.
- 5. Side and rear building setbacks are as follows:

Setback	Distance
Side	Zero
Rear	Zero where lot adjoins allotment zoned B2 Local Centre or 5-6m where lot adjoins allotment with any residential zone.

- 6. Civic public spaces designed to encourage social interaction with paved areas, outdoor seating and urban green spaces are encouraged to balance the indoor building provisions.
- 7. Provision of shared parking facilities is encouraged with access via laneways of minor streets. Parking lots and parking areas are generally not to be visible from the streets, allowing built form to perform a clearly street defining urban function.

11.2 Village centre development controls

Development in the West Dapto Village Centres is to comply with the following development controls:

- Building setbacks can be either street aligned (zero) or setback up to 5m to create commercial forecourts or residential courts to the street.
- 2. Variation of setbacks between buildings is encouraged to create an informal organic character.
- Building height of up to 2 storeys is encouraged to create an urban village character with upper floor uses including small scale commercial and residential developments.
- 4. Parking to be provided at the rear of buildings in the form of rear laneways and parking areas accessed from the rear laneways / car courts.
- All shops should address street and be entered by front from the major street where possible or secondary street.
- Community congregation areas to be north facing and where possible take advantage of escarpment views.
- 7. Street parking to be maximised around villages.
- 8. Parking lots and parking areas are generally not to be visible from the main collector roads, allowing built form to perform a clear street defining urban function.



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12 EMPLOYMENT PRINCIPLES

Five of the Seven Employment Principles in the West Dapto Vision 2018 intend to guide the development and creation of sustainable employment outcomes for West Dapto Release Area.

The creation of employment opportunities within and near to West Dapto is a key strategy in enabling people to work close to where they live and thereby reduce the overall traffic generated by the development.

The Structure Plan (Figure 2) indicates employment land in purple. These areas are zoned mostly light industrial land uses as well as some heavy industrial. The main employment area is in Kembla Grange, in the north of the urban release area. There are some limited areas of light industrial land arranged in an enterprise corridor north and south of the Dapto Regional Centre, and some west of the M1 and along Yallah Road, Yallah to provide additional local employment opportunities.

Other Considerations

- Wollongong Economic Development Strategy and Implementation Plans, and Advantage Wollongong, Invest Wollongong.
- 2. Chapter B5 Industrial Development for controls relating to development on industrial lands.

Principle 1: Support local sustainable and accessible employment

- 1.1 Support a variety of employment opportunities accessible to the whole community (and LGA)
- 1.2 Employment containment to reduce commuting out of the release area and region.
- 1.3 Local access to higher order (career generating) employment opportunities.
- 1.4 Encourage high density employment opportunities within walking distance of existing or proposed public transport services.
- 1.5 Encourage employment area developments adjoining the structural road network to take advantage of accessibility and exposure.

Principle 2: Attract, facilitate and support industries, enterprises and business to locate in West Dapto (this principle is supported by Council, Business chambers and other organisations as required).

Principle 3: Ensure Town & Village centre employment outcomes are prioritised

- 3.1 Town and village centres are to ensure planning decisions (such as master plans and spatial arrangements) support and prioritise employment outcomes.
- 3.2 Encourage / promote / emphasise provision of professional service type jobs/roles and beyond, vs the normal retail type jobs that one might normally expect in new urban release areas.

Principle 4: Protect existing employment land

- 4.1 Maintain existing zoned employment land within the release area to ensure a supply is maintained over time and is available to take advantage of employment generating opportunities.
- 4.2 Create a strategy to enable appropriate interim uses of employment areas that also allows for gradual intensification over time.
- 4.3 Support the preservation of large lot parcels and clusters of light and heavy industrial land and ensure business parks are not accommodated in light industrial zones.

Principle 5: Take advantage of and encourage employment innovations

5.1 Planning decisions to anticipate, be responsive to and cater for innovative employment solutions.

Principle 6: Improve employment opportunities whilst ensuring development is of a high standard

- 6.1 Ensure developments are considerate of their context and compatibility with residential and sensitive land uses as well as conservation outcomes of the urban release area.
- 6.2 Apply merit-based approach when assessing employment generating activities.
- 6.3 Encourage development for employment which provides a range of goods and services without adversely affecting the amenity, health or safety of any adjoining area.



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13 HOUSING PRINCIPLES

Any specific controls for Neighbourhood Plans must consider the ability to develop adjoining areas including linkages to those areas.

The Housing Principles should be read in conjunction with Council's LGA-wide Housing Policy setting, which is updated from time to time to ensure we are addressing the challenges of a changing housing environment

These principles should be considered in conjunction with all other planning principles as they all contribute to achieving the vision for the West Dapto Release Area and ultimately sustainable housing outcomes.

"The communities will be healthy, sustainable and resilient and will have access to diverse housing choice and active or passive open space accessible by walkways, cycle ways and public transport."

Urban Residential Density Distribution

The intention for the urban structure in West Dapto is to provide for varying housing densities with increased densities around town and village centres and community hubs. Delivering density in housing particularly targeting delivery of the medium residential densities in the release area will help encourage population diversity, make the provision of efficient public transport more viable and support sustainability of the town and village centres. A range of housing types are to be provided to ensure that the housing needs of all household types are met. A diverse demographic profile will help ensure a sustainable and vibrant community in the long term.

The areas of lower residential density (R2 Low Density Residential zone), should provide an average of 13 dwellings per hectare and then in later stages, 15 dwellings per hectare. In the more sensitive areas such as the "transition" areas identified on the structure plan (**Figure 2**) Council proposes densities around 5 to 10 dwellings per hectare to enable protection of environmental values and minimize visual impact. The areas of medium residential density (R3 Medium Density Residential zone) should provide an average of 20 to 25 dwellings per hectare. Density measures such as Gross Density help inform and set targets at a precinct level (based on Landcom, 2011, Residential Density guide and supporting charts, See **Figure 15**). Net density (see **Figure 14**) will be used as an indicator to show over time where the release area development is achieving desired mix and ultimate (finished development) housing densities. These are NOT site by site or zone controls as the aim is for diversity, but they help inform infrastructure planning, understand intensity of built forms and population.

Principle 1: Encourage housing diversity

Diversity can be delivered through different products at different stages of planning by promoting and providing a range of density and lot size and shapes to offer a range of choice to better meet changing community needs.

Mixture of density low to high, single dwellings, dual occupancy, town houses and apartments in appropriate locations should all be considered in neighbourhood planning and subdivision design stages.

Promote increased densities and innovative design types close to town and village centres and transport infrastructure where possible.

A variety of lot sizes and dimensions must be provided to achieve diversity in products to suit a range of household structures and to meet the density targets relating to the residential zones (Refer to **Figure 14**).



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Reference chart | Residential density and planning controls

TYPICAL FSR & LOT AREAS FOR HOUSE TYPES



FSR (gross floor area / lot area)

Lot area (m²)

Figure 14. Net Residential Density Chart (Landcom, 2011).



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Principle 2: Promote housing affordability

Residential neighbourhoods cater for a variety of demographic and socio-economic characteristics. Promoting housing mixture is one tool that provides opportunity for more affordable housing options and reduces housing stress.

Principle 3: Establish sustainable, energy efficient, appealing and functional residential living

- 1 Seek to promote design excellence in housing provision and neighbourhood planning.
- 2 Target an increased use and uptake of renewable energy through housing and neighbourhood design.
- 3 Target smart design solutions for housing with passive heating/cooling (housing placement in lots, responsive floor plans), light coloured roofing and light paving or ground covering materials (both reduces ambient air temperatures in the neighbourhoods and roof cavity temperatures).
- 4 Lots must have the appropriate area and dimensions for the siting of dwellings, canopy trees and other vegetation, private outdoor open space, rainwater tank, and vehicular access and on-site parking.

Principle 4: Creating local amenity and a sense of place

Design safe, healthy and active neighbourhoods with interactive interfaces between residences, the streets and surrounds. It is about ensuring there is visual connection between housing and the streets, parks and activity areas they are adjoining or interfacing with.

Encouraging and supporting housing design that responds to place. Creating site responsive built form and lot layouts that consider existing features and landscape context, natural land form and surrounding land uses.

Manage housing growth to protect and promote the conservation values that contribute to concepts of 'place' in West Dapto.

- 1. Lot size and layout must respond to the physical characteristics of the land, such as slope and existing significant vegetation, and site constraints including bushfire risk.
- Lot design is to facilitate housing fronting onto creek line corridors and other areas of public open space, to incorporate these spaces into the living environment, facilitate surveillance, and prevent isolation and degradation of these spaces.

Principle 5: Housing transition to the Illawarra Escarpment

Reduce housing density on the fringe of the urban release area to provide delineation to the housed urban areas and a buffer to the Escarpment and important environmental features.



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14 NEIGHBOURHOOD PLANS

A Neighbourhood Plan is a step between the West Dapto Structure Plan and a Development Application. It allows issues to be considered on a neighbourhood/precinct/ catchment scale.

The intent for neighbourhood planning is to:

- ensure adjoining land owners jointly (or on behalf of another) consider common constraints and design issues
- provide a means to work through issues around access and staging of development.
- allow Council and other agencies to better align infrastructure planning and delivery to where development fronts are occurring.
- achieve efficiencies of shared infrastructure requirements (eg. stormwater) at an appropriate scale for the infrastructure to occur.
- at an appropriate scale, set urban density targets and understand tracking against them to support town and village centre development.
- align neighbourhoods between ownership/cadastre and water sub-catchments as an indicator of existing physical environmental setting.

Neighbourhood Plans will be exhibited as an amendment to this Chapter and in place prior to assessment and determination of a development application.

14.1 Neighbourhood Plan Requirements

Neighbourhood Plans are required to:

- Support and reflect the West Dapto Vision, Planning Principles and Structure Plan detailed in the West Dapto Vision 2018.
- Confirm the developable areas within the defined neighbourhood outlined in Figure 17.
 Council will consider any proposals to consolidate neighbourhoods.
- Supplement the information prepared by Council during rezoning of West Dapto. Council did
 not have sufficient resources to consider every property in detail and Council's consultants
 were not granted access to all properties. Copies of the studies undertaken by Council are
 available on request (Note the West Dapto Aboriginal Heritage Study is not a public
 document).
- Consider all potential constraints, mitigate impacts or propose solutions to managing constraints on a neighbourhood/precinct/catchment scale, rather than property by property.
- Plan the sequence of development for all affected parcels within a neighbourhood to ensure adjoining land owners consider the proposals, concepts and development timeframes of each other (planning through any access issues etc).
- Encourage the integration of development sites, development sequencing and economies
 of scale and avoid exclusion of adjoining lots that may result in development isolation or
 disjointed development outcomes (eg. opportunities for efficiencies through shared
 infrastructure, integrated outcomes with well-considered interfaces between landuses).
- Provide more detailed neighbourhood specific information guided by the West Dapto Structure Plan such as future residential density, open space functions, conservation areas, water management structures.
- Ensure sufficient space is provided in a neighbourhood plan for water management, open space and any other landuses or infrastructure required (considering the vision and Principles in the West Dapto Vision 2018) to support safe and sustainable residential communities.
- Ensure interfaces between land uses and delivery of large infrastructure is well coordinated within and with adjacent neighbourhoods.

The Neighbourhood planning process:

Discuss site with Council's Urban Release Team and Land Use Planning Team.



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- 2. Prepare <u>Concept Neighbourhood Plan</u>, Staging or development Sequencing Plan and supporting technical studies. Council officers will review and provide feedback regarding any change needed before accepting and progressing with a draft Plan.
- Council officer will report the <u>draft Neighbourhood Plan</u> to Council as an amendment to the Wollongong DCP 2009 – Chapter D16 West Dapto Release Area.
- 4. Draft Neighbourhood Plan Exhibition.
- Council officers review submissions, consult with landowners / consultant over any further amendments needed and then report on submissions and the <u>final Neighbourhood Plan</u> to Council.
- 6. Council adopts Neighbourhood Plan as an amendment to the DCP (including where relevant any updates needed to the Structure Plan **Figure 2** or **Figure 17**).

After the exhibition and adoption of a Neighbourhood Plan, Development Applications for sites within the defined plan can be lodged by individual landowners (or their consultants), for development in their part of the Neighbourhood depending on appropriate sequencing/identified stage of the neighbourhood the site is located in. A Development Application can be submitted on behalf of a number of landowners, provided owners consent is obtained. Note submission of a Development Application within a defined precinct will not be accepted unless the subject Neighbourhood Plan has been adopted by Council.

Any proposed variation to the agreed Neighbourhood Plan area will require justification considered on merit and any variation on or near a property boundary will require agreement of the adjoining owner.

14.2 Matters to be addressed in Neighbourhood Plan applications

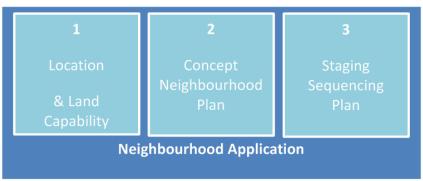


Figure 16. Items of a Neighbourhood Plan application

A Neighbourhood Plan Application should include:

- Site location and description, and land capability assessment, addressing existing issues such as:
 - Wollongong LEP 2009 provisions (including Zoning, Minimum Lot Size, FSR, Building Height, Flooding, Heritage, Acid Sulfate Soils, riparian corridors etc).
 - Any other relevant legislation.
 - The areas setting within West Dapto, eg proximity to commercial centres, main roads, community services.
 - Flooding and bushfire constraints.
 - Topography, known geotechnical constraints, known contamination constraints.
 - Biodiversity (EECs, bushland, significant trees, habitat).
 - Heritage historical land use, heritage sites, including Indigenous Heritage cultural issues and visual character.



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- Existing road network.
- Available utilities & services and existing easements.
- Need for community and recreation facilities.
- Noise impacts (e.g. from the main roads, industrial areas or public & private railways).
- 2. A concept Neighbourhood Plan and supporting documentation, showing proposed:
 - All landuse areas including, but not limited to, Residential, retail, employment, recreation and conservation areas.
 - Road layout & hierarchy.
 - Indicative dwelling density (Figure 15) & yield.
 - Public transport, bicycle and pedestrian routes demonstrating walkability.
 - Drainage management concept plan based on modelling (water quantity & quality and flood behaviour) inclusive of indicative locations and sizing of infrastructure.

Note – where a drainage/water quality solution is developed at a catchment or neighbourhood level, Council will consider acquisition where the agreed detention basin site is consistent with the West Dapto Development Contributions Plan.

- Buffers to heritage items or other proposed heritage conservation management measures.
- Riparian corridors, buffers and proposed future uses.
- Location of schools, community facilities, recreation facilities and parks, including any proposed public land.
- Indicative or conceptual Bulk Earthworks Plan linked to demonstrating feasibility of the drainage (stormwater) infrastructure and road layout plans.
- 3. In collaboration with Council advice, a staging or sequencing plan supporting the concept Neighbourhood Plan showing:
 - · All existing site boundaries within the neighbourhood, and
 - Proposed development staging within the planned area, taking into consideration delivery of essential infrastructure, access and logical progression as a development front.
- 4. Submission in electronic and PDF form.
 - All the above data layers are required to be presented in electronic form. The electronic Neighbourhood Plan package will include either a set of Shapefiles, a Geodatabase or set of CAD files or be provided in another form as required by Council. The applicant shall also seek advice regarding Council's specific naming conventions, coordinate system and metadata requirements prior to lodgement of the Neighbourhood Plan.
 - Council also requires the Neighbourhood Plan and supporting plans (staging, infrastructure plan etc) to be provided in PDF form.



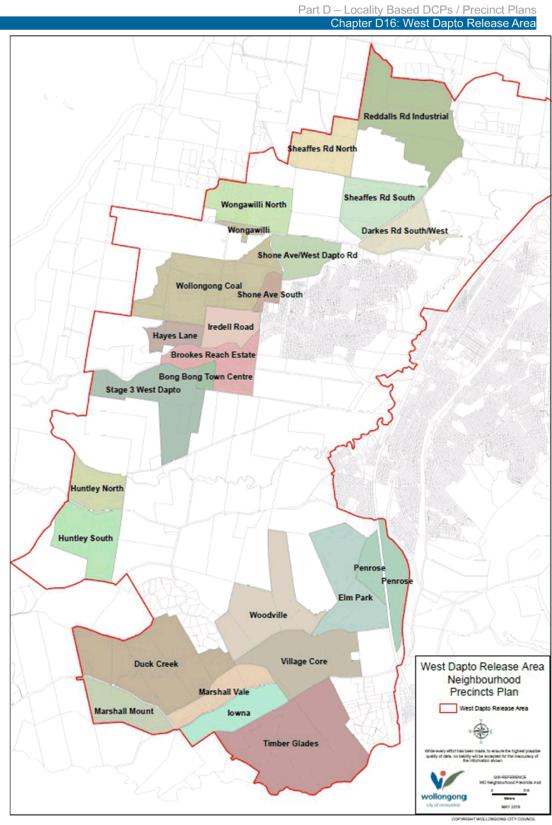


Figure 17. Defined Neighbourhoods in West Dapto Urban Release Area.



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14.3 **Adopted Neighbourhood Plans**

The following Neighbourhood Plans have been adopted for the purposes of this Part:

Neighbourhood Plan	Submitted by	Adoption Date
14.3.1. Bong Bong East and north	Stockland	14 December 2010
14.3.2. Bong Bong Town Centre	Vinta Group / Bong Bong Town Centre	14 December 2010
14.3.3. Wongawilli north	Cardno Forbes Rigby and Jones Flint and Pike.	26 November 2012
14.3.5 Shone Avenue south	KF Williams	26 July 2011
14.3.6 Reddalls Road Industrial	Beadnell	9 December 2013
14.3.7 Sheaffes Road North	SMEC Urban	8 April 2013
14.3.8 Darkes Road South West	Don Fox Planning	24 March 2014
14.3.9 Avondale Road North, Huntley	Urbis	3 August 2015
14.3.10 Shone Avenue / West Dapto Road	KF Williams	24 August 2015
14.3.11 West Dapto Road / Sheaffes Road (south)	Watts Consulting for Wollongong City Council	19 October 2015
14.3.12 Bong Bong South	Stockland	19 November 2018
14.3.13 Stage 5 Yallah, Marshall Mount	Council – supporting the rezone	9 December 2019

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14.3.1 Bong Bong East and North



Figure 18. Neighbourhood Plan 1 - Bong Bong East and North

The following variations to development standards have been accepted:

Chapter B1 Residential Development - Section 4.5 Front setbacks - controls 1 and 2 are replaced with:

- The following setback requirements apply from the primary street frontage to the front façade of the building:
- (a) Front building line: 4.5 metre minimum setback, except for garages which must be setback at least 5.5 metres from the property boundary on the primary road.
- (b) Articulation zone: An articulation zone up to a maximum of 1.5 metres measured from the foremost edge of the building line may be incorporated within the front setback zone. The following building elements are permitted in the articulation zone:
 - i) an entry feature or portico,
 - ii) a balcony, deck, patio, pergola, terrace or verandah,
 - iii) a window box treatment,
 - iv) a bay window or similar feature,
 - v) an awning or other feature over a window,
 - vi) a sun shading feature.
- (c) A building element must not extend above the eave gutter line, other than a pitched roof to an entry feature or portico that has the same pitch as the roof on the dwelling house.
- (d) The maximum area of all building elements within the articulation zone, other than a building element listed in (v) or (vi) above, must not be more than twenty five percent of the area of the articulation zone, measured through the horizontal plane of the elements.
- For corner allotments the following setback requirement applies from the secondary street frontage to the façade of the building:
- (a) Secondary building line: 2 metre minimum setback.



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Chapter B1 Residential Development - Section 4.6 Side and rear setbacks - controls 1 to 3 are replaced with:

- 1. A dwelling house and any carport, garage, balcony, deck, patio, pergola, terrace or verandah that is attached to the dwelling house with a building height at any point up to 3.8 metres on an allotment with an area greater than or equal to 450m2 must have a setback from a side boundary of at least 900mm. This control does not apply to a secondary street frontage.
- 2. Any part of a dwelling house that has a building height in excess of 3.8 metres and any carport, garage, balcony, deck, patio, pergola, terrace or verandah that is attached to a dwelling house on an allotment with an area greater than or equal to 450m2 must have a setback from a side boundary of at least the sum of 900mm and an amount that is equal to one quarter of the additional building height above 3.8 metres. This control does not apply to a secondary street frontage.
 - N.B. A two storey dwelling house may have its ground floor component (up to 3.8 metres in height) setback 900mm from the side boundary with the second storey setback further as required by the formula in (2).
 - A dwelling house that is part two storey and part single storey may have the single storey portion of the dwelling house (up to 3.8 metres) setback 900mm from the side boundary and the two storey portion of the dwelling house setback further as required by the formula in (2).
- 3. On an allotment with an area less than 450m2 and a lot width 10m or less, where an easement for access and maintenance as well as driveway crossing locations (which are located so as not to adversely impact on-street parking capacity) are provided on title, a zero side setback may be applied to one side for the single storey component of the dwelling. The two storey component of the dwelling is to be setback further as required by the formula in (2). This control does not apply to a secondary street frontage.

The following additional controls to apply:

- 1. A dwelling house and any carport, garage, balcony, deck, patio, pergola, terrace or verandah that is attached to the dwelling house with a building height at any point up to 3.8 metres must have a setback from the rear boundary of at least 3 metres.
- 2. A dwelling house with a building height of more than 3.8 metres and any carport, garage, balcony, deck, patio, pergola, terrace or verandah that is attached to the dwelling house must have a setback from the rear boundary of at least 3 metres, plus an amount that is equal to three times the additional building height above 3.8 metres up to a maximum setback of 8 metres.
- 3. Despite (6) and (7), an allotment that has a rear boundary with a laneway may have a building line that abuts that boundary for up to 50 per cent of the length of that boundary.

Chapter B2 Residential Subdivision – Section 13 Cut and Fill land reshaping works – does not apply to master planning of land and precinct subdivision applications.

14.3.2 Bong Bong Town Centre

In the area where Bong Bong Road adjoins the north-south arterial route a new district town centre is to be established, based on a north-south orientated main street (see **Figure 20** Bong Bong East and North Neighbourhood Plan). The Bong Bong Town Centre is to be the primary town centre in the release area. The Bong Bong Town Centre is to be a supermarket based centre with a range of shops and would accommodate around 15,000m2 of retail floor space.

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14.3.3 Wongawilli - North

Wongawilli North will provide a mix of housing densities from large lot housing towards the escarpment and becoming denser towards the east and surrounding the village centre. The riparian corridor will create some structural form for passive recreation and active transport links along shared paths between the residential pockets.

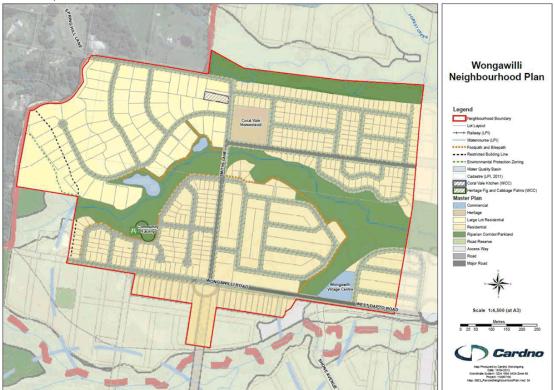


Figure 19. Wongawilli North Neighbourhood Plan

The following modified and additional controls to apply:

- 1. Minimum Lot width fronting Wongawilli Road and Smiths Lane of 15m;
- 2. Minimum front building line setback of 4.5m for all lots fronting Wongawilli Road and Smiths Lane;
- The maximum length of cul-de-sacs that provide access to lots fronting Wongawilli Road Should not exceed 130m;
- 4. For Lots with a dual road frontage:
- (a) Wongawilli Road and Smiths Lane is considered to be the primary road frontage and the internal unnamed road is considered to be the secondary road frontage and the rear of the lots;
- (b) All dwellings must face, address and activate the primary road frontage of Wongawilli Road and Smiths Lane;
- (c) Car ports or garages must be located and accessed from the secondary road frontage rear of the lots;
- (d) Minimum rear setbacks are to remain in accordance with Chapter B1, garages and carports are to have a minimum rear setback of 5.5m in accordance with the principles shown in **Figure 22**:
- (e) Fencing and landscaping treatment of the secondary road frontage is in accordance with the principles shown in **Figure 22**. Examples of Articulated fencing include, but are not limited to:
 - Masonry to 1.2m high with open type lattice or slates above with masonry elements no wider that 150mm;
 - ii) Timber Lap and Cap;



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- iii) Colourbond solid to 1.2m with Colourbond lattice style top sections.
- 5. For Lots backing onto or adjoining the Rural Fire Service (RFS) Property:
- (a) Dwelling house, secondary dwelling and any habitable areas must be setback at least 10m from the rear or common property boundary that adjoins the RFS property;
- (b) Outbuildings and garages must be setback at least 5m from the rear of common boundary that adjoins the RFS property.

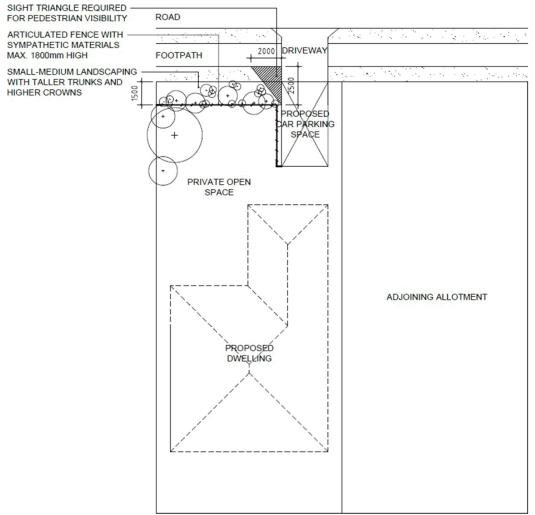


Figure 20. Dual frontage property secondary frontage treatment

PRIMARY ROAD (No vehicle Access)

Wongawilli Village centre will provide a small convenience centre with a small grocer and some mixed retail shops. The centre will be designed focusing on activating the interface with the riparian boundary and its West Dapto Road frontage. Parking will be included in the village design with street parking along the secondary street and a parking lot area provided along the north, generally not visible from West Dapto Road, allowing built form to perform a clear street defining urban function. The village will take form guided by the concept design presented in **Figure 23**.





Figure 21. Wongawilli Village Centre - Conceptual design

14.3.4 Wongawilli Mine Spur Rail line

It is anticipated that the Wongawilli Mine will continue to operate for the next 30 years, or longer. Coal is transported from the mine to Port Kembla via the rail network. Future urban development should be designed to recognise the continued use of the rail spur line and include measure to mitigate noise and other potential impacts. Division 15 of SEPP Infrastructure 2007, applies to development near the spur line.

Objectives:

- (a) To facilitate the transport of coal from Wongawilli Mine to Port Kembla by rail transport.
- (b) To minimise rail noise, vibration and other impacts on dwellings near the rail spur line.

Controls:

- Development Applications for subdivision and dwelling houses within the rail buffer area (Refer to Figure 24), are to include sound attenuation measures that achieve a maximum of 35dBA within the dwelling.
- 2. Development Applications for subdivision and dwelling houses within the rail buffer area, are to include consider vibration impacts and include mitigation measures.
- 3. The development applications must satisfy the requirements of SEPP Infrastructure Division 15.



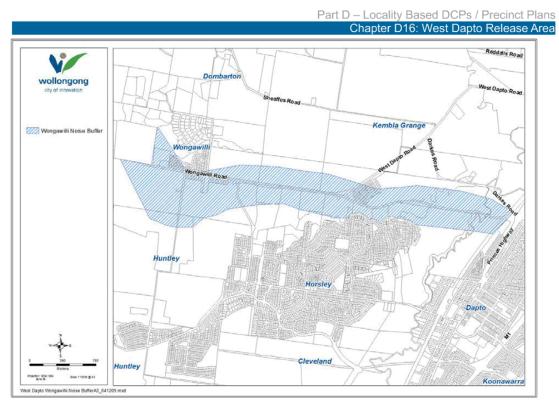


Figure 22. Wongawilli rail noise area



Chapter D16: West Dapto Release Area 14.3.5 Shone Avenue - South

Figure 23. Shone Avenue South Neighbourhood Plan

The following modified and additional controls to apply:

- 1. For Lots with a dual road frontage:
- Shone Avenue and Iredell Road are considered to be the primary road frontage and the internal (a) unnamed road is considered to be the secondary road frontage and the rear of the lots;
- (b) All dwellings must face, address and activate the primary road frontage of Shone Avenue and Iredell
- Car ports or garages must be located and accessed from the secondary road frontage rear of the (c) lots;
- (d) Minimum rear setbacks are to remain in accordance with Chapter B1, garages and carports are to have a minimum rear setback of 5.5m in accordance with the principles shown in Figure 26;
- Fencing and landscaping treatment of the secondary road frontage is in accordance with the principles shown in Figure 26. Examples of Articulated fencing include, but are not limited to:
 - Masonry to 1.2m high with open type lattice or slates above with masonry elements no wider that 150mm;
 - Timber Lap and Cap;
 - Colourbond solid to 1.2m with Colourbond lattice style top sections.



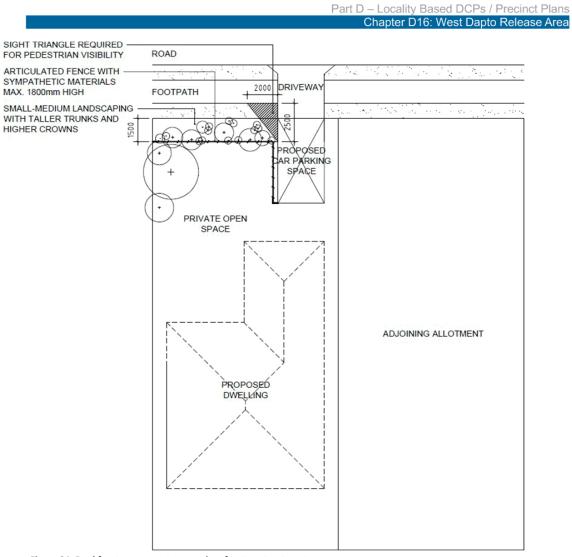


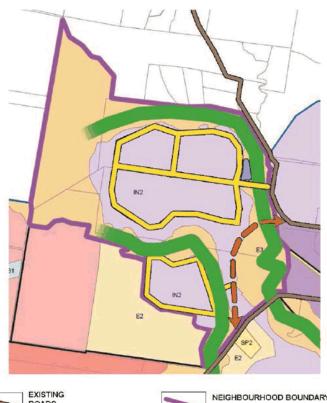
Figure 24. Dual frontage property secondary frontage treatment

(No vehicle Access)



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14.3.6 Reddalls Road Industrial



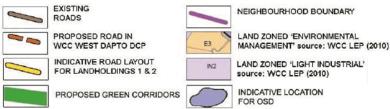


Figure 25. Reddalls Road Industrial Neighbourhood Plan

The following additional controls to apply:

- 1. The proposed cycleway must have adequate passive surveillance to ensure safety by design.
- Indicative future bus stop locations should be identified and shown on road types capable of handling bus routes. A minimum number of stops should be located in a manner to ensure that the majority of lots are within 400 metres of a bus stop.
- 3. Any proposed development of the neighbourhood will require the applicant upgrading the relevant section of Reddalls Road to a standard that is suitable for the normal range of Heavy vehicles at no cost to Council. These upgrade works would also include any required intersection treatment to Reddalls Road and the new proposed Access Road as well as any necessary road safety works.



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14.3.7 Sheaffes Road North



Figure 26. Sheaffes Road North Neighbourhood Plan

The following modified and additional controls to apply:

- 1. For Lots with a dual road frontage:
- (a) Sheaffes Road and Paynes Road is considered to be the primary road frontage and the internal unnamed road is considered to be the secondary road frontage and the rear of the lots;
- (b) All dwellings must face, address and activate the primary road frontage of Sheaffes Road and Paynes Road;
- (c) Car ports or garages must be located and accessed from the secondary road frontage rear of the lots;
- (d) Minimum rear setbacks are to remain in accordance with Chapter B1, garages and carports are to have a minimum rear setback of 5.5m in accordance with the principles shown in figure 6.3.6.2;
- (e) Fencing and landscaping treatment of the secondary road frontage is in accordance with the principles shown in **Figure 29**. Examples of Articulated fencing include, but are not limited to:
 - Masonry to 1.2m high with open type lattice or slates above with masonry elements no wider that 150mm;
 - ii) Timber Lap and Cap;
 - iii) Colourbond solid to 1.2m with Colourbond lattice style top sections.



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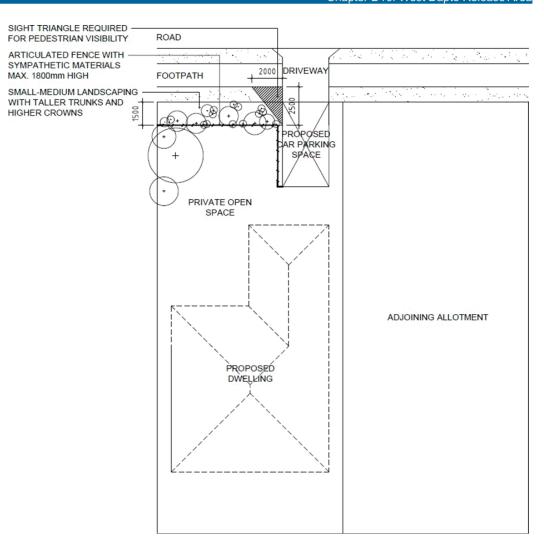


Figure 27. Dual frontage property secondary frontage treatment

PRIMARY ROAD (No vehicle Access)



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14.3.8 Darkes Road South West

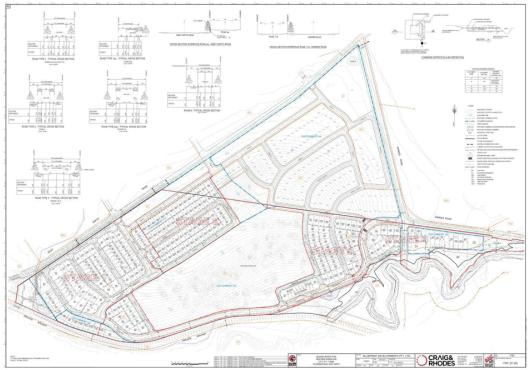


Figure 28. Darkes Road South West Neighbourhood Plan

The following modified and additional controls to apply:

- 1. Lot Width, Depth and Aspect are to be in accordance with Figure 6.3,7.1 above and are not required to comply with Chapter B2 Section 6 Subdivision Lot Layout Aspect & Solar Access Orientation as well as Section 8 Lot Width & Depth Requirements. The relevant issues have been considered and the lot layout and details shown are considered acceptable. Should the lot layout depart substantially from that shown then compliance with Chapter B2 is required unless variation is sought in accordance with Chapter A1.
- On an allotment with an area less than 450m2 and a lot width 10m or less, where an easement for access and maintenance as well as driveway crossing locations (which are located so as not to adversely impact on-street parking capacity) are provided on title, a zero side setback may be applied to one side for the single storey component of the dwelling. The two storey component of the dwelling is to be setback further as required by the formula in (2). This control does not apply to a secondary street frontage.
- 3. For Lots with a dual road frontage:
- (a) West Dapto Road and Darkes Road is considered to be the primary road frontage and the internal unnamed road is considered to be the secondary road frontage and the rear of the lots;
- (b) All dwellings must face, address and activate the primary road frontage of West Dapto Road and Darkes Road;
- (c) Car ports or garages must be located and accessed from the secondary road frontage rear of the lots:
- (d) Minimum rear setbacks are to remain in accordance with Chapter B1, garages and carports are to have a minimum rear setback of 5.5m in accordance with the principles shown in figure
- (e) Figure 31 below;
- (f) Fencing and landscaping treatment of the secondary road frontage is in accordance with the principles shown in **Figure 31**. Examples of Articulated fencing include, but are not limited to:
 - i. Masonry to 1.2m high with open type lattice or slates above with masonry elements



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no wider that 150mm;

- ii. Timber Lap and Cap;
- iii. Colourbond solid to 1.2m with Colourbond lattice style top sections.

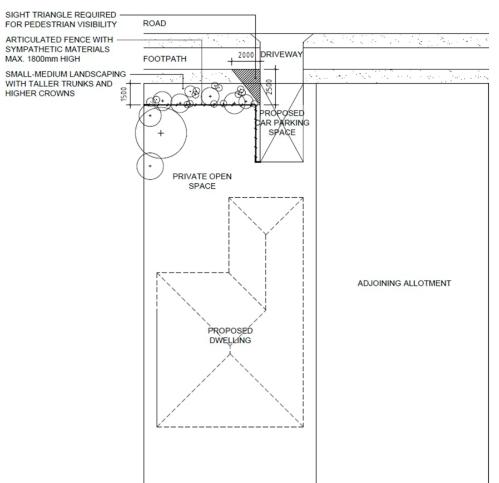


Figure 29. Dual frontage property secondary frontage treatment

PRIMARY ROAD (No vehicle Access)

- 1. For all development applications outside of the area denoted as Stage 1:
- (a) An Aboriginal Heritage Assessment is to be undertaken in accordance with the Wollongong Development Control Plan 2009 Chapter E10.
- (b) Additional archaeological investigations are required to be undertaken to the previously recorded archaeological sites and three (3) potential archaeological deposits (PADs) identified. This work is required in order to better determine the significance and extents of these areas.
- (c) In-principle support for the intended mitigation or Aboriginal Heritage Impact Permit (AHIP) proposals is to be gained from the NSW Office of Environment and Heritage (OEH) prior to the determination of the associated development application.
- (d) Further consultation with Local Aboriginal Groups is to be undertaken within the assessment of any future Development Applications.
- (e) Consideration of the impacts of the proposal on identified Non-Indigenous Archaeological Deposits located on the site during the preparation of the Heritage reports and which are subject to Section 140 of the NSW Heritage Act 1977.



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- (f) Conservation planning related to any retained structures or features on the site (e.g. The Silo and gardens).
- (g) Interpretation planning relating to the history and heritage significance of the development area.
- 2. Bushfire Matters
- (a) Certain construction standards apply for development on Bushfire Prone Land. The applicable Construction Standards for proposed development are to reflect the Bushfire Attack Level (BAL) as identified at Figure 32 below.
- (b) Given that the site is identified as Bush Fire Prone Land, when a development application for subdivision is made, the development will require a Bush Fire Safety Authority to be issued by the NSW RFS under Section 100B of the Rural Fires Act 1997. The RFS has indicated that it is likely that by condition of the Bush Fire Safety Authority, restriction on the titles of the lots requiring the provision and maintenance of the necessary APZ's will be required.

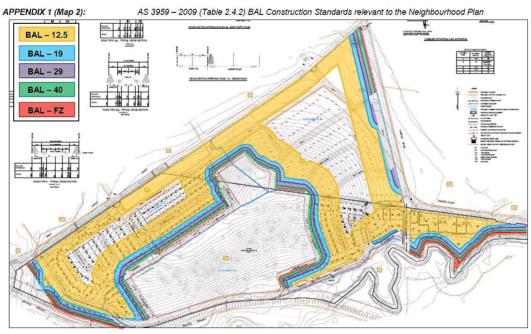


Figure 30. BAL Construction Standards relevant to the Neighbourhood Plan

- 1. Access
- (a) An appropriate access track is to be provided to the Detention Basin A1 to facilitate sufficient maintenance access for Council.
- (b) Appropriate access is also to be provided to the Wongawilli Rail Spur Line from the Detention Basin A1 and from Road 01.
- (c) The final form of the access track is to be determined in conjunction with Council Engineering Officers within the assessment of future Development Applications. Hardstand access will be required.
- There may be scope to amend the current Council Drainage Acquisition Maps to reflect more up to date flood mapping of the area. This is to be further investigated within future Voluntary Planning Agreements (VPAs) and assessment of Development Applications.



Part D – Locality Based DCPs / Precinct Plans Chapter D16: West Dapto Release Area

14.3.9 Avondale Road North, Huntley



Figure 31. Avondale Road North, Huntley Neighbourhood Plan



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14.3.10 Shone Avenue / West Dapto Road



Figure 32. Shone Avenue and West Dapto Road Neighbourhood Plan

The following modified and additional controls apply:

- 1. For Lots with a dual road frontage:
- Shone Avenue is considered to be the primary road frontage and the internal unnamed road is considered to be the secondary road frontage and the rear of the lots;
- (b) All dwellings must face, address and activate the primary street frontage of Shone Avenue this is the main address of the dwelling;
- (c) The minimum front setback on Shone Avenue is 4m (being a greenfield site) and the minimum setback from the secondary road is 4m;
- (d) No car access to residential lots is permitted from Shone Avenue (ie lots are access denied). Carports or garages must be located and accessed from the secondary road frontage rear of the lots;
- (e) Garages and carports must be setback a minimum of 5.5 metres from the property boundary on the secondary road to enable a vehicle to park or stand in front of the garage or carport (ie allow off street parking that does not impede the footpath) and in order to be a non dominant component of the streetscape;
- (f) Fencing controls for the primary street frontage of Shone Avenue are outlined in Chapter B1: Residential Development and are designed to complement the objectives of passive surveillance;
- (g) Fencing and landscaping treatment of the secondary road frontage must ensure that clear lines of sight are maintained for motorists and pedestrians to and from the lot, and ensure the design complements the objectives of passive surveillance. To help soften the visual impact and improve the streetscape appearance of the fence, and allow visual connection between the dwelling and the street, any fence will be required to be well articulated and landscaped with appropriate planting. Articulated fencing should be provided to a maximum height of 1.8 metres. Examples of articulated fencing include, but are not limited to:



Chapter D16: West Dapto Release Area

- Masonry to 1.2m high with open type lattice or slates above with masonry elements no wider than 150mm;
- ii) Timber Lap and Cap;
- iii) Colourbond solid to 1.2m with Colourbond lattice style top sections.
- NB. Fences in bush fire prone areas shall be of a metal or masonry construction only.
- (h) Any gates associated with the secondary street fence should open inwards so as to not obstruct the road reserve.
- (i) Where garage door openings face the secondary road they shall be a maximum of 50% of the width of the dwelling. Refer to Chapter B1: Residential Development for other car parking and access controls.
- 2. For Lots backing onto West Dapto Road:
- (a) An acoustic building exclusion zone of 25 metres applies along the length of the rail corridor to reflect Noise Report recommendations;
- (b) A sound wall is to be erected by the developer along the length of the rail corridor, as indicated in the Neighbourhood Plan.



Chapter D16: West Dapto Release Area

14.3.11 West Dapto Road / Sheaffes Road (south)

Along West Dapto Road a town centre (large local town centre) is to be established to the west. The town centre will interface with large neighbourhood open space provisions that will cater for active organised sporting needs. The Town centre will perform an important role in the provision of public transport, as a node with active transport facilities will meet with the public transport network. The core part will contain the primary retail and commercial functions and be surrounded by some business and medium density housing. It is envisaged that this centre would accommodate around 7,500m2 of retail floor space to support the employment land.

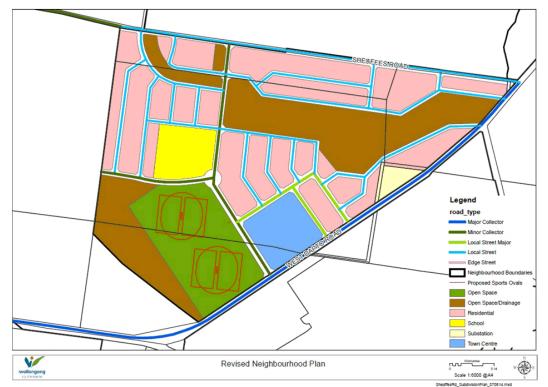


Figure 33. West Dapto Road / Sheaffes Road (south) Neighbourhood Plan



Part D – Locality Based DCPs / Precinct Plans Chapter D16: West Dapto Release Area

14.3.12 Bong Bong South

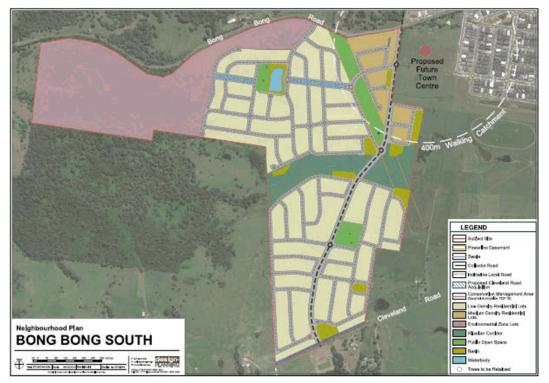
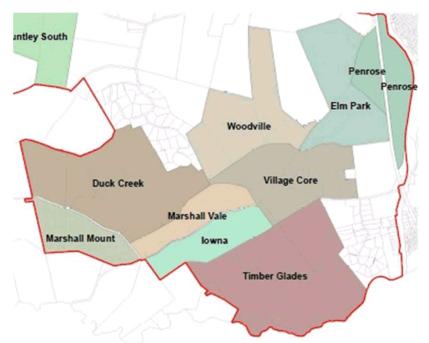


Figure 34. Bong Bong South Neighbourhood Plan



Part D – Locality Based DCPs / Precinct Plans Chapter D16: West Dapto Release Area

14.3.13 Stage 5 - Yallah / Marshall Mount



There are nine neighbourhood precincts that make up Stage 5 Yallah/Marshall Mount. During the rezoning process, visions and strategic decisions were made to provide strategic level structure to future development in the area (see Page 8 summary of structure). The Neighbourhood plans will all be required to deliver against the strategic intents established during these processes. Applicants planning in Stage 5 can contact Council to obtain a copy of the Yallah-Marshall Mount Vision Statement (Council reference: Z14/418278).

Marshall Mount Town Centre

The new village centre will be focussed around the intersection of Yallah Road and Marshall Mount Road on lower lying land adjacent to Duck Creek. The vision proposes that the focal point of the new community will be in this neighbourhood. Other developable land near this central intersection will be available for development for a mixture of housing types, with densities ranging from 50-75 dwellings per hectare near the village centre, with 20-30 dwellings per hectare further away. The vision needs to achieve these higher densities to create a critical mass of population within a walkable catchment of the proposed village centre to assist in economic viability of the centre and reduced car dependence.

There are opportunities for smaller lot housing and terraces to take advantage of future public transport routes along Marshall Mount Road. Duck Creek provides opportunities for passive open space and walking/cycling tracks, but also presents a significant flood hazard which requires development to be kept clear. The corner of Marshall Mount Road and North Marshall Mount Road contains heritage items, including a community hall, which provides opportunities for a community focus around this point. There is flat land, which may have potential for a school and playing fields adjacent to the proposed Village Centre. Land further from the main public transport routes will be for low density residential and rural-residential development.

The steeper slopes and more timbered areas provide a scenic green backdrop to the Duck Creek valley and provide a bushland link along the ridgelines from the escarpment to Lake Illawarra.



Part D - Locality Based DCPs / Precinct Plans

Chapter D16: West Dapto Release Area

15 Matters to be addressed in Development Applications

This chapter applies to development applications in the West Dapto Urban Release Area.

Documentation accompanying the Development Application for subdivision will also have to provide more detailed site specific information and specialist reports, addressing issues such as:

- Detailed site survey by a registered surveyor.
- Development plans lot layout, detailed road designs, landscape plans, subdivision stages (if any) (Chapters B2, B3 and B4).
- Flora and fauna assessment and future management (Chapters E18).
- Riparian land management (Chapter E23).
- Drainage/flooding/water quality modelling, WSUD (Chapters E13, E14, E15 and E22).
- Land contamination assessment (Chapter E20).
- Bushfire management (Chapter E16).
- Traffic assessment (Chapter E3).
- Aboriginal heritage assessment (Chapter E10 and E11).
- Noise assessment (where relevant) (Chapter E4).
- Pedestrian and bicycle routes, including accessibility for persons with a disability (Chapter E1).
- Crime Prevention through Urban Design (Chapter E2) etc.

The documentation accompanying a Development Application for a Dwelling House on a newly subdivided lot should have regard to Part A and B1 (Dwelling Houses) of this DCP and any variations to the generic controls under this chapter (e.g. the standard setbacks in individual neighbourhoods may have been varied).

An application for a Dwelling House can also be undertaken in accordance with the requirements of SEPP Exempt and Complying Development, which can be assessed by Council or a Private Certifier.





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Part B –	Land	Use	Based	Planning	Control	ls
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Chapter B2: Residential Subdivision

1 INTRODUCTION

- This Chapter of the DCP outlines the objectives and detailed controls for residential subdivision in addition to the planning controls contained in the relevant Local Environmental Plan.
- 2. The purpose of this chapter of the DCP is to provide Council's detailed requirements for residential subdivision development upon land zoned either: R1 General Residential, R2 Low Density Residential, R3 Medium Density Residential, R4 High Density Residential, R5 Large Lot Residential, B1 Neighbourhood Centre and B4 Mixed Use.
- 3. This part of the DCP should be read in conjunction with:
 - (a) The relevant Local Environmental Plan which prescribes the zoning and minimum subdivision lot size requirements.
 - (b) Part A (Introduction and General Requirements) of the DCP which provides advice on the lodgment requirements for a Development Application.
 - (c) Part D (Locality based DCPs / Precinct Plans) of the DCP which provides specific locality based or precinct based planning controls which may affect a proposed residential subdivision in a specific locality.
 - (d) Part E (General Planning Controls City Wide) of the DCP which outlines Council's general planning requirements for all developments.
 - (e) Council's Subdivision Policy which outlines Council's minimum design and construction specifications for all components of a subdivision including but not limited to earthworks, drainage and road works etc.

2 OBJECTIVES

The objectives of this Part of the DCP are:

- (a) To facilitate a range of lot sizes to permit a range of housing styles and housing mix, in order to meet the changing demographic profiles and housing requirements for residents in the City of Wollongong Local Government Area;
- (b) To ensure the subdivision of land is responsive to inherent site conditions and constraints;
- (c) To ensure that all subdivisions are designed to take into account the principles of ecologically sustainable development and solar energy efficiency, to assist in ensuring that subsequent development is significantly more energy efficient;
- (d) To ensure subdivisions achieve high quality urban design outcomes through maximising the number of new lots with principal street frontage and to restrict the number of battle- axe lots;
- To ensure that lot sizes, dimensions and layout are consistent with best practice in terms of urban design, solar access orientation and energy efficiency;
- (f) To establish a clear hierarchy of different road types which cater for different types of traffic movement through residential subdivisions; and
- (g) To ensure that the majority of residential allotments are within a 400 metre walking distance from an existing or proposed new bus stop.



Chapter B2: Residential Subdivision

3 DEFINITIONS

Corner Allotment Is a lot which has frontage to two roads on adjacent boundaries.

Irregular shaped allotment means an allotment which is not regular in shape.

Regular shaped allotment means either:

- (a) Allotment which is either square or rectangular in shape; or
- (b) Allotment of another shape where a square or rectangular shape equivalent in area to the minimum lot size area for the allotment type could be contained within the boundaries of the allotment and includes a battle-axe shaped allotment and a corner allotment where the only deviation from the above requirements is the access handle (ie battle axe lot) or the splay corner (ie corner lot).

4 TYPES OF RESIDENTIAL SUBDIVISION

In NSW, there are three (3) main forms of residential subdivision, namely:

- 1. Torrens Title subdivision;
- 2. Strata Title subdivision: and
- 3. Community Title subdivision.

4.1 Torrens Title Subdivision

Torrens Title subdivision is the main form of subdivision of a parcel of land.

Torrens Title is a system of title, based on registration. The property owner is referred to as the 'registered proprietor' who holds the land subject to interests and other rights recorded in the register but is free from all other interests. The registered proprietor is issued with a Certificate of Title (CT) that is a duplicate copy of the folio entry in the central Torrens Lands Title register, held by the NSW Department of Lands (Land & Property Information).

Any Development Application for a proposed Torrens Title subdivision must be supported by the following documentation:

- (a) A registered survey plan of the subject site;
- (b) A draft subdivision plan which shows all existing and proposed easements or covenants over relevant lots in the proposed subdivision;;
- (c) A draft written instrument outlining the creation of any easements / restrictions under Section 88B or 88E of the Conveyancing Act 1919; and
- (d) A Statement of Environmental Effects which addresses the proposal's relationship with relevant environmental planning instruments (including any relevant State Environmental Planning Policy, State Code, Wollongong Local Environmental Plan 2009 etc) and this DCP.

4.2 Strata Title Subdivision

The application of the Strata Titles Act applies principally to the subdivision of residential flat buildings, townhouses, villas or dual occupancies into separate parts / units.

Strata title subdivision is essentially the subdivision of space in three dimensions defined by or with



Chapter B2: Residential Subdivision

reference to walls, floors and ceilings as well as courtyards. It allows for the horizontal subdivision of land and / or airspace into separate titles for separate "strata" lots or units. Each lot or unit represents a separate apartment. An owner of a strata title unit has title to the air bounded by the inner skin of the boundary walls of the unit and by the ceiling height above and the floor level below horizontally.

The legal title to the land and building structure is owned by the "Owners Corporation" being a corporate body comprising and representing the owners of all the units in the building. The common property in the strata title includes the building itself, common open space, waste and recycling storage bin areas, visitor car parking and driveways on the land. Generally, car parking spaces (except visitor car parking spaces) are marked on the strata plan and form part of the unit title for the unit owner's exclusive rights.

Any Strata Title subdivision application must be accompanied by:

- (a) A survey plan of the site and the building;
- (b) A strata subdivision plan showing individual entitlements, common property (including common open space and visitor car parking) and any easements or other restrictions;
- (c) A Statement of Environmental Effects which addresses the proposal's relationship with any previous development consents granted upon the site and consistency with relevant environmental planning instruments such as State Environmental Planning Policies (including SEPP 10 – Retention of Low Cost Rental Accommodation where relevant) and Wollongong LEP 2009, any State Codes and this DCP;
- (d) A written 88B Instrument applying to any existing or proposed easements / restrictions (where relevant); and
- (e) A copy of any previous Development Consents and Construction Certificates applying to the site, including any buildings upon the site.

4.3 Community Title Subdivision

Community Title subdivision is a form of subdivision which lies between conventional Torrens Title subdivision and Strata Title subdivision. Community Title enables common (shared) property to be created within an otherwise conventional subdivision.

Community title subdivision is primarily governed by the Community Land Development Act 1989 and Community Land Management Act 1989.

The Community Land Development Act 1989 permits community title subdivisions to be staged or non-staged developments. The main advantage of staging of larger Community Title subdivisions is that the initial development costs will be lower because the first stage(s) of the development can be used to finance the construction of later stages. It also enables the development of planned communities of any residential type where the use of some land is shared.

Council encourages urban consolidation / housing density initiatives involving Community Title subdivisions, particularly in areas within proximity to railway stations. In certain cases, Council may generally agree to the road carriageway widths for private roads servicing up to 12 dwellings within the subdivision being reduced in width, except where in the opinion of Council there is a potential adverse traffic management issue.

Management Structure

The Community Titles legislation allows for a multi-tiered management structure incorporating either two (2) or three (3) main levels or types of schemes, namely:

- (a) Community;
- (b) Precinct; and
- (c) Neighbourhood.

The multi-tiered management structure applies only to Community Title schemes which are developed in



Chapter B2: Residential Subdivision

stages. The multi-tiered management structure includes all three (3) levels in a scheme.

The Community Plan shows the development of the total area broken up into at least two (2) development lots plus common property.

The Precinct Plan is the subdivision of a development into at least two (2) precincts plus common property and is managed by a Precinct Association which comes under the control of the Community Association.

The Neighbourhood Plan is the further re-subdivision of a precinct within the Precinct Plan. Lots within the Neighbourhood Plan are managed by a Neighbourhood Association which comes under the control of both the Precinct Association and the broader Community Association.

It also allows a further level as a strata scheme integrated into the overall scheme.

In a proposed two tier management structure, the second tier of management is created by the registration of a neighbourhood plan subdividing a community development lot in a community plan into lots for separate use or disposition known as neighbourhood lots. The neighbourhood scheme is administered by a neighbourhood association which will automatically become a member of the community association.

The by-laws for each community scheme are set out in the Management Statement which is registered with the relevant plan of subdivision. Each community scheme is bound by the rules set out in its own Management Statement. The Management Statement is required to cover a range of matters including:

- (a) The management, use and maintenance of community property such as roads and special facilities such as constructed wetlands, recreational facilities and open space areas;
- (b) Waste and recycling storage and collection areas etc;
- (c) Insurance of common property; and
- (d) The proceedings of the Executive Committee.

The Development Contract is the construction agreement between the developer and the members of the scheme regarding the type and timing of facilities proposed to be constructed within the common property.

Any Development Application for a proposed Community Title subdivision must be accompanied by the following documents:

- (a) A subdivision plan which shows the proposed individual lots and proposed "Association Property" lots (including any private roads, common open space, recreational facilities etc) as well as any necessary easements / restrictions;
- (b) A draft Management Statement and a draft Development Contract which comply with the provisions of the Community Land Development Act 1989 and Community Land Management Act 1989:

Note: If development consent is ultimately granted to the Community Title subdivision, the final Management Statement and final Development Contract will be required to be lodged with the final plan of subdivision as part of the Subdivision Certificate application.

- (a) A survey plan of the subject site;
- (b) A written 88B Instrument for any necessary easements / restrictions; and
- (c) A Statement of Environmental Effects which addresses the proposal's relationship with relevant environmental planning instruments (including any relevant State Environmental Planning Policy, State Code, Wollongong Local Environmental Plan 2009 etc), any State Code and this DCP.

5 TOPOGRAPHY, LANDFORM CONSERVATION, CUT AND FILL

Objectives

 Ensure the design of any subdivision takes into account inherent site constraints, and natural landform features.

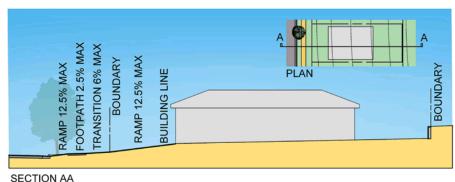


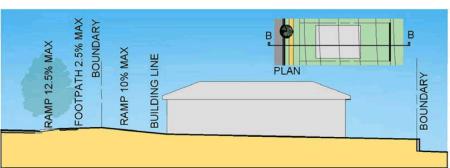
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- b) Ensure the design of the subdivision responds to the natural topography and landform feature and minimise, as far as practicable, significant cut / fill and unnecessary reshaping of the site.
- Retain key characteristics of landforms and encourage individual housing and lot design solutions to contribute to future street and residential character diversity.
- d) Ensure that the design of any residential subdivision takes into account any significant trees or other vegetation upon the subject site, including any endangered ecological community or threatened species.

Development Controls

- The topography and landform of the site must be taken into consideration as part of the design of the subdivision layout, to optimise solar access opportunities and maximise views to key natural features.
- 2. The topography and landform of a locality are important place-making elements. Roads should be designed to respond to such features and work to minimise cut and fill.
- 3. The subdivision lot layout should be designed to improve views from public points of interest (such as parks and hill tops, public facilities, centres) and residential areas to special features such as the escarpment backdrop, remnant stand of significant trees (ie Spotted Gum forest or stand of Norfolk Island pine trees) or the coastline.
- 4. Where the land slopes at a grade of 6% or greater, the predominant road alignment should be perpendicular to the contours of the site, wherever practicable.
- 5. Roads must be constructed at the natural ground level of the site wherever practical, taking into account the constraints of the site and road design requirements.
- 6. Where natural landform is sloping prior to subdivision works, lots shall be designed to reflect inherited slopes. Housing products to suit sloping lots, with building envelope platforms, landscaped sloping solutions and split-level house designs are encouraged (see diagrams below).
- 7. All finished lots shall have a minimum 2% fall towards the proposed stormwater drainage system, in order to allow for suitable stormwater run-off from the site and to help minimise any potential water ponding.



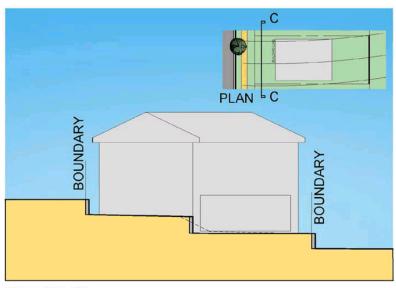


SECTION BB

Examples of incorporating sloping in lots from front to rear into lot design and related housing designs.



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SECTION CC

Examples of accommodating sloping blocks into lot design and related housing designs.

6 SUBDIVISION DESIGN

Subdivision layouts are to incorporate adequate pedestrian, bicycle and vehicle links to the road network, public transport nodes, pedestrian/cyclist network, and public open space areas. The street and subdivision layout should minimise fuel use by reducing travel distances and maximising public transport effectiveness. Connectivity within neighbourhoods is essential to ensure the majority of dwellings are within 400 metres walking distance to bus stops.

- The design of any residential subdivision must include a land suitability assessment, addressing the following issues where relevant:
 - Existing land use.
 - Flooding.
 - Bushfire.
 - Topography, geotechnical constraints, contamination constraints.
 - Biodiversity (Ecologically Endangered Communities, bushland, significant trees, habitat).
 - Known or likely heritage sites, including Indigenous heritage cultural issues.
 - Existing road network.
 - Street frontage and access.
 - Available utilities & services and existing easements.
 - Need for community and recreation facilities.
 - Visual character.
 - Noise impacts (e.g. from the main roads, industrial areas or public and private railways).
- 2. Subdivisions comprising 4 lots or more must demonstrate the following where applicable:
 - Proposed road layout and hierarchy.
 - Proposed public transport, bicycle and pedestrian routes.
 - Proposed drainage management concepts.



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- Proposed buffers to heritage items.
- Riparian corridors, buffers and proposed future use and ownership.
- Proposed Asset Protection Zone requirements.
- Refer to Council's Subdivision Policy for general subdivision design and the construction requirements for roads, stormwater drainage, utility services etc.

6.1 Lot layout – Aspect and solar access

Objectives

- (a) To ensure residential lots are well designed to take into account major factors in creating desirable landuse outcomes for the built environment through aspect, orientation, slope issues and optimal solar access.
- (b) To provide residential lots which maximises solar access and energy efficiency opportunities for future dwellings and private open space areas.

Development Controls

- Roads running generally east west are preferred since they provide for lots with a north-south axis which caters for optimum solar access to dwellings and private open space. Lots with a main north-south axis (20°W to 30°E) provide the best flexibility for the siting of future dwellings and reduce potential overshadowing problems.
- Lots with a main east-west axis (ie roads running north-south) should be widened, in order to
 ensure satisfactory solar access opportunities into living rooms of future dwellings and rear private
 open space areas and to help prevent overshadowing of dwellings and private open space on
 adjoining lots.
- Lots with a NW SE or NE SW axis are less favourable and may need to be specifically
 designed or larger than normal to allow for the siting of a dwelling which is not directly parallel to
 the boundaries.
- 4. Lots should be rectangular shaped rather than irregular shaped, wherever practicable, in order to maximise solar access opportunities. Lots on the southern side of any road should have a greater frontage to the road, to allow improved solar orientation for the future dwelling.
- 5. Wherever possible, an access way to a rear battle-axe lot should be located on the southern side of an allotment, to minimise any potential overshadowing of future adjoining dwellings.
- Any subdivision proposal adjoining a rear lane shall be designed so as to provide clear building frontage and pedestrian / visitor access between future building and the front road.

6.2 Lot size

- The minimum subdivision allotment size requirement for a particular parcel of land shall be in accordance with the provisions of Wollongong LEP 2009 and the accompany Lot Size Map, relevant to the land.
- Irregular shaped lots shall have a minimum allotment size of 485m2.
- Regular shaped corner lots shall have a minimum allotment size of 500m2 as per Table 1 below and as illustrated in Figure 1 below.
- 4. Regular shaped battle axe allotments within residential zones shall have a minimum allotment size of 550m2, excluding the battle axe access handle. Irregular shaped battle axe lots shall have a minimum allotment size of 600m2 (excluding the access handle). Refer to Figure 1 and Table 1 helpw

Table 1. Minimum allotment sizes

Allotment Type	Minimum Lot Size Requirement for Regular Shaped Lots	for Irregular Shaped Lots
Standard Lot	Subject to Wollongong Local Environmental Plan 2009	485m2



Cha	pter B2: Residential Subdivision		
		(relevant Lot Size Map)	
	Corner Lot	500m2	NA
	Battle-axe Lot (excluding access handle)	550m2	600m2

However, larger allotments may be required in certain circumstances such as lots containing steeply sloping land or land containing a watercourse or land fronting an arterial road.

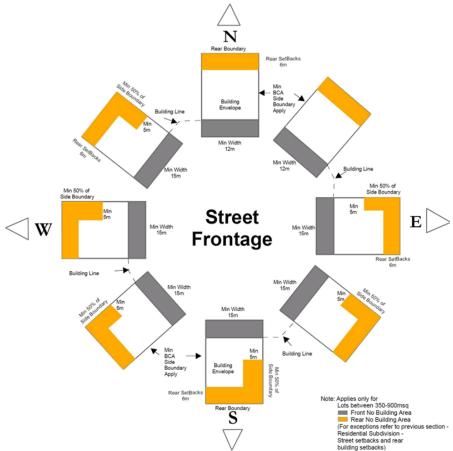


Figure 1. Solar Access Orientation - Minimum Building Envelopes and Lot Widths

6.3 Lot width and depth

Objectives

- e) To ensure residential lots are designed to provide sufficient lot width and depth, to cater for a suitable range of dwelling styles having regard to any site constraints or environmental qualities of that land.
- f) To ensure residential lots in low density residential areas provide sufficient site area to cater for detached dwelling-houses with sufficient rear private open space which gains appropriate sunlight access during mid-winter.

- A minimum 12 metre lot width is required for residential allotments with N to NE rear boundary alignment.
- 2) Lots with a NW, W, SW, S, SE or E alignment should be 15 metres wide at the front building alignment, in order to ensure satisfactory solar access opportunities into living rooms of future dwellings and rear private open space areas and to help prevent overshadowing of dwellings and



Chapter B2: Residential Subdivision

private open space on adjoining lots.

- A minimum 15 metre lot width may be required where Council determines on-street parking is required
- 4) The minimum depth for a residential allotment should be at least 25 metres.

6.4 Battle-axe lots

Objectives

- (a) To encourage conventional residential subdivisions with direct public road access, rather than a series of battle axe allotments one behind each other, in order to maintain the residential amenity and character of the locality.
- (b) To minimise the potential adverse streetscape and amenity impacts upon the locality arising from a number of battle axe lots sharing common access corridors.
- (c) To ensure each battle axe lot has a sufficient site area with a suitable building envelope to accommodate a range of different dwelling styles, in order to minimise any potential amenity or privacy impacts upon adjoining residential properties.
- (d) To ensure each battle axe lot has a sufficient site area to provide satisfactory on-site parking with suitable vehicular access and maneuvering areas.

- The minimum allotment size requirement for battle-axe lots shall be in accordance with the relevant LEP and accompanying Lot Size Map, excluding the site area required for the battle-axe lot access handle.
- The minimum lot width for a battle-axe allotment shall be 15 metres as measured at the front building line (ie exclusive the access handle). The 15 metre minimum lot width requirement for battle axe lots is set at 6 metres from the end of the battle axe handle (ie within the main building portion of the site).
- 3. A maximum of two (2) battle-axe allotments will be permitted behind an allotment which has direct frontage to a dedicated public road in the proposed subdivision. This allows for inherent site constraints such as slope or topography which may otherwise prevent a conventional residential subdivision providing direct public road access to all lots. Under no circumstances will Council favourably consider any subdivision proposal involving a series of battle-axe lots, one behind each other.
- 4. All battle-axe allotments must have direct access to a dedicated public road, through the provision of an access handle attached to each battle-axe lot or via a shared access corridor (ie maximum of two (2) lots may share a common access corridor).
- 5. The minimum access corridor width for a battle axe allotment shall be 5 metres with a minimum road pavement width of 3 metres for the entire length of the access handle.
- 6. A 1 metre wide landscaping strip shall be provided along each side of the required 3 metre wide road pavement. The landscaping strip shall be planted with suitable small trees, shrubs and groundcovers.
- 7. A shared access corridor may be permitted for a maximum of two (2) battle axe allotments where, in the opinion of Council, the proposed access arrangement will satisfactorily cater for safe vehicular and pedestrian access to each of the lots and that satisfactory sight line distances are available between the subject lots and the public road.
- 8. Any access corridor shared between two (2) battle axe allotments must be created through reciprocal rights of carriageway under Section 88B of the Conveyancing Act 1919. The minimum shared access handle width shall be 5 metres with a minimum road pavement width of 3 metres for the entire length of the access handle. However, the shared access handle must be designed wide enough to satisfactorily cater for the placement of garbage and recycling bins (ie associated with the dwellings on the two battle axe lots) adjacent to the access handle road pavement
- 9. A minimum 1 metre wide landscaping strip must be provided along each side of the required 3



Chapter B2: Residential Subdivision

metre wide road pavement of any shared access handle. The landscaping strip shall be planted with suitable small trees, shrubs and groundcovers. A hard stand area on one side of the access handles for garbage and recycling bins (ie directly abutting the public road reserve). The opposite 1 metre wide landscaping strip in the shared access handle shall include letterboxes for the two lots (ie. directly abutting the public road reserve).

- All battle-axe lot access corridors must be provided with all-weather road pavement. All access handle driveway crossings must be of a full concrete or asphalt construction and must be designed having regard to current fire regulations for fire hydrants. Driveways must be sited to allow for visibility of vehicles entering and leaving the site.
- Driveway construction must give consideration to driveway drainage, utility servicing and retaining structures.
- 12. Within bush fire hazard areas, access to allotments shall be in accordance with the requirements of the NSW Rural Fire Service Planning for Bush Fire Protection 2006 guidelines. In the event of any inconsistency between the access requirements to lots between this part of the DCP and the Planning for Bush Fire Protection 2006 guidelines, the Planning and Bush Fire Protection guidelines.
- 13. Each battle axe access corridor must have capacity for vehicular turning facilities and two (2) onsite parking spaces must be provided for each battle axe lot.
- 14. Access corridors within bush fire prone areas must provide a suitable turning area, in order to enable the satisfactory maneuvering of fire fighting vehicles in accordance with the requirements of the NSW Rural Fire Service Planning for Bush Fire Protection 2006 guidelines will prevail.
- 15. The maximum gradient for any access way required for a battle axe lot subdivision should be 25%.
- 16. The gradients for access handles for allotments within bush fire prone areas shall be in accordance with the requirements of the NSW Rural Fire Service Planning for Bush Fire Protection 2006 guidelines.
- 17. Stormwater drainage on driveways must be contained in kerbs or a central dish and conveyed to the Council stormwater drainage system via the public road.

6.5 Building envelopes

Objectives

- (a) To ensure each residential lot has a suitable building envelope to accommodate a range of different dwelling styles, in order to minimise any potential amenity or privacy impacts upon adjoining residential properties.
- (b) To ensure the building envelope for each residential lot, takes into account all relevant constraints of the site and / or any easement or other restrictions pertaining to the land.
- (c) To ensure the building envelope for each residential lot takes into account any area of the subject land which contains significant remnant trees or other significant vegetation (including riparian vegetation).
- (d) To ensure building envelopes are appropriately positioned to maximise solar access opportunities and energy efficiency for future dwellings and rear private courtyards for each residential lot.

- 1. Council may require residential lots to provide a specific rectangular building envelope with minimum dimensions of 15 metres (depth) x 10 metres (width), where the subject site contains any inherent site constraint(s) (eg flooding, geotechnical constraints etc) or contains significant remnant vegetation, any threatened flora species, endangered ecological community etc. Any such building envelope shall be exclusive of the required setback requirements for a dwelling house as per Chapter B1: Residential Development.
- 2. A 15 metre (depth) x 10 metre (width) building envelope will be required for any proposed battle axe allotment upon land zoned R2 Low Density Residential, since the erection of a two storey .dwelling on a battle axe allotment is not permitted for land zoned Residential R2, under Chapter B1: Residential Development. Therefore, a building envelope is required to provide a sufficient building platform, to cater for a single storey dwelling.



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Any proposed building envelope shall be shown on the required subdivision concept layout plan
accompanying the Development Application. Additionally, any existing easements or other
restrictions on the use of the land should be shown on the required subdivision layout plan.

Note: In the event that Council ultimately supports the proposed subdivision, a condition of consent may be imposed requiring the imposition of a restriction on the use of land pursuant to the provisions of Section 88B of the Conveyancing Act 1919 which shows the building envelope for each lot within the subdivision. This requirement may apply to certain subdivisions where sites are subject to inherent site constraints (eg geotechnical /slope instability issues etc) or contain significant vegetation, threatened flora or fauna, flood prone / riparian land or other constraints which may require the building envelope to be specifically identified on the lot(s).

6.6 Superlots in residential subdivisions for integrated housing or medium density housing

Objectives

- (a) To ensure large residue lots or super lots for future dual occupancy or medium density housing are well planned and are strategically placed to reflect future traffic management conditions and other environmental conditions.
- (b) To encourage large residue lots to be earmarked for medium density housing early in the residential subdivision process.

Development Controls

- The configuration and lot size of residue or super lots shall be designed to meet the future planning requirements for either dual occupancy, multi dwelling development or residential apartment building developments contained in this DCP. Accordingly, the subdivision plan accompanying the Development Application shall indicate the intended future residential use of the residue lot.
- In the event that the residue lots are not designed to comply with the future planning requirements
 for the intended future residential development, then a reduced dwelling yield may occur when the
 Development Application for the development of the residue lot is assessed.
- 3. Large residue lots should be located in strategically placed locations in subdivisions and generally not at the end of cul-de-sacs. However, in certain circumstances, the positioning of a residue lot at the end of a cul-de-sac may be supported where individual site circumstances such as traffic management and other environmental conditions, support this arrangement.

6.7 Existing easements

Objectives

- (a) Guide the use of land under electrical easements for appropriate urban purposes.
- (b) Guide the use of land over gas easements for appropriate land uses.

- 1. A Development Application shall include the proposed use of all land under easements.
- 2. Water management can be carried out in electrical easements
- Landscape planting (low rise) can be established in electrical easements while allowing for necessary service access.
- 4. More significant planting can happen on the edge of electrical easements to create a visual buffer to electrical infrastructure
- Recreational uses and open space can be established within easements.
- Easements can be used for roads, pedestrian and bicycle routes subject to approval by the easement authority.



Chapter B2: Residential Subdivision

 Consultation with the asset owner (eg. TransGrid, Endeavour or Jemena) is required to ensure that buffers, road levels and access are adequate.

7 MAJOR RESIDENTIAL SUBDIVISIONS

A major subdivision is considered to be a subdivision of lots creating more than 15 lots and/or applies to an area greater than 3600m^2 and creating an increase to the number of dwellings in the site.

If the subdivision is within an urban release area the development may have additional staging and sequencing requirements relating to development Concept, Precinct Plan or Neighbourhood Plans (eg. DCP Chapter D16: West Dapto Urban Release Area).

Objectives

- (a) To ensure the staging of a major residential subdivision is well planned and that all relevant roads, drainage and other infrastructure services are provided for each stage in the subdivision.
- (b) To ensure the staging of the development minimises any potential adverse noise or amenity conflicts, arising from construction equipment and plant operating on later subdivision stages upon residents in early release stages.

Development Controls

- In cases of a major residential subdivision, a staging plan will be required which shows the
 proposed staging program. Additionally, the Statement of Environmental Effects shall provide a
 detailed outline of the proposed staging program, including the proposed total number of lots
 within each relevant stage.
- 2. The subdivision staging should be designed to minimise conflicts arising from construction plant and equipment operating during the construction of later subdivision stages impacting upon the amenity of residents living in dwellings within the earlier subdivision stages. This may also require the provision of temporary access arrangements for heavy vehicles associated with the stages under construction separate from the first stage(s) of the subdivision. The provision of suitable landscaping treatment and / or acoustic walls may also be necessary to minimise potential privacy, amenity or noise impacts upon first stage residents.
- In the event that the staging of the subdivision is approved, all necessary subdivision works (including road works, drainage works, water and sewerage infrastructure, telecommunications, electricity supplies etc) must be completed for each relevant stage, prior to the release of any Subdivision Certificate.

8 PUBLIC RESERVES AND OPEN SPACE

Objectives

- a) To ensure the provision and embellishment of public open space is consistent with Council's planned requirements, to meet the recreational needs of the community.
- b) To provide public open space (ie both active and passive) within reasonable proximity for all residential lots within existing urban areas and new release areas.
- c) To preserve remnant native bushland including endangered ecological communities within public open space buffers, where possible.
- d) To limit the amount of land proposed to be dedicated to Council for public open space, to only lands zoned RE1 Public Recreation, under the relevant LEP or other lands previously identified by Council as being required for public open space.
- e) To minimise costs of on-going maintenance of public open space.

Development Controls

 The size and location requirements for public open space shall fall within a hierarchy of provisions in accordance with Council infrastructure planning and generally as indicated in Table 2. Exact



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location and the level of equipment or other embellishment required for the open space must be discussed with Council upfront, prior to the lodgment of the Development Application, where such open space is proposed to be dedicated to Council for a public reserve or other purposes.

Table 2. Size and Location Criteria for Public Open Space

Open space type	Minimum Area	Maximum walking catchment
Local open space	1-2 hectares	400-600 metres
Neighbourhood open space	2-4 hectares	2km via road or pedestrian/ bicycle networks
District open space	5-8 hectares	Ward based catchments (3 wards of Wollongong LGA)

Note: Whilst Council may have had preliminary discussions with an applicant upfront over the possible future dedication and embellishment of land for public reserve(s), there is no guarantee that the proposed subdivision will be ultimately approved until such time as the application is properly assessed and determined on its merits, based on the "Matters for Consideration" as listed under Section 79C of the Environmental Planning and Assessment Act 1979.

- Council will not accept the dedication of land for the purposes of public reserve where in the opinion of Council, there is already sufficient public open space in the locality and / or the land is not zoned RE1 Public Recreation.
- 3. Any approved public reserve lot shall be fully embellished in accordance with Council's requirements, prior to the release of the Subdivision Certificate.
- 4. Private open space may be provided as community lots in a Community Title subdivision. Any small open space area in a Community Title subdivision should be at least 500m² 1,000m² in area and should make provision for seating as well as provision for an integrated children's playground equipment.
- Wherever possible, riparian corridors should form the 'spine' for public open space within a subdivision.

9 PEDESTRIAN AND BICYCLE NETWORKS

Objectives

- (a) To ensure residential subdivisions provide safe and convenient pedestrian and bicycle linkages to facilities and services within the surrounding locality.
- (b) To ensure the road network adequately caters for the safety of pedestrians, cyclists and motorists through the provision of adequate sight lines at critical locations such as intersections, driveway crossings, bus stops and crossing points.
- (c) To ensure all pedestrian footpaths, and shared paths are designed in accordance with relevant Australian Standards and AUSTROADS.
- (d) To ensure all pedestrian footpaths and shared paths are designed to incorporate Crime Prevention Through Environmental Design (CPTED) principles.

- 1. Any residential subdivision should identify the overall layout of dedicated pedestrian footpaths and shared paths within the subdivision. The constructed pedestrian footpath shall be a minimum width of 1.5 metres. For any shared path, a minimum 2.5 metre width is required and widened to 3 metres if the shared path is on a Minor Collector (Type 4) road.
- Pedestrian and shared paths should be provided to link roads including cul-de-sacs and to directly
 access public transport routes/bus stops, public reserves, sporting / community facilities, schools,
 business precincts and adjacent residential subdivisions.

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- All pedestrian footpaths or shared paths should be designed in accordance with the requirements of relevant Australian Standards, AUSTROADS Guides and Council's Subdivision Policy as appropriate.
 All paths should be constructed of concrete, except where varied by Council.
- Safe pedestrian crossings are to be created with the use of pedestrian refuges, slow points, kerb
 extensions or other appropriate measures, designed in accordance with relevant Australian
 Standards and AUSTROADS Guides.
- 5. All footpaths and shared paths are to be provided with appropriate lighting and designed to incorporate Crime Prevention Through Environmental Design (CPTED) principles by minimising any potential hiding places and maximising passive surveillance.
- The full design details of any footpaths, shared paths, pedestrian crossings or any other associated infrastructure shall be clearly shown on the subdivision plans submitted with the Development Application.

(Note: "shared path" refers to a path that is shared by both pedestrians and cyclists)

10 ACOUSTIC ASSESSMENT

Objective

(a) Ensure appropriate acoustic measures are planned for and provided for subdivisions which are subject to potential adverse noise impacts, in order to provide a pleasant acoustic environment for all residential lots within the subdivision.

Development Controls

- Council will refer to NSW Roads and Maritime Services (RMS) and Department of Planning to determine if an acoustic assessment is required as outlined in "Development near Rail Corridors and Busy Roads – Interim Guidelines" (Department of Planning).
- When required, full details of the proposed acoustic mediation shall be submitted with the Development Application.

11 STREET TREE PLANTING

Objectives

- (a) To provide suitable street trees within residential subdivisions, in order to improve the streetscape character of the locality.
- (b) To improve the general residential amenity of the subdivision.
- (c) To ensure the planting of street trees in new subdivisions is appropriate and compatible with existing street tree planting within certain suburbs in the city.

Development Controls

- The planting of street trees shall be integrated with driveway crossings, utility services, street lighting and shall be undertaken in accordance with the general requirements contained in the Chapter E6: Landscaping in this DCP.
- Council may require the planting of a specific tree species for certain roads in a subdivision, especially if there is already an existing street tree scheme in the suburb. This requirement will be determined by Council as part of the assessment of the Development Application.

12 ENTRY STATEMENTS

Objectives

(a) Ensure entry statements are appropriately designed and constructed to enhance the streetscape character of the residential estate.



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- (b) Ensure all entry statements and supporting structures (including night lighting) are contained wholly within the private realm of the subdivision, rather than within any existing or proposed future public road reserve.
- (c) Ensure all entry statements minimise any potential obstructions to motorists, pedestrians and cyclists and to prevent any potential adverse traffic visibility impact and / or visual distraction to motorists.

Development Controls

- Entry statements mark and define the entry to a residential estate and are designed to enhance the streetscape character of the estate.
- All entry statements (including associated special effects and night lighting) at the entry to residential subdivisions must be contained wholly within the private property and not within any land proposed to be dedicated as public road reserve.
- 3. The location and form of the entry statement must not unduly impede or restrict pedestrian, cyclist or public and private vehicular movement to or from the site. The siting and design of an entry statement must not reduce traffic visibility on adjacent roads and should not cause an unsafe visual distraction to vehicle drivers.
- 4. The entry statement should also be designed to incorporate Crime Prevention through Environmental Design (CPTED) principles by minimising any potential hiding places.
- 5. The full design details of the proposed entry statement(s) shall be shown on the required Landscape Plans to be submitted with the Development Application.

13 TRAFFIC FACILITIES

13.1 Road connectivity, permeability and legibility

Objectives

- (a) To establish a legible and well connected road network that promotes safe pedestrian and bicycle movement as well as convenient vehicular access.
- (b) To provide improved road, pedestrian and bicycle connections linking residential areas with public reserves, business centres, public services and facilities.

- New subdivision roads should be designed to be integrated and connected with the existing local road network of the surrounding neighbourhood, wherever possible. In new subdivisions, cul-desacs should be minimised, wherever possible, in order to ensure connectivity within an estate.
- Road design taking into account the surrounding local road network in the locality, especially the existing road hierarchy.
- The subdivision design must achieve a high level of vehicular permeability and legibility in the location and layout of the road pattern.
- 4. The integration of new subdivision roads with existing roads will help to:
 - (a) Improve interconnections and minimise travel distances to / from facilities and services;
 - (b) Provide a choice of routes; and
 - (c) Spread traffic loads throughout the local road network, rather than intensifying traffic volumes to a restricted number of roads.
- Connected grid networks are preferred as they provide more walkability and improve safety when dwellings are sited to address block edges, to enable passive surveillance.
- 6. The road network should provide internal connectivity to allow for a distributed traffic flow as well as encourage walking and cycling within the subdivision and wider area.



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- Pedestrian footways and shared paths should be safe and convenient to encourage alternative transport options to motor vehicles.
- A larger subdivision involving 50 or more residential lots should be designed to minimise any excessive "backtracking". Therefore, the creation of multiple cul-de-sacs and "no through" roads within a larger subdivision is discouraged.
- Developments that include commercial /retail or business that will generate employment for more than 50 people should develop and submit a Workplace Travel Plan that demonstrate there will be facilities provided to encourage positive active transport and public transport outcomes.

13.2 Road hierarchy and design requirements

Objectives

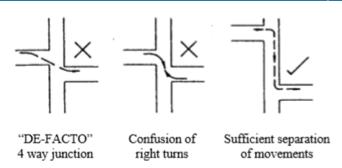
- (a) To provide a defined hierarchy of roads, in order to provide an acceptable level of access, safety and convenience for all road users.
- (b) To ensure that the design features of each residential road within a subdivision reflects the role of the road within the overall road network.
- (c) To provide an acceptable level of access, safety and convenience for all road users within existing urban areas and new release areas, whilst ensuring acceptable levels of amenity and minimising traffic management issues in the particular locality.
- (d) To provide appropriate road access for larger and special purpose vehicles including garbage and recycling trucks, fire trucks, delivery trucks etc.
- (e) Ensure sufficient road carriageway and verge widths are provided for each road type, in order to enable all roads to perform their designated function within the road network.
- (f) Ensure that the road reserve adequately caters for all required functions including safe and efficient vehicular and pedestrian movement throughout the road network, provision of on-street parking and the provision of street tree planting and other landscaping, where appropriate.
- (g) Ensure road verges are of sufficient width to physically accommodate all necessary infrastructure assets and utilities.
- (h) Provide road geometry that is consistent with the designated function of the specific road as well as the physical characteristics of the locality.
- Ensure the road network is simple and safe for all road users, including motor vehicles, pedestrians and cyclists.
- (j) Ensure that appropriate vehicle speed limits are incorporated into the road design to enhance the safety of pedestrians and cyclists, the young and people with a disability.
- (k) Ensure new release areas are designed to provide for safe, convenient and efficient bus routes.

- The design of any road as part of a subdivision shall be in accordance with the following Table 3, Table 4 and Table 5, the Road Type Cross-Sections accompanying this section 14.2 and in accordance with Council's Subdivision Policy.
- Roads should be designed to provide visual interest in the streetscape through kerbs (where appropriate), landscaping and paving treatments. The road design should be compatible with the existing road pattern in the locality.
- The minimum spacing of staggered intersections in a local subdivision road network (Road Types 5 to 8) should be 20 metres.



Part B – Land Use Based Planning Controls

Chapter R2: Residential Subdivision



- 4 Street layout and curve radii must make provision for service vehicles to manoeuver.
- The provisions of the NSW Rural Fire Service publication "Planning for Bushfire Protection" and the State Government Publication "Fire Safety Guideline Access for Emergency Vehicles and Emergency Service Personnel" must be met and will take precedence.
- The maximum length of cul-de-sacs should not exceed 80 metres.
- For all roads that permit direct driveway access, a minimum 15 metre lot width may be required at the street frontage, where Council determines that on-street parking is required.
- Angled parking may be utilised adjacent to active open space and in town and village centres, particularly for lower volume roads, provided it does not unduly impact traffic flow or public transport services. Angled parking must comply with Australian Standards and will be assessed by Council as to its merits on a case-by-case basis.



Part B – Land Use Based Planning Controls Chapter B2: Residential Subdivision

Table 3. Road network environment

Road Environment						
\$	Street Types	Access (driveway)	Indicative Daily Traffic Volume (vpd)	Target Speed (km/h)	Street Pavement Type	Parking
Sub-Arterial	Type 1 (entry road with WSUD median strip (4.2m) & bus services)	No Access	20,000 - 40,000+	70	Asphalt	No
Road	Type 2 (with bus services)	No Access	15,000 - 20,000+	60	Asphalt	No
	Type 2A (with parking & bus services)	No Access	10,000 - 15,000	60	Asphalt	Yes
Major Collector Road	Type 3 (with parking & bus services)	No Access	3,000 - 15,000	60	Asphalt	Yes
Minor Collector Road	Type 4 (with parking & limited bus access)	Access	3,000 - 9,000	50	Asphalt	Yes
Town & Village Centre Road	Туре ТС	Limited Access	(varies)	40	Asphalt	Yes
Local Road	Type 5 (with parking)	Access	1,000 - 3,000	40	Asphalt	Yes
Access Street	Type 6 (with residential on both sides, and parking)	Access	300 - 1,000	25	Asphalt	Yes
	Type 7 (with parking)	Access	< 300	25	Asphalt	Yes
Access Place	Type 7A (1-Way, adjacent open space on one side)	Access	< 300	25	Asphalt	Yes
	Type 7B (2-Way, adjacent open space on one side)	Access	< 300	25	Asphalt	Yes
Laneway	Type 8 (no parking)	Access	< 150	10	Asphalt	No



Part B – Land Use Based Planning Controls Chapter B2: Residential Subdivision

Table 4. Carriageways and verges

		Carriageway		Verge				
:	Street Types	Kerb Lane (m)	Centre Lane (m)	Total (m)	Verge (m)	Total Reserve (m)	Footpath (m)	Shared Path (m)
Sub-	Type 1 (entry road with WSUD median strip (4.2m) & bus services)	3.6	3.4	18.2	10.5 (5.25 each side)	28.7	n/a	5m (2.5m each side)
Arterial Road	Type 2 (with bus services)	3.5	3.2	13.4	9.5 (4.75 each side)	22.9	n/a	5m (2.5m each side)
	Type 2A (with parking & bus services)	3.5	3.2	13.4	9.5 (4.75 each side)	22.9	n/a	5m (2.5m each side)
Major Collector Road	Type 3 (with parking & bus services)	3.0	3.2	12.4	9.5 (4.75 each side)	21.9	n/a	5m (2.5m each side)
Minor Collector Road	Type 4 (with parking & limited bus access)	2.6	3.0	11.2	9.75m (5.25m one side, 4.5m other side)	20.95	1.5	3m
Town & Village Centre Road	Туре ТС	(varies)	(varies)	(varies)	9m (4.5m each side) or 9.75m (5.25m residential side, 4.5m centre side)	(varies)	4.5m full width town centre side	3m provided on one side if residential
Local Road	Type 5 (with parking)	2.1	2.8	9.8	9m (4.5m each side)	18.8	3m (1.5m each side)	n/a
Access Street	Type 6 (with residential on both sides, and parking)	2.3	3.5	8.1	9m (4.5m each side)	17.1	3m (1.5m each side)	n/a
	Type 7 (with parking)	3.5	n/a	7.0	8m (4m each side)	15	n/a	n/a
Access Place	Type 7A (1-Way, adjacent open space on one side)	2,0 (parking lane) or 3.5 (travel lane)	n/a	5.5	6.45m (2.45m open space side, 4m other side)	11.95	n/a	n/a
	Type 7B (2-Way, adjacent open space on one side)	3.5	n/a	7.0	6.45m (2.45m open space side, 4m other side)	13.45	n/a	n/a
Laneway	Type 8 (no parking)	n/a	n/a	5.5	2.9m (1.45m each side to property boundary)	8.4	n/a	n/a



Part B – Land Use Based Planning Controls Chapter B2: Residential Subdivision

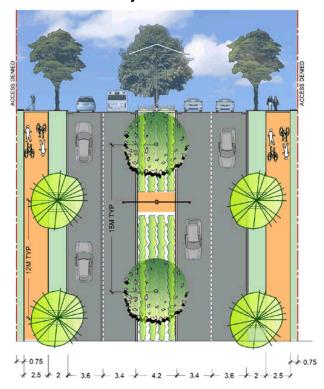
Table 5. Street vegetation

	Street Types	Verge Trees	Street Tree Planting	
Sub-Arterial	Type 1 (entry road with WSUD median strip (4.2m) & bus services)	1 every 12m	n/a	
Road	Type 2 (with bus services)	1 every 12m	n/a	
	Type 2A (with parking & bus services)	1 every 12m	1 every 30-60m via kerb bulges	
Major Collector Road	Type 3 (with parking & bus services)	1 every 12m	1 every 30-60m via kerb bulges	
Minor Collector Road	Type 4 (with parking & limited bus access)	1 per lot or every 15-20m	None – use kerb extensions at intersection	
Town & Village Centre Road	Туре ТС	Landscape design or 1 per lot or every 15-20m (residential side)	Kerb extensions can be used mid-block (eg at pedestrian crossings) and intersections	
Local Road	Type 5 (with parking)	1 per lot or every 15-20m	None – use kerb extensions at intersection	
Access Street	Type 6 (with residential on both sides, and parking)	1 per lot or every 15-20m	None – use kerb extensions at intersection	
	Type 7 (with parking)	1 per lot or every 15-20m	n/a	
Access Place	Type 7A (1-Way, adjacent open space on one side)	1 per lot or every 15-20m (residential side)	n/a	
	Type 7B (2-Way, adjacent open space on one side)	1 per lot or every 15-20m (residential side)	n/a	
Laneway	Type 8 (no parking)	1 per lot depending on lane design	n/a	



Chapter B2: Residential Subdivision

TYPE 1 - Major Sub-arterial road



TYPICAL ROAD CROSS SECTION TYPE 1

SCALE : NTS

NOTE: ALL DIMENSIONS ARE SHOWN IN MET

Objectives

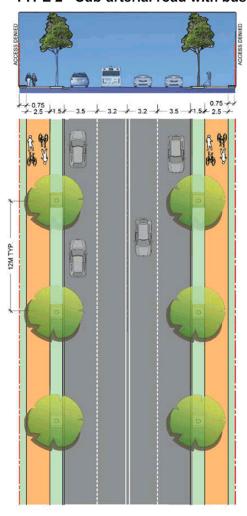
- Provide for high general traffic and heavy vehicle volumes with 4 travel lanes.
- Provide connectivity between neighbourhoods and local centres/arterial road network.
- Direct access is not permitted (access denied).
- Provide for bus routes and bus stops (generally indented stops).
- Design speed 80km/h, posted speed 70km/h.
- Provide legible pedestrian and cycle network via shared paths on both sides of road.
- Provide improved safety and amenity through provision of planted median.
- Allows for development of right turn lanes at intersections via the central median provision.

- 1. The median will include low planting and incorporate WSUD where appropriate.
- The road capacity is considered to generally cater for greater than 15,000vpd.
- 3. Lighting can be provided in the median as well as within the verge.
- A kerbside verge width of 2m has been provided for an improved buffer for pedestrians/cyclists to higher speed road traffic.
- Barrier kerb used for kerbside lanes.
- Travel lanes wider than other road types reflective of higher speed limit and proportion of heavy vehicles.
- Bus stops shall be via indented bus bays where practicable.
- 8. Intersections are to be controlled (signals, roundabouts) and provide appropriate pedestrian crossing facilities.
- Priority controlled intersections will only be considered for left turns (eg Left-in/Leftout)
- Controlled intersections (signals, roundabouts) are to be generally spaced a minimum of 400 metres apart.
- Mid-block pedestrian crossings not permitted (eg refuges, marked crossings, kerb extensions etc).



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TYPE 2 - Sub-arterial road with bus service



TYPICAL ROAD CROSS SECTION TYPE 2

SCALE: NTS

NOTE: ALL DIMENSIONS ARE SHOWN IN METRES

Objectives

- Provide for high traffic volumes with 4 travel lanes.
- Provide connectivity between neighbourhoods and local centres/higher order roads.
- 3. Direct access is not permitted (access denied).
- 4. Provide for bus routes and bus stops.
- 5. Design speed 70km/h, posted speed 60km/h.
- 6. Provide legible pedestrian and cycle network via shared paths on both sides of road.
- All adjoining lots must provide an active frontage to the Type 2 road (can be direct frontage or via secondary parallel internal road).

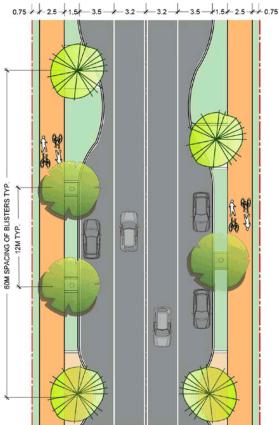
- The road capacity is considered to generally cater for greater than 15,000vpd.
- 2. Lighting can be provided within the verge.
- 3. A kerbside verge width of 1.5m has been provided to allow for space for trees.
- 4. Barrier kerb to be provided.
- 5. Bus stops shall be provided in the kerbside lane.
- Intersections are to be controlled (signals, roundabouts) and provide appropriate pedestrian crossing facilities.
- 7. Priority controlled intersections will only be considered for left turns (eg Left-in/Left-out).
- Controlled intersections (signals, roundabouts) are to be generally spaced a minimum of 400 metres apart.
- Mid-block pedestrian crossings not permitted (eg refuges, marked crossings, kerb extensions etc).
- 10.Road reserve may need to be locally widened at intersections to allow for turn lane requirements.



Chapter B2: Residential Subdivision

TYPE 2A - Sub-arterial with bus service and parking





TYPICAL ROAD CROSS SECTION TYPE 2A

SCALE: NTS

NOTE: ALL DIMENSIONS ARE SHOWN IN METRES

Objectives

- Provide for moderate traffic volumes with 2 travel lanes and 2 parking lanes, with potential to provide 4-lane capacity when required.
- 2. Provide kerbside parking.
- Allow for traffic calming and greening opportunity through provision of regular kerb extensions in parking lane.
- Provide connectivity between neighbourhoods and local centres/higher order roads.
- Direct access is not permitted (access denied).
- 6. Provide for bus routes and bus stops.
- 7. Design speed 70km/h, posted speed 60km/h.
- 8. Provide legible pedestrian and cycle network via shared paths on both sides of road.
- All adjoining lots must provide an active frontage to the Type 2A road (can be direct frontage or via secondary parallel internal road).

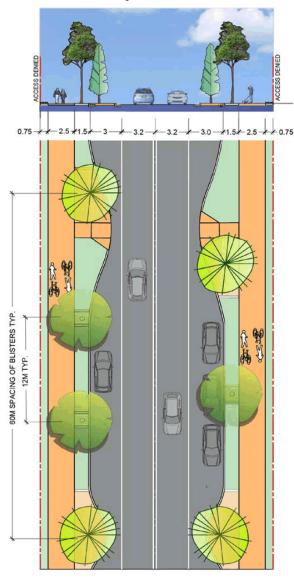
<u>Notes</u>

- The road capacity is considered to generally cater for 10,000 - 15,000vpd.
- 2. Lighting can be provided within the verge.
- 3. A kerbside verge width of 1.5m has been provided to allow for space for trees.
- 4. Barrier kerb to be provided.
- Bus stops shall be provided in the kerbside (parking) lane.
- Intersections are to be controlled (signals, roundabouts) and provide appropriate pedestrian crossing facilities.
- Priority controlled intersections will only be considered for left turns (eg Left-in/Left-out).
- Controlled intersections (signals, roundabouts) are to be generally spaced a minimum of 400 metres apart.
- Mid-block pedestrian crossings generally not permitted (eg refuges, marked crossings, kerb extensions etc).
- 10. Road reserve may need to be locally widened at intersections to allow for turn lane requirements.



Chapter B2: Residential Subdivision

TYPE 3 - Major collector with bus service and parking



TYPICAL ROAD CROSS SECTION TYPE 3

SCALE : NTS

NOTE: ALL DIMENSIONS ARE SHOWN IN METRES

Objectives

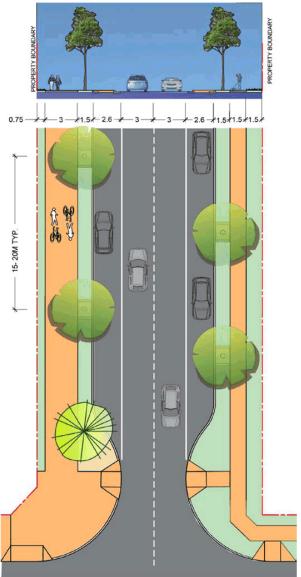
- 1. Provide for moderate traffic volumes with 2 travel lanes and 2 parking lanes.
- Provide kerbside parking.
- Allow for traffic calming and greening opportunity through provision of regular kerb extensions in parking lane.
- Provide connectivity between neighbourhoods and local centres/higher order roads.
- Direct access is generally not permitted (access denied) but may be considered dependent on traffic demand.
- 6. Provide for bus routes and bus stops.
- 7. Design speed 70km/h, posted speed 60km/h.
- 8. Provide legible pedestrian and cycle network via shared paths on both sides of road.
- All adjoining lots must provide an active frontage to the Type 3 road (can be direct frontage or via secondary parallel internal road).

- 1. The road capacity is considered to generally cater for 3,000 15,000vpd.
- 2. Lighting can be provided within the verge.
- 3. A kerbside verge width of 1.5m has been provided to allow for space for trees.
- 4. Barrier kerb to be provided.
- 5. Bus stops shall be provided in the kerbside (parking) lane.
- Intersections are to be generally controlled (signals, roundabouts) and provide appropriate pedestrian crossing facilities.
- Priority controlled intersections may be considered dependant on traffic demand.
- Controlled intersections (signals, roundabouts) are to be generally spaced a minimum of 400 metres apart.
- Mid-block pedestrian crossings may be considered based on traffic demand and location (eg refuges, marked crossings, kerb extensions etc).
- 10.Road reserve may need to be locally widened at intersections to allow for turn lane requirements.



Chapter B2: Residential Subdivision

Road Type 4 - Minor collector with parking and limited bus access



TYPICAL ROAD CROSS SECTION TYPE 4

SCALE : NTS

NOTE: ALL DIMENSIONS ARE SHOWN IN METRES

Objectives

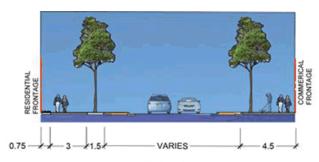
- 1. Provide for low to moderate traffic volumes with 2 travel lanes and 2 parking lanes.
- Provide kerbside parking.
- Allow for traffic calming, greening opportunity and improved pedestrian safety through provision of kerb extensions at intersections.
- Provide connectivity between and within neighbourhoods and to local centres/higher order roads.
- 5. Direct access is permitted.
- Limited provision for bus route services in certain circumstances.
- 7. Design speed 60km/h, posted speed 50km/h.
- Provide legible pedestrian and cycle network via shared path on one side and footpath on other.

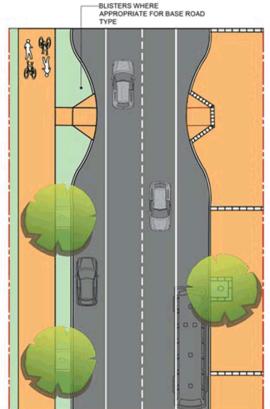
- The road capacity is considered to generally cater for 3,000 - 9,000vpd.
- Lighting can be provided within the verge.
- A kerbside verge width of 1.5m has been provided to allow for space for trees.
- Barrier kerb to be provided.
- Where a bus service exists, bus stops shall be provided in the kerbside (parking) lane.
- Intersections with higher order roads to generally be controlled (signals, roundabouts) and provide appropriate pedestrian crossing facilities.
- Priority controlled intersections may be considered where not intersecting the same or higher order road.
- 8. Road segment length shall be a maximum of 200m between intersections/bends.
- Mid-block pedestrian crossings are generally acceptable (eg refuges, marked crossings, kerb extensions etc).
- Verge trees are to be provided at one per lot, located to avoid impacts on utilities, driveways and drainage infrastructure.
- Road reserve may need to be locally widened at intersections to allow for turn lane requirements.



Chapter B2: Residential Subdivision

Road Type TC - Town & Village Centre Road





TYPICAL ROAD CROSS SECTION TYPE TC

SCALE : NTS

NOTE: ALL DIMENSIONS ARE SHOWN IN METRES

Objectives

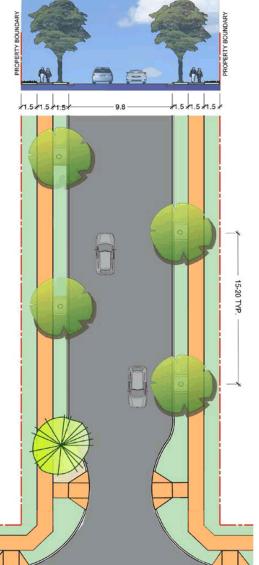
- Provide a variation on Road Types 2-4 specifically for town and village centre environments.
- Provide for low to moderate traffic volumes.
- 3. Provide kerbside parking and bus stops.
- Allow for traffic calming, greening opportunity and improved pedestrian safety through provision of kerb extensions mid-block &/or at intersections.
- Provide connectivity to local centres/higher order roads.
- Direct access may be considered on residential side (where relevant) depending on base road type and traffic demands.
- Consolidation of access points to commercial development to maintain high level of pedestrian amenity and safety.
- 8. Allows for bus services.
- Design speed generally 50km/h however road design should seek to encourage lower speeds in these high pedestrian activity areas.
- Provide improved pedestrian/cyclist amenity through provision of full width sealed paths on commercial frontages and shared path on any residential frontage.

- The road capacity varies depending on base road type.
- Lighting can be provided within the verge (or median if provided).
- A kerbside verge width of 1.5m has been provided to allow for space for trees on residential frontage.
- 4. Barrier kerb to be provided.
- Verge trees to be provided within paved area on commercial frontage with tree grates and one tree per lot on residential side.
- Planter boxes, bus shelters and street furniture will be considered for paved verge adjacent commercial development.
- Bus stops shall be provided in the kerbside (parking) lane.
- Intersections with higher order roads to generally be controlled (signals, roundabouts) and provide appropriate pedestrian crossing facilities.
- Priority controlled intersections can be considered depending on base road type and traffic demands.
- Mid-block pedestrian crossings are generally acceptable (eg refuges, marked crossings, kerb extensions etc).
- Median treatments can be considered however base road type lane widths must still be provided.
- Road reserve may need to be locally widened at intersections to allow for turn lane requirements.



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Road Type 5 - Local Road with parking



Objectives

- Provide for low traffic volumes, access to properties and amenity in residential areas.
- Provide kerbside parking.
- Allow for traffic calming, greening opportunity and improved pedestrian safety through provision of kerb extensions at intersections.
- 4. Provide connectivity between and within neighbourhoods.
- 5. Direct access is permitted.
- Not intended to cater for bus routes.
- 7. Design speed 60km/h, posted speed 50km/h.
- Provide legible pedestrian access via footpaths on both sides of road.

Notes

- The road capacity is considered to generally cater for less than 3,000vpd.
- 2. Lighting can be provided within the verge.
- 3. A kerbside verge width of 1.5m has been provided to allow for space for trees.
- Road segment length shall be a maximum of 200m between intersections/bends.
- 5. Barrier kerb to be provided.
- Intersections will generally be priority control however small roundabouts may be used for traffic calming (eg to break up long sections of road) &/or at 4-way intersections.
- Traffic calming measures can be used to reduce the likelihood of through-traffic use (rat running).
- 8. Mid-block pedestrian crossings are generally acceptable (eg refuges, marked crossings, kerb extensions etc).
- Verge trees are to be provided at one per lot, located to avoid impacts on utilities, driveways and drainage infrastructure.
- Shared path is required (2.5m width) if the street forms part of a dedicated off-road cycle route (eg riparian shared path route).

TYPICAL ROAD CROSS SECTION TYPE 5

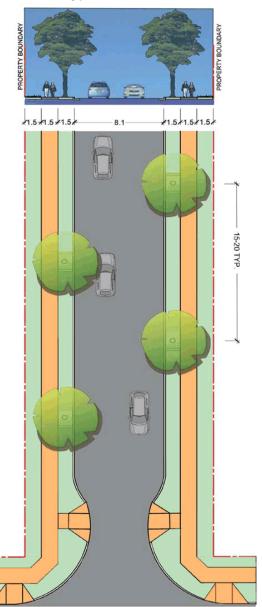
SCALE : NTS

NOTE: ALL DIMENSIONS ARE SHOWN IN MET



Chapter B2: Residential Subdivision

Road Type 6 – Access Street



Objectives

- To provide access to properties and amenity in residential areas.
- Allows for some casual on-street parking.
- Allow for traffic calming, greening opportunity and improved pedestrian safety through provision of kerb extensions at intersections.
- 4. Provide connectivity within neighbourhoods/subdivisions.
- 5. Direct access is permitted.
- 6. Does not cater for buses.
- 7. Design speed 60km/h, posted speed 50km/h.
- Provide legible pedestrian access via footpaths on both sides of road.

Notes

- The road capacity is considered to generally cater for less than 1,000vpd.
- 2. Lighting can be provided within the verge.
- A kerbside verge width of 1.5m has been provided to allow for space for trees.
- 4. Road segment length shall be a maximum of 200m between intersections/bends.
- Barrier kerb to be provided.
- 6. Intersections will generally be priority control.
- Verge trees are to be provided at one per lot, located to avoid impacts on utilities, driveways and drainage infrastructure.
- Shared path is required (2.5m width) if the street forms part of a dedicated off-road cycle route (eg riparian shared path route).

TYPICAL ROAD CROSS SECTION TYPE 6

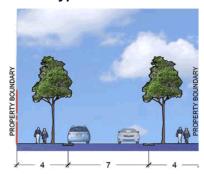
SCALE: NTS

NOTE: ALL DIMENSIONS ARE SHOWN IN METRES



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Road Type 7 - Access Place

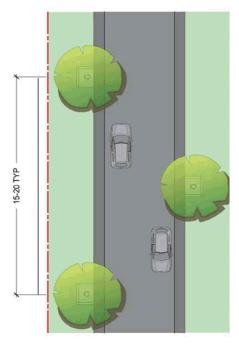


Objectives

- Provide for access to small sections of properties & high pedestrian/cyclist amenity in residential areas – no through traffic.
- Allows for some casual on-street parking.
- 3. Direct access is permitted.
- 4. Does not cater for buses.
- 5. Urban default speed limit of 50km/h applies, however lower speeds maintained through geometry/design.

Notes

- The road capacity is considered to generally cater for up to 300vpd (ie approx. 30 properties).
- Lot layout shall be designed to ensure staggered onstreet parking in order to present a clear travel lane with passing opportunities.
- Provides dish drains rather than barrier kerb to increase pedestrian amenity.
- Road segment length shall be a maximum of 100 metres.
- 5. Lighting can be provided within the verge.
- Verge trees are to be provided at one per lot, located to avoid impacts on utilities, driveways and drainage infrastructure.
- This road type does not provide kerb and gutter for builders to connect stormwater into. The applicant will need to provide a piped stormwater connection point within each lot (eg stub, or pit) draining to the receiving stormwater system.
- The final method of stormwater collection (ie dish drain, swale, etc) is subject to Council approval.
- Concrete footpath (1.5m width) is required if the street forms part of a dedicated pedestrian route.
- Shared path is required (2.5m width) if the street forms part of a dedicated off-road cycle route (eg riparian shared path route).



TYPICAL ROAD CROSS SECTION TYPE 7

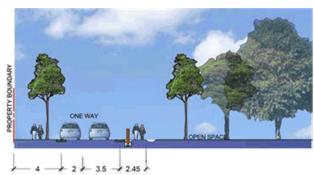
CALE : NTS

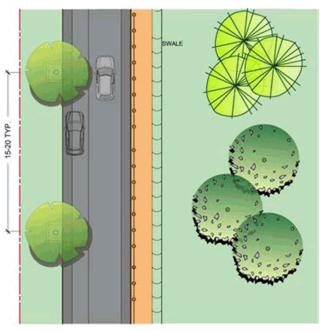
NOTE: ALL DIMENSION ARE SHOWN IN METRE



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Road Type 7A – Access Place adjacent to open space (one-way traffic)





TYPICAL ROAD CROSS SECTION TYPE 7A

SCALE : NTS

NOTE: ALL DIMENSIONS ARE SHOWN IN METRES

Objectives

- Provide for access to small sections of properties & high pedestrian/cyclist amenity in residential areas – no through traffic.
- Provide for informal access to open space, whilst not generating any more than 300vpd.
- 3. Allows for some casual on-street parking.
- 4. Direct access is permitted.
- 5. Does not cater for buses.
- Urban default speed limit of 50km/h applies, however lower speeds maintained through geometry/design.

- This road is one-way and only permitted adjacent to open space and excludes sporting fields.
- The road capacity is considered to generally cater for up to 300vpd (ie up to approx. 30 properties) and must include any anticipated traffic from open space component.
- Provides dish drains rather than barrier kerb to increase pedestrian amenity.
- Road segment length shall be a maximum of 100 metres.
- 5. Lighting can be provided within the verge.
- Verge trees are to be provided at one per lot, located to avoid impacts on utilities, driveways and drainage infrastructure.
- This road type does not provide kerb and gutter for builders to connect stormwater into. The applicant will need to provide a piped stormwater connection point within each lot (eg stub, or pit) draining to the receiving stormwater system.
- The final method of stormwater collection (ie dish drain, swale, etc) is subject to Council approval
- Verge tree planting on open space side is not required – these requirements will be dealt with separately to the road section.
- Shared path is required (2.5m width) if the street forms part of a dedicated off-road cycle route (eg riparian shared path route).



Part B – Land Use Based Planning Controls Chapter B2: Residential Subdivision

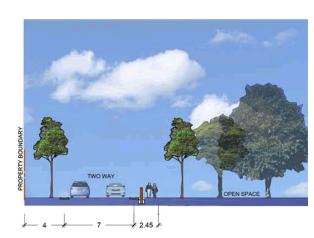
Road Type 7B – Access Place adjacent to open space (two-way traffic)

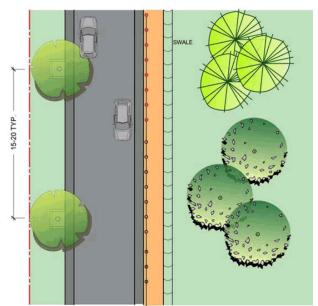
Objectives

- Provide for access to small sections of properties & high pedestrian/cyclist amenity in residential areas – no through traffic.
- Provide for informal access to open space with improved parking opportunity, whilst not generating any more than 300vpd.
- 3. Allows for some casual on-street parking.
- 4. Direct access is permitted.
- 5. Does not cater for buses.
- Urban default speed limit of 50km/h applies, however lower speeds maintained through geometry/design.

<u>Notes</u>

- This road is two-way and only permitted adjacent to open space and excludes sporting fields.
- The road capacity is considered to generally cater for up to 300vpd (ie up to approx. 30 properties) and must include any anticipated traffic from open space component.
- Road segment length shall be a maximum of 100 metres.
- Provides dish drains rather than barrier kerb to increase pedestrian amenity.
- 5. Lighting can be provided within the verge.
- Verge trees are to be provided at one per lot, located to avoid impacts on utilities, driveways and drainage infrastructure.
- 7. This road type does not provide kerb and gutter for builders to connect stormwater into. The applicant will need to provide a piped stormwater connection point within each lot (eg stub, or pit) draining to the receiving stormwater system.
- The final method of stormwater collection (ie dish drain, swale, etc) is subject to Council approval.
- Verge tree planting on open space side is not required – these requirements will be dealt with separately to the road section.
- 10. Shared path is required (2.5m width) if the street forms part of a dedicated off-road cycle route (eg riparian shared path route).





TYPICAL ROAD CROSS SECTION TYPE 7B

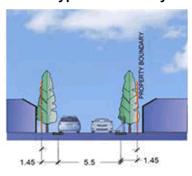
SCALE : NTS

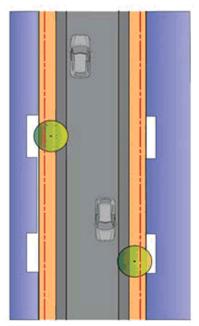
NOTE: ALL DIMENSIONS ARE SHOWN IN METRES



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Road Type 8 – Laneway





TYPICAL ROAD CROSS SECTION TYPE 8

SCALE: NTS

NOTE: ALL DIMENSIONS ARE SHOWN IN METRES

Objectives

- Provide vehicular access to the rear or side of lots where front access is restricted or not possible.
- To maximise on-street parking and landscaping in residential street frontages.
- Provide housing density, diversity and affordable housing options.
- Reduce vehicular conflict through reduced driveway cross overs on the main road frontage.
- To create a slow speed zone that is distinctly different in character and materials to residential streets.
- 6. Urban default speed limit of 50km/h applies, however lower speeds maintained through geometry/design.
- Does not cater for buses.
- Verge design allows space for pedestrians, garbage bins, planting and lighting, whilst not encouraging casual parking, storage of boats/trailers etc.
- All lots adjoining a laneway are to utilise the laneway for vehicular/garage access.

Notes

- The lane capacity is considered to generally cater for up to 300vpd (ie up to approx. 30 properties).
- 2. "C" shaped laneways are to be avoided as they do not provide good sightlines for passive surveillance.
- 3. Lighting can be provided within the verge.
- No raised kerb is to be provided in laneways to increase pedestrian amenity.
- Verge trees of appropriate species are to be provided within the verge area (tree grates may be utilised).
- This road type does not provide kerb and gutter for builders to connect stormwater into. The applicant will need to provide a piped stormwater connection point within each lot (eg stub, or pit) draining to the receiving stormwater system.
- Any bends or intersections in the laneway must be designed to permit garbage truck movements.
- Passive surveillance along the laneway from upper storey rooms or balconies of secondary dwellings, studios, lofts over garages &/or principle dwelling is encouraged.
- 9. The intersection of laneways with other roads should not be designed as a typical street intersection with kerb returns, but instead as a driveway entrance (ie vehicle crossover). Any footpath or shared path along the main road frontage is to be continued across the laneway intersection.



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13.3 Road and drainage construction

Objective

(a) To ensure all residential lots have suitable, safe and efficient access to and from public roads and that all road and stormwater drainage infrastructure works are properly constructed.

Development Controls

- 1. All allotments in a subdivision must gain direct access to / from a properly formed public road.
- The full cost of the construction of new roads (including the construction of the road carriageway, footpaths and / or shared paths, full kerb and gutter, street tree planting etc), stormwater drainage and the provision of infrastructure services to a subdivision will be borne by the subdivider / developer.
- 3. The required road, stormwater drainage and infrastructure works shall be constructed in accordance with Council's Subdivision Policy and any necessary requirements by the infrastructure service authority. The roadworks, drainage works and infrastructure services shall be completed, prior to the issuing of a Subdivision Certificate. For approved staged subdivisions, all required road, drainage and infrastructure works must be completed for each stage prior to the issue of the Subdivision Certificate for each respective stage.

13.4 Upgrading poorly constructed or unformed roads

Objective

(a) To ensure all residential lots have suitable, safe and efficient access to and from public roads and that all road and stormwater drainage infrastructure works are properly constructed.

Development Controls

- 1. All allotments in a subdivision must gain direct access to / from a properly formed public road.
- 2. In areas where the subdivision fronts a poorly constructed or unformed public road, the subdivision will be subject to the construction of full kerb and gutter, stormwater drainage, full or half road construction and sealing in addition to the provision of nature strips with a 3% cross fall to the roadway. The final decision as to the level of construction required will be at the discretion of Council.

13.5 Half-road construction

Objective

(a) To ensure half road construction is undertaken to effectively and safely meet the needs of road users both in the interim (half road) and final (full road) scenario.

Development Controls

- 1. Where a subdivision fronts an existing road and requires a road upgrade, it is the developer's responsibility to design and construct the half-road with the associated pedestrian / shared path facilities, adjacent to the subject property. The road and path widths are determined by the road type.
- 2. Roads with an existing frontage that require half-road construction require a minimum 3m existing travelling lane from the new crown of the road.
- The construction of the half road requires overlapping of longitudinal joints and may require additional pavement construction of an existing road.

13.6 Bus Routes and public transport

Objectives



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- (a) Encourage bus services to link existing urban areas (especially business centres) with new residential subdivisions within new release areas.
- (b) Ensure residential subdivisions within new release areas are designed to ensure safe, convenient and efficient bus routes within reasonable walking distance to the majority of residential lots in a subdivision
- (c) Provide safe and convenient bus stops along the planned bus route.

Development Controls

- 1. Large residential subdivisions should be designed to make provision for a bus service to link existing urban areas with the new residential subdivisions. The bus route should be designed to provide adequate servicing by bus companies. Therefore, consultation should take place with the local bus companies and Transport for NSW to determine whether a bus service can be provided within or connecting to the new residential subdivision.
- 2. The design of roads and infrastructure to support bus servicing should be in accordance with relevant Australian Standards, AUSTROADS guidelines and 'Guidelines for Public Transport Capable Infrastructure in Greenfield Sites' (Transport for NSW).
- The bus route should be generally designed along collector roads and linked up to sub-arterial or arterial roads, due to the requirement for wider road carriageways.
- 4. Bus stops should be generally located within 400 metres walking distance for 90% of the lots in the immediate locality.
- Bus stop locations should be located to maximize active transport accessibility via footpath and shared path networks.
- 6. Any proposed roundabout on a bus route must be designed to satisfactorily accommodate bus maneuvering through and around the roundabout.
- 7. Bus shelters are to be provided at all bus stops. Bus shelters are to be located in positions that will service the maximum number of dwellings. The approved bus shelters are to be installed during the subdivision construction stage by the property developer involved in the subdivision.
- 8. Bus stops should be easily accessible for all people (including people with a disability), well defined and within casual observation from nearby dwellings, whilst minimising any interference with the streetscape amenity of the locality. All pedestrian pathways leading to and from bus stops should be designed to have a maximum gradient of 1 in 14 and be in compliance with relevant AUSTROADS guidelines and Australian Standards.
- 9. Safe pedestrian crossing points should be provided at each bus stop by the introduction of non-raised pedestrian thresholds and refuges and in accordance with the requirements of Council. For collector/arterial roads safe pedestrian crossing should be provided by locating stops near controlled crossing points (traffic signals, roundabouts).

13.7 Cul-de-sacs and turning heads

Objectives

- (a) Restrict the length of cul-de-sacs within a residential subdivision to improve accessibility to public transport facilities such as bus stops and provide more direct vehicular access arrangements for emergency vehicles.
- (b) Ensure cul-de-sacs and turning heads are designed to provide safe and efficient vehicular access for cars, waste collection and recycling trucks, removalist trucks, emergency vehicles etc.
- (c) Ensure all new residential lots are capable of being either accessed or serviced by emergency vehicles and other non-passenger vehicles such as waste and recycling collection trucks and removalist trucks, without adversely affecting the performance or safety of the surrounding road network
- (d) Restrict "T" or "Y" turning heads to smaller cul-de-sacs which serve a limited number of residential lots within a subdivision.

Development Controls



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- 1. The maximum length of any cul-de-sac should be 80 metres, in order to ensure adequate accessibility to public transport facilities such as bus stops as well as suitable access arrangements for emergency service vehicles and waste disposal vehicles.
- The minimum kerb radius for the turning head of any small residential cul-de-sac (ie serving a maximum 30 dwellings / allotments) shall be 10.5 metres.
- 3. "T" or "Y" turning heads will only be permitted within small cul-de-sacs / access roads which serve up to a maximum of 10 lots / dwellings. In most cases, a "Y" turning head configuration is preferred, in order to discourage potential parking in the turning space. Turning heads must provide sufficient space for larger vehicles such as waste, emergency services and recycling collection trucks to make a three point turn.
- 4. Where a "T" or "Y" turning head is proposed, a suitable waste and recycling bin storage area(s) must be carefully positioned on the left hand side (forward direction of the truck). The bin storage area(s) must not be located any closer than 5 metres from the forward end and 8 metres from the reverse end of the "T" or "Y" turning head. This is to ensure that waste and recycling collection trucks are able to satisfactorily service the bin storage areas.

13.8 Roundabouts and road junctions

Objective

(a) Ensure all roundabouts and road junctions are safe, designed in accordance with traffic engineering best practice and appropriately spaced to help define residential areas.

Development Controls

- Roundabouts and other road junctions are to be designed in accordance with the requirements of the relevant AUSTROADS and RMS guidelines and Australian Standards. Roundabouts must also be designed to provide for safe passage of pedestrians and cyclists.
- 2. The design and construction of a roundabout upon an existing or proposed public road will be subject to the separate approval of Council's Infrastructure Division. As part of this consideration, Council's Infrastructure Division will also consider the whole of life assets cost of the roundabout and determine whether landscaping or hard finishings to the centre island of the roundabout is required.
- The minimum distance between an access road and a collector road shall be 60 metres where the
 junction is on the same side of the road or 40 metres where the junction is located on the opposite
 side of the road.
- 4. The minimum distance between collector roads shall be 120 metres if the junction is on the same side or 100 metres where the junction is staggered on the opposite side of the road.
- 5. All intersections are to be T-junctions or roundabouts (ie subject to Council's agreement as to the location and design of any proposed roundabout).

13.9 Traffic control measures

Objectives

- (a) Provide appropriate traffic calming devices, in order to improve traffic management flow within large residential subdivisions.
- (b) Provide appropriate traffic control devices and signs within residential subdivisions, in order to ensure traffic safety.

Development Controls

 Traffic calming devices such as thresholds, slow points, speed humps, chicanes and splitter islands are to be designed in accordance with the requirements of relevant AUSTROADS and RMS guidelines and Australian Standards. Any proposed traffic calming devices will require the approval by Council's Local Traffic Committee.



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 Traffic control signs, pavement markings and guideposts are to be provided for roads, intersections, pedestrian / cycle paths in accordance with the relevant AUSTROADS and RMS guidelines and Australian Standards.

Location of Traffic Calming Devices

 The location of traffic calming devices must be consistent with the streetscape requirements of the locality and must also be based upon the location of existing and / or proposed street lighting, drainage pits, driveway crossings, on-street car parking requirements and the location of utility services.

Traffic Calming Devices - Design Vehicles

- Any proposed traffic calming device must be designed to enable emergency vehicles and garbage trucks to reach all properties from the road.
- Traffic calming devices upon local roads with a feeding function between arterial or sub-arterial roads and access streets are to be designed in accordance with a 14.5 metre long rigid truck / bus as per AUSTROADS Guide to Traffic Engineering Practice (Drawing No.SD037).
- 3. Raised platform threshold treatments are not permitted where such treatments may be used as pedestrian crossings by pedestrians.

Design Speed Controls

- Roads are to be designed to assist manage vehicular speed. This can be achieved by:
 - creating a visual environment conducive to lower speeds through using landscaping treatments and other traffic calming devices to segment streets into relatively short road lengths (ie generally less than 300 metres long).
 - Using traffic calming devices which shift vehicle travel paths laterally (eg slow points, roundabouts, corner treatments) or vertically through humps, platform intersections etc).

Sight Distance Requirements

- Any proposed traffic calming device must be designed to cater for critical sight distances for the design operating speed of the subject road.
- Speed control devices (such as narrowed threshold treatments) should be located in close
 proximity to existing or proposed street lighting. Any such traffic calming measures must
 incorporate appropriate reflective treatments to delineate the vehicular travel path.

Streetscape Requirements for Traffic Calming Devices

- 1. The new road features to be considered in the design of traffic calming devices include the following:
 - (a) Improve the landscape character of the locality;
 - (b) Reduce the linearity of roads by segmentation;
 - (c) Avoid continuous long straight lines (kerb lines) for local roads; and
 - (d) Maximise the continuity between existing and new landscape areas.

13.10 Splay corners

Objective

(a) Provide appropriate splay corners at intersections within residential subdivisions, to ensure adequate sight line distances.



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Development Controls

 All intersections in a subdivision shall be provided with a minimum 4.25 metre splay or as required by Council's Infrastructure Division.

13.11 Street lighting and fire hydrants

Objectives

- (a) Provide effective street lighting along all roads within the subdivision, to maximise vehicular and pedestrian safety.
- (b) Provide appropriate street lighting at key intersections and pedestrian crossings as well as traffic calming device locations to maximise vehicular and pedestrian safety.
- (c) Provide appropriate lighting along all pedestrian pathways and / or shared pathways / cycle ways, in order to maximise pedestrian and cyclist safety.
- (d) Provide fire hydrants within close proximity to all residential lots in a subdivision in accordance with the relevant Australian Standard and the requirements of Sydney Water Corporation and Fire and Rescue NSW.

Development Controls

- Electric street lighting systems are to be provided for roads and intersections as well as pedestrian
 crossing and traffic calming device locations in accordance with AS / NZS 1158 Road Lighting as
 indicated in the following Table 3.
- 2. All allotments created must be within 60 metres to a fire hydrant in accordance with Australian Standard AS 2419. The proposed location of fire hydrants shall be shown on the subdivision plan.

Table 3: Road type - street lighting requirements

Road Type	Street Lighting Category (AS 1158)
Arterial Roads	V4
Collector Road (>7000 vehicles / day)	P3
Collector Road (<7000 vehicles / day)	P4
Access Road in Business Areas	P3
Access Road	P4
Laneway	P5
Public Pathways & Cycleways	P4
Car parks	P11
Traffic Calming Device (including roundabout)	Horizontal illuminance min. of 3.5 lux
Pedestrian Refuge	Horizontal illuminance min. of 3.5 lux

Note: Category of illumination is defined in AS 1158 Part 1.1 and Part 3.1. All lighting designs are to be prepared in accordance with AS / NZS 1158 for the above specified categories.

13.12 Restricted access to collector or arterial roads

Objectives

(a) Restrict access to any arterial or sub-arterial road to maintain satisfactory traffic flows and safety along such roads. Design for alternative public road access for lots in subdivisions (see diagrams below for examples).



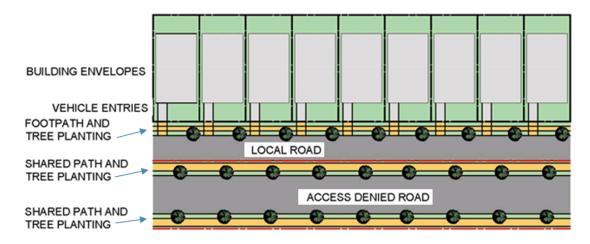
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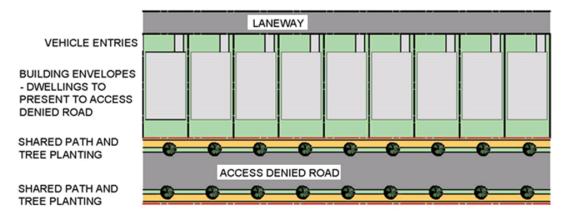
- (b) When deemed necessary, create legal restrictions prohibiting direct access to designated roads (Collector or Arterial Roads).
- (c) Create temporary access agreements for designated roads (Collector or Arterial Roads).

Development Controls

- Direct access to any arterial or sub-arterial road will not be permitted where alternate public road access is available. However, direct property access to / from an arterial or sub-arterial road will not be restricted until such time as alternate public road access is available.
- Subdivision shall be designed to provide alternative public road access in cases where lot access to the arterial or sub-arterial roads is restricted.
- 3. Council may require as a condition of consent as part of any subdivision or development that a suitable restriction on the use of land be created pursuant to the provisions of Section 88B of the Conveyancing Act 1919, in order to legally prohibit direct access to / from any adjoining Arterial or Sub-Arterial Road where alternative direct public road access is available to / from the subject site.
- 4. Temporary access may be granted to a designated road (arterial or sub-arterial road) where alternate public access has not yet been completed. However, this temporary access arrangement will be dependent upon the nature of the access arrangement in relation to the arterial or sub-arterial road. Additionally, the formal concurrence of the NSW Roads and Maritime Services may be required.

Examples of alternative solutions to lot layouts around restricted access roads.







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14 BUSHFIRE PROTECTION

Objectives

- (a) Proposed residential subdivisions designed to minimise the potential bush fire hazard risk to prevent future loss of, and damage to life, property and the environment due to bushfires.
- (b) Residential subdivision designed to minimise the siting of future dwellings away from ridge tops and other steeply sloping land, especially upslope lands, within saddles or narrow ridge crests.
- (c) Proposed residential subdivisions designed to provide an efficient and safe road network which minimises potential bottle-necks.
- (d) Minimise the impact of fire protection measures on vegetation, fauna, views, watercourses and soil erosion, amenity and safe access.
- (e) Ensure each residential subdivision upon bush fire prone land is designed to provide satisfactory asset protection zones (APZ) between areas of potential hazard and development.

Development Controls

- New residential subdivisions in bush fire hazard prone lands will generally require a perimeter road system to assist in providing space and access to fire fighting vehicles. Council will refer to NSW Rural Fire Service regarding compliance with specifications and requirements.
- Any proposed residential subdivision upon land classified as bush fire prone land is an Integrated Development Application under the *Environmental Planning and Assessment Act 1979*. As such, formal concurrence is required from the NSW Rural Fire Service, pursuant to section 100B of the *Rural Fires Act 1997*.
- 3. Any Integrated Development Application for residential subdivision upon bush fire prone land will be subject to compliance with the requirements of NSW Rural Fire Service publication "Planning for Bush Fire Protection". The application must be accompanied by a bush fire assessment report. The bush fire assessment report must be prepared by a suitably qualified and experienced bush fire consultant and must provide a comprehensive assessment as to how the proposed development complies with the relevant specifications and requirements.

The Statement of Environmental Effects (SEE) should specifically address the findings and conclusions of the bush fire assessment report to ensure compliance with the "Planning for Bush Fire Protection". The findings and conclusions of the bush fire assessment report should also be reflected in the design of the proposed subdivision. Council will refer this information to NSW Rural Fire Service for assessment advice.

15 STORMWATER DRAINAGE

Objectives

- (a) Minimise stormwater drainage run-off impacts upon downstream properties.
- (b) Limit post development discharges to pre-development levels.
- (c) Provide a sustainable stormwater drainage and water quality environment incorporating both natural and man-made landscape features and which is aesthetically pleasing.
- (d) To encourage water sensitive urban design initiatives for larger residential subdivisions, in order to maintain or enhance the water quality in watercourses.

Development Controls

- A detailed stormwater drainage concept plan together with calculations is required to be submitted with the Development Application.
- The proposed stormwater drainage system for the subdivision shall be designed in accordance with the requirements of the Stormwater Management & Water Sensitive Urban Design chapters in Part E of the DCP.
- 3. For subdivisions involving 20 or more allotments, the proposed stormwater drainage system must



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incorporate water sensitive urban design techniques, wherever possible, in order to minimise runoff and restrict discharge from the site. This may be achieved by using grass swale drains, bio-filtration, bio-retention basins, detention ponds, reuse systems and retention of natural watercourses including wetlands and pool and riffle zones etc. Other stormwater quality improvement measures such as artificial wetlands, sedimentation basins and gross pollutant traps or trash racks may also be provided to facilitate the removal of sediment and other pollutants.

- 4. Where water sensitive urban design features (eg grass swales, bio-filtration measures, water quality detention ponds or basins etc) are proposed to be ultimately handed over to Council, upfront consultation is required to be held with Council prior to the lodgment of any subdivision application. This will ensure that appropriate design parameters, minimum performance requirements, monitoring and maintenance regimes are agreed upon between Council and the subdivider for each relevant WSUD treatment measure upfront. In the event that no agreement is reached upfront, Council is unlikely to accept the handover of any such assets.
- All stormwater drainage systems are to be designed considering 'living waterways' as places for people. Some protections may be needed to prevent access to any highly hazardous features of drainage and water quality facilities.
- 6. The discharge of stormwater runoff must be restricted into a lawful point of discharge such as a natural watercourse or waterway to which the development site naturally drains or existing stormwater drainage systems as agreed to by Council.
- 7. Where there is no existing lawful point of discharge, the applicant must:
 - (a) Dedicate the discharge point to Council's connecting reserves or easements that provide legal continuity from the site to an off-site legal point of discharge into a natural watercourse or waterway or suitable public stormwater drainage system and
 - (b) Construct the necessary connecting drainage works.
- 8. For sites sloping away from public roads or watercourses, written documentary evidence must be provided from downstream property owners which confirms their agreement for stormwater drainage pipes and associated creation of necessary easements through their properties, in order to guarantee that satisfactory arrangements have been made for stormwater drainage from the site.
- 9. The provision of inter-allotment drainage is required where drainage pipelines convey stormwater from private residential lots across other adjoining residential lots (ie not draining directly to a public road). The creation of 1.5 metre wide inter-allotment drainage easements will be required as part of the subdivision. The inter-allotment drainage easements shall not be vested in Council.
- 10. Where it is necessary to connect into Council's existing stormwater drainage system, the capacity of the existing stormwater drainage system is to be checked to ensure its capacity of accepting the additional developed run-off from this development. Costs associated with any necessary upgrading or drainage is to be borne by the developer and work is to be undertaken in accordance with Council's Subdivision Policy and Part E Stormwater Management chapter to this DCP.

16 RIPARIAN LAND MANAGEMENT

Objectives

- Protect urban creeks and riparian corridors and their native ecology from further degradation and improve their environmental function.
- (b) Maintain or enhance the stability of the bed and banks of a watercourse.
- (c) Minimize 'edge effects' at the riparian corridor / urban interface by the provision of a suitable riparian corridor width and create borders with perimeter road systems and pedestrian/cycle paths.
- (d) To ensure riparian land management measures are compatible with floodplain risk management objectives.

Development Controls

Any proposed residential subdivision involving waterfront land on, in or within 40 metres of the top
of bank of a river, creek or intermittent watercourse, lake or estuary will be subject to compliance



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with the requirements of Chapter E23 Riparian Corridor Management in this DCP.

 Any riparian land within a subdivision will be subject to a Vegetation Management Plan (VMP) to assist in establishing an ongoing management process. This VMP will include ownership, maintenance and management arrangements.

17 SERVICING ARRANGEMENTS

Objectives

- (a) To ensure the provision of infrastructure servicing / utilities is carried out in accordance with the requirements of Council and the relevant infrastructure servicing authority.
- (b) To maximise the opportunities for shared (common) trenching and to reduce constraints on landscaping within road reserve verges.

Development Controls

- It is recommended applicants consult with servicing authorities at an early stage in the planning
 process to ensure that all allotments can be appropriately serviced by reticulated water and
 sewerage and electricity supplies as different servicing needs may require subdivision lot/layout
 design responses.
- 2. Shared common trenches for service infrastructure to be underground are preferred in order to also enable the planting of trees and other landscaping within the road verges.
- In the event that the subdivision cannot be adequately serviced by reticulated water and sewerage supplies, then Council is unlikely to support any such application.
- 4. Where a subdivision is approved, a condition of consent will be imposed requiring the submission of a Notice of Requirements from Sydney Water Corporation to Council prior to the release of the Construction Certificate for the proposed subdivision. Additionally, a separate condition of consent will be imposed requiring the submission of a Section 73 certificate from Sydney Water Corporation which confirms that satisfactory arrangements have been made for reticulated water and sewerage infrastructure to the subdivision and the original Section 73 Certificate lodged with the Subdivision Certificate application.
- 5. Electricity distribution must be underground in all new residential subdivisions. Accordingly, the subdivision plan should provide details of the location of any required electricity sub-stations.
- 6. Telecommunication services are to be provided to all proposed lots. The submission of documentary evidence from a telecommunications carrier will be required for any approved subdivision, prior to the release of the Subdivision Certificate.
- 7. All allotments must be designed to enable the suitable provision for waste facilities. In cul-de-sacs, the head of the cul-de-sac must be designed to provide sufficient road reserve width (footpath area), in order to enable the storage of garbage and recycling bins without hindering access to adjacent properties.
- 8. Battle axe allotments shall be designed to include sufficient area within the existing public road reserve verge to cater for the provision of garbage and recycling bins. Alternatively, a garbage and recycling bin storage area may be provided within close proximity to the adjoining public road, but will be subject to private waste servicing arrangements being made by the property owner in the event that Council's waste contractor is not able to service the bin storage area.
- 9. Applicants are encouraged to liaise with Council's Waste Services Section of the City Works Division, in order to guarantee satisfactory waste service arrangements and to minimise potential future problems arising from poorly designed waste and recycling storage facilities.

18 ROAD ADDRESSING

Objectives

- (a) To ensure that addressing of property is undertaken in a consistent approach across NSW.
- (b) To ensure logical and unique identification of property.



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- (c) Provide improved clarity and direction for emergency services and the community.
- (d) Addressing to reflect longstanding address identification to minimise confusion and reduce disruption to the local community.

Development Controls

- Lot numbering (assignment of address numbers) and road naming is to be undertaken in accordance with the Geographical Names Board - NSW Addressing User Manual.
- Council has a responsibility to clearly identify public roads in accordance with the Roads Act 1993, and in the interests of public information and safety.
- 3. Where new roads exist the developer is to apply for a road naming application for the names of new road(s), together with the reasons for the names proposed, should be submitted in accordance with Council's Road Naming Policy for Council's consideration.
- Where no suggestions are received for the naming of roads, Council will determine the street names.
- 5. New street name signs are to be paid for and installed by developers.
- 6. As part of the road naming procedures under the Roads Act 1993, Council will forward the proposed road names in a subdivision to the Geographical Names Board for the Board's appropriate comment. In cases where the Geographic Names Board does not support the proposed road naming, Council will request alternative road names and in certain cases will liaise with the applicant.
- 7. For any classified roads, the NSW Roads and Maritime Services will determine the road name in consultation with the Geographic Names Board.
- 8. Upon receipt of development consent Council can assign address numbers. Addressing for lots will be provided from Council according to Councils Property addressing policy, prior to the issue of a construction certificate.
- Poor or inadequate house numbering (or even no numbering at all) can seriously hamper emergency services in the performance of their duties. Street / property numbering shall be clearly and permanently displayed at the primary frontage of each lot.

19 SUBDIVISION HANDOVER

Objectives

- (a) Ensure that local Council assets are handed over to Council in a satisfactory condition and reflecting the assets intended design purpose.
- (b) To ensure the community can suitably utilise the asset to be handed over in a safe and practical manner.
- (c) To provide clear requirements, procedures and guidelines relating to the handover process.
- (d) Provide information and documentation that ensure the longevity and design life of any Council asset.

Development Controls

- 1. Records are to be kept of the dimensions, length, square meterage and associated costs of constructed roadworks, landscaping and other civil assets intended to be dedicated as public infrastructure. CCTV is required of all pipelines to be dedicated to Council at practical completion of the development and again prior to handover of the asset.
- Road pavement details, including survey of each layer, material used, during road construction, is to be documented. Additional geotechnical engineering testing results including pavement density and Benkelman beam results must be provided.
- Operations and maintenance manuals for assets are to be prepared and handed over to Council.
 These manuals must include but not be limited to proposed type and frequency of establishment and maintenance intervention requirements. Maintenance requirements must cover civil assets

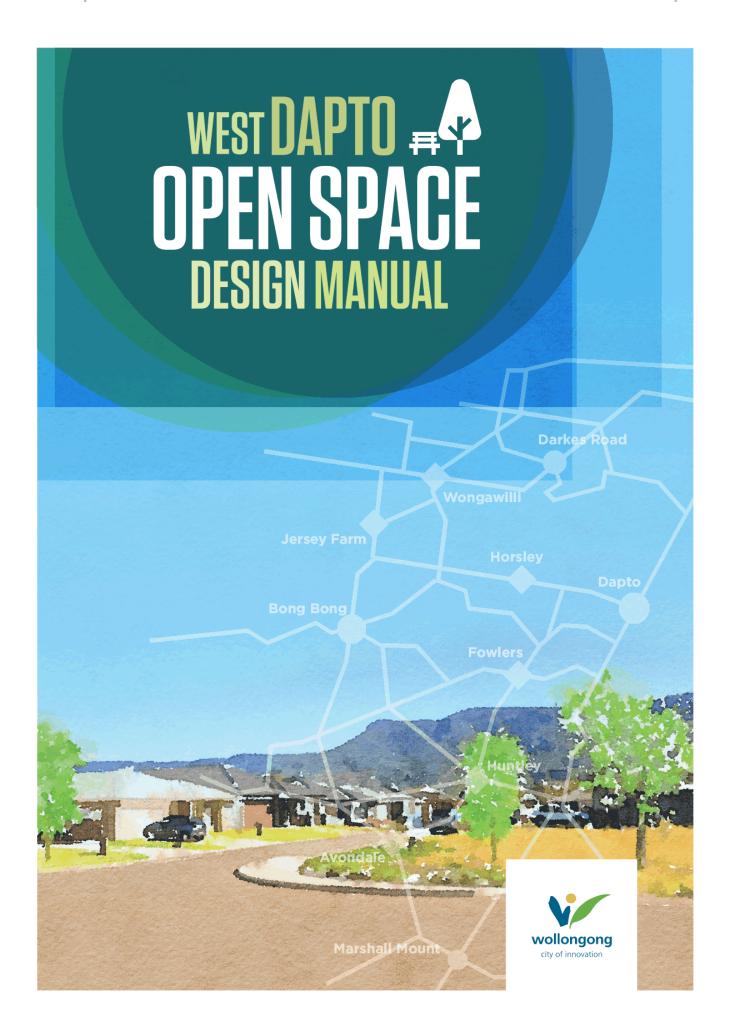


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(including and not limited to gross pollutant traps, detention basins, water sensitive urban design assets), landscape assets (including and not limited to street trees, reserves, parks, playgrounds), and riparian areas (such as creeks, bushland), and areas covered by vegetation management plans.

- 4. Risk assessment of carrying out maintenance of constructed roadworks, landscaping and other civil assets to be dedicated as public infrastructure is to be undertaken. Appropriate traffic control plans (prepared in accordance with RMS Guidelines) will need to be submitted for approval where maintenance work takes place in a proposed road reserve.
- 5. All relevant reports / documentation (e.g. surveillance reports, emergency management plans etc.) associated with any detention storage basin/s, as required by the NSW Dam Safety Committee (DSC) are to be provided, including documentary evidence confirming approval of this reporting/documentation by the DSC.
- 6. A final inspection is required at the conclusion of the defects liability period outlined in the development consent, for each component/asset to be handed over to Council. This meeting will be undertaken with relevant Council staff to ensure that the assets are in a satisfactory condition for handover to Council. The inspection is a review of works that have received practical completion against the approved drawings/development consent after the defects liability period has ended.







Document Revision Status

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Item 4 - Attachment 5 - Draft West Dapto Open Space Design Manual



1.0 Project Description

1.1 Introduction

The manual provides design guidance to promote design innovation, excellence as well as to ensure that proposed developments adhere to and facilitate the delivery of the West Dapto Vision, and Council's open space requirements.

This manual outlines the open space requirements and Design Standards to be achieved in the lodgement of all plans for subdivision applications in The West Dapto Urban Release Area and surrounding suburbs.

1.2 Objectives of Design Manual

- To set design objectives and requirements for open space in the West Dapto Urban Release Area.
- To be utilised by both external and internal stakeholders as well as professionals involved with the development, planning and design of open space within the West Dapto Urban Release Area and surrounding suburbs.

1.3 Policy Location

The manual should be read in conjunction with (but not limited to) the following development controls and Strategic Plans:

- Wollongong City Council West Dapto Vision 2018;
- Wollongong City Council DCP 2009 -
 - Chapter D16: West Dapto Urban Release Area;
 - Chapter B2: Residential Subdivisions;
 - Chapter E2: Crime Prevention Through Environmental Design;
 - Chapter E6: Landscaping;
 - Chapter E10: Aboriginal Heritage;
 - Chapter E11: Heritage Conservation;
 - Chapter E13: Floodplain Management;
 - Chapter E14: Stormwater Management;

- Chapter E15: Water Sensitive Urban Design;
- Chapter E17: Preservation and Management of Trees and Vegetation;
- Chapter E23: Riparian Land Management;
- West Dapto Development Contribution Plan 2017;
- Wollongong City Council Urban Greening Strategy 2017-2037;
- Wollongong City Council, Wollongong Social Infrastructure Planning Framework 2018-2028;
- Wollongong City Council Civil Specifications 2019;
- Recreational and Open Space Planning Guidelines for Local Government 2010 Department of Planning;
- West Dapto Social, Cultural and Recreational Needs Study – Facility and Open Space Recommendations – Final Report (Elton Consulting, 2007);
- Play Wollongong Strategy 2014 2024 – in particular the Background Research Report 2014;
- Wollongong City Council's Public Art Policy 2016, and Animating Wollongong: Public Art Strategy and Guidelines 2016-2021;
- Wollongong City Council Vegetation Management Guidelines for Development Applications;
- West Dapto Open Space Technical Manual:
- Transport Canberra and City Services (TCCS) publication – 'Design Standards for Urban Infrastructure, 24 – Sportsground Design.'



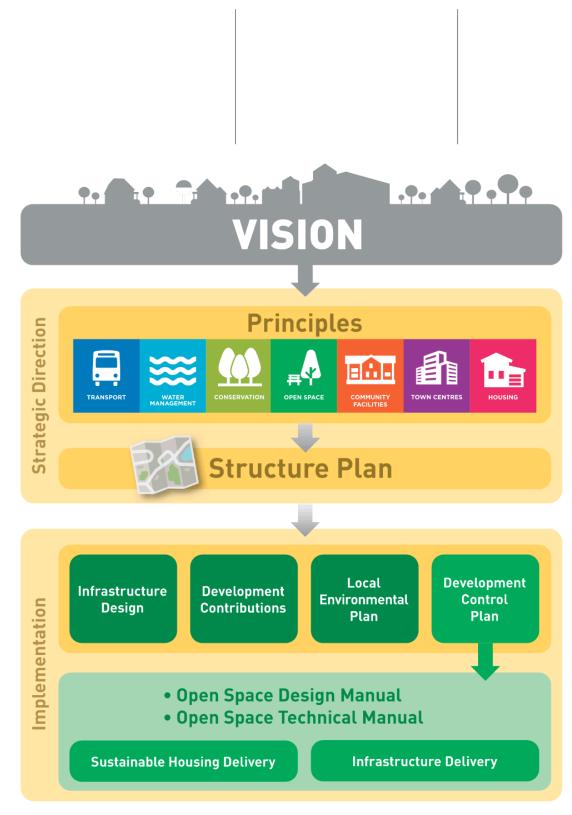


Figure 1
Structure and relationships of principles to planning tools

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Item 4 - Attachment 5 - Draft West Dapto Open Space Design Manual

2.0 West Dapto **Open Space** Hierarchy

2.1 General Design **Principles**

Objectives

Open space should be planned and designed to achieve the following key objectives:

Well distributed network of open **space** – the design of neighbourhoods must provide a connected network of accessible, attractive, and usable public open spaces and natural areas.

Flexibility of design - open space and natural areas must provide for a variety of recreational, sporting, play, and social needs of the community. Sufficient size and flexibility of design must be incorporated to accommodate the needs of the community as they change over time.

Competing functions - flooding and water management, traffic and road infrastructure, cultural heritage and biodiversity must be accommodated without compromising the open space and recreation functions.

Open space embellishment - open space should not contain an excessive amount of embellishments that results in an unsustainable maintenance cost to the community. Embellishments should be appropriate to the intended catchment of users and to the type of park and associated service level of maintenance.

Active (formal) and Passive (informal) functional split - the West Dapto Urban Release Area open space provision must provide for an equal split between active (formal) and passive (informal) recreation.

Crime Prevention Through Environmental Design (CPTED) -

CPTED principles are applied in the planning and development of open space, community facilities, and town and village centres.

Connectivity - open spaces must be connected with shared paths, pathways, and trails to other facilities and places of interest. These include: heritage sites, riparian areas, schools, shops, community facilities, public transport nodes, employment centres, and natural areas.

Urban Greening - the West Dapto Urban Release Area presents unique opportunities to increase the quality and quantity of vegetation with the provision of street tree planting, enhancement of existing remnant vegetation, revegetation of riparian areas, and the provision of significant tree planting within open space.

Conservation - the West Dapto Urban Release Area presents opportunities to preserve remnant and regrowth bushland vegetation, and enhance ecological connectivity.

Amenity - open space and natural areas will provide for a variety of recreational and social needs of the community and contribute to the local landscape character.

Value – open space design must deliver quality infrastructure that is robust and made from durable materials and finishes, and neat, uncomplicated designs that minimises maintenance requirements and discourages vandalism.



2.2 Open Space Hierarchy - Function and Catchment Distance

'Catchment' refers to the area and resident (or future resident) population intended to be serviced by the open space facility. The catchment area for an open space facility also relates to the size and function of the facilities to be provided. As illustrated in table 1 below, open space facilities are intended to

service city wide, district, neighbourhood or a local catchment.

It is important to note that land parcel size is not the only criteria defining a catchment level to be provided. The proposed function of the open space incorporating the future needs of the community is equally as significant in determining likely catchment.

As part of the open space network for West Dapto, open space is required at all hierarchy and catchment levels. This relationship is illustrated in table 1 below.

Open Space Hierarchy Table

Function and service	Size	Catchment radius (distance)
Local Passive (Informal)	0.5-2 ha	400-600m
Local Active (Formal)	1-2 ha	400-600m
Neighbourhood Passive (Informal)	2-4 ha	2km
Neighbourhood Active (Formal)	3-5 ha	2km
District Active (Formal)	5-8 ha	Southern ward of LGA
City wide Active (Formal)	8 + ha	Facility to serve the whole LGA

Table 1

Open space provision standards (based on NSW Recreation and Open Space Planning Guidelines for Local Government (2010) and the Elton Report (2007) recommendations!



Open Space Hierarchy and Function

The section 94 Development Contribution Plan provides for open space and recreational facilities including neighbourhood and local parks within each stage of the West Dapto Urban Release Area.

Figure 2

Open space hierarchy and functions

City Wide

Sports Park

Darkes Town Centre Sports Park Cleveland Road Sports Precinct.

These facilities will provide a range of sporting fields and recreational opportunities designed to align with the West Dapto Open Space Design Manual.

District - South Wollongong

Community Leisure Centre

West Dapto Community Recreation and Leisure Centre.

Neighbourhood (min 2 - 4ha size)

Active (Formal) Recreation

Large scale open space designed to facilitate organised outdoor sports and training eg AFL, soccer, rugby league, rugby union, netball, basketball hockey, cricket, baseball and softball, etc.

Passive (Informal) Recreation

Unorganised or structured outdoor sport eg walking, running, cycling, fitness stations, youth spaces, play spaces such as playgrounds, kick about areas and children learn to ride facilities.

Local (min 0.5 - 2hal

Active (Formal) Recreation

Small scale open space designed to facilitate organised outdoor sports with the provision of modified sportsfields or multi purposed courts to provide active recreational opportunities eg basketball and netball.

Passive (Informal) Recreation

Open space for unorganised activities promoting outdoor movement for all age, eg walking, running, cycling, youth spaces, playgrounds, kick-about areas as well as spaces for picnicking and family gatherings.



3.0 Open Space Categories

3.1 Neighbourhood Parks

Principles

Catchment

Neighbourhood parks are larger scale spaces for residents and visitors providing both active (formal) and passive (informal) recreational opportunities. Neighbourhood parks are intended to service a neighbourhood of residential areas with a catchment radius of 2km depending on the functions of the open space.

Activation and Flexibility

Neighbourhood parks should aim to have five sources of activation to provide a diversity of active and passive recreational opportunities. Neighbourhood parks should have the flexibility to cater for a wide variety of recreational experiences, activities, and formal sports to cater for all age groups and future community needs.

Neighbourhood park example, Rockley Oval 'Googong' Queanbeyan



Active (Formal) and Passive (Informal) Split

Active open space is defined by the Greater Sydney Commission as land set aside for the primary purpose of formal outdoor sports for the community. Active open space supports team sports, training and competition'.

Neighbourhood parks across West Dapto must provide a range of recreational opportunities that must be evenly split between active (formal) and passive (informal). The location of a park will influence the design, function and the range of outdoor recreation, sport and exercise opportunities in response to the size, shape, topography, landscape setting and adjacent land uses.

Passive (informal) open space is land set aside for parks, gardens, linear corridors, conservation bushland and nature reserves. These areas are made available for informal recreation, play and physical activity. Examples of passive (informal) recreation are cycling, exercise stations, running, walking, play spaces, sitting and picnicking.

Neighbourhood Parks adjacent to Natural Areas

Neighbourhood parks, which are near to natural areas zoned as E2 Environmental Conservation, and E3 Environmental Management zones such as bushland or riparian areas, can accommodate self-directed recreational activities such as walking, running and cycling within these areas. This will increase access to these areas and create activity nodes for passive surveillance, and encourage social interaction in a natural setting.

Multi-purpose Sportsfield

Neighbourhood parks must be capable of accommodating multi-purpose sports fields for training and competition in addition to providing attractive green environments for hosting community events.

Site Interpretation

Neighbourhood parks should respond to the local setting and characteristics, and where possible incorporate references to local Indigenous and historical features in the form of interpretive signage and or public art.



General Requirements

- Utilities Where land is to be dedicated to Council for future open space the land must include appropriate utility mains including but not limited to water, sewer, stormwater and power, that can be connected when the embellishment design is carried out.
- Size Neighbourhood parks require a minimum provision for open space of two (2) to five (5) hectares with a particular emphasis on the provision of active (formal) recreational opportunities. The size of the park should respond to the specific requirements of the sport code.
- Riparian corridors Neighbourhood parks cannot incorporate riparian corridors in open space area calculations.
- Frontage requirements Neighbourhood parks should be located along a mimor collector road with an additional smaller order road leading to car parking. Seventy-five percent (75%) of the neighbourhood park must have road frontage with no
- Connectivity to achieve active transport outcomes in the West Dapto Urban Release Area it is essential that community facilities and neighbourhood parks are connected with shared paths and linked to public transport nodes to ensure pedestrians and cyclists can safely access open space.

boundary less than thirty (30) metres.

- Equal Access paths entry points and internal pathway networks must achieve equitable access. At least one continuous pedestrian path providing access to the major features of the park must be designed to AS1428.1.2009 'Design for Access and Mobility-general requirements for access'.
- Passive Surveillance residential dwellings must be orientated to overlook neighbourhood parks to allow passive surveillance and deter anti-social activities. This includes incorporating Crime Prevention Through Environmental Design (CPTED) principles, such as the facilitation of casual community surveillance through layout and design.
- Inclusive Playgrounds play spaces planned for open space should be inclusive with the provision of

- accessible play features. Supporting infrastructure such as accessible parking and paths of travel are required to help meet the needs of carers and children accessing the space.
- Amenities public toilets are required.
 The number of cubicles required is subject to an objective assessment of potential demand through a needs analysis.
 - Public toilet buildings in parks should be designed, located and constructed in accordance with **Crime Prevention through Environmental Design (CPTED)** principles, relevant Australian Standards and Building Codes. The amenities must:
 - use infrastructure that is readily maintainable
 - be sited to avoid nuisance to neighbours;
 - be within reasonable proximity to a car park or other demand source;
 - be in close proximity to a road, gate or internal maintenance access for servicing;
 - be sited where casual surveillance is possible from surrounding streets.
- Co-location of social infrastructure— Neighbourhood parks could include the co-location of leisure and recreational facilities. This could be achieved by co-locating facilities within a multipurpose community facility as recommended in the Wollongong Social Infrastructure Planning Framework.
- Car parking Neighbourhood park design must include off street parking within the park to facilitate parking for visitors. Car parking within the park should not visually dominate and always incorporate substantial shade tree planting.
- Park lighting Lighting should facilitate evening sports activities on fields and pathways that link to car parking areas. The lighting must be in accordance with AS2560.1:2018 Sports Lighting Part 1: General Principles, AS 2560.2.3 2002 Specific Application for football (all codes). Final determination of an appropriate lighting standard, for any particular pathway location, shall be subject to Council approval. Lighting design must consider illumination and spill requirements for functions.



• Emergency and maintenance vehicles

- Neighbourhood park designs are required to provide appropriate entry points and route alignments for emergency and maintenance access.
 Emergency access to sporting fields must be carefully planned to allow vehicles to treat injured players.
- Public art park designs should accommodate appropriate public art.
 Public art can enhance and enrich our experience of a public space by representing and interpreting the local heritage and culture of the area.
- Signage park signage is to be provided at all entries. Refer to West Dapto Open Space Technical Manual.
- **Waste** litter bins should be located near a road so that trucks are not required to enter the park to service them.
- Urban Greening Significant feature tree planting is required with the aim of establishing canopy and shaded pathway networks, recreational spaces, car parks, and play spaces with 30 percent of the park provided with natural shade.

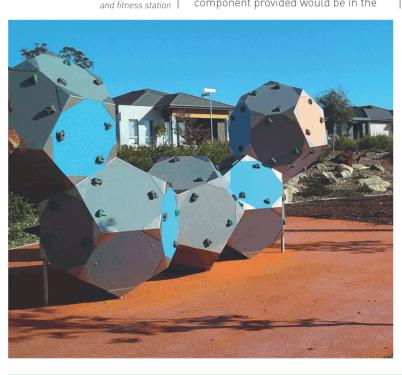
Active (Formal) Recreation Requirements

• The active (formal) recreational component provided would be in the

- form of multi-sport fields to accommodate demand for local sports training and competition, including soccer, rugby union, rugby league, cricket, and AFL. Refer to section 5.2 for sports field requirements.
- Gradients of fields are to be no greater than 2 percent. Correct preparation of the subgrade and playing surface, and final grading is the most important design component affecting the performance of a sportsfield.
- Orientation of fields must be between north, and 15 degrees east of north depending on specific sporting requirements of the sporting code to be accommodated.
- The active (formal) recreational spaces are to be designed with appropriate drainage to ensure they are not significantly damaged by flooding, are self draining (ie no entrapped low points) to ensure that they are available for play within three (3) days of a rain/flood event.
- Tennis, netball, and basketball courts are examples appropriate active recreational components in neighbourhood parks.

Passive (Informal) Recreation Requirements

 The remnant bushland which may form part of the neighbourhood park, can cater for passive recreational uses



Examples of play space





as well as achieving the West Dapto Vision conservation principles with acceptable impacts on biodiversity values. Activities such as walking, running and cycling can be integrated, creating experiences enhanced by the site features.

- Neighbourhood parks can offer opportunities for community gardens and conservation themes such as bird watching and nature walks.
- Fitness and exercise stations can be used by all ages to create opportunities for self-directed recreational exercise.
- Youth spaces are required to be incorporated into neighbourhood parks.
 Youth recreational spaces should aim to cater for a range of activities such as Parkour, ping pong tables, re-bound

- walls, skate features, BMX, and pump tracks. Seating areas for hanging out spaces should also be incorporated.
- Play spaces within the neighbourhood park should provide play equipment and experiences that provide a range of opportunities for play. Play spaces should be planned to be inclusive. The provision of a children's learn to ride area is an example of a desire play feature.
- Park design must incorporate picnic areas of different sizes with shelters and tables, water, barbecues, and waste stations located offline from the pathway networks.
- Neighbourhood parks should be capable of hosting community events such as market days.

Figure 3Typical features of a of good neighbourhood park design





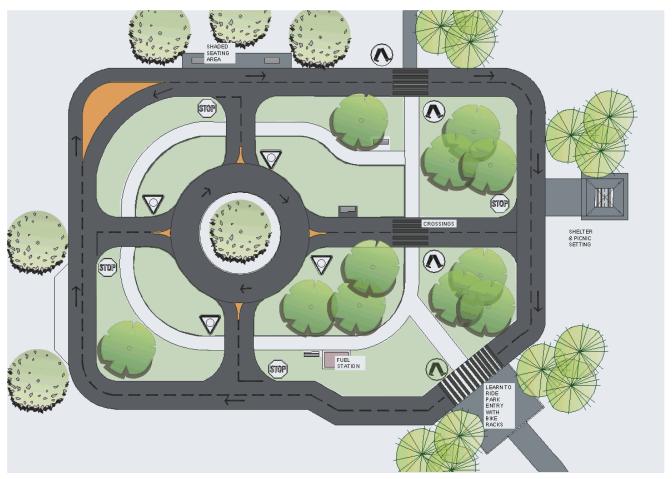


Figure 4 Typical Learn to Ride facility layout plan

Learn to Ride facility feature, Stuart Park Wollongong



Learn to Ride facility feature, Mt Stromlo Canberra



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3.2 Local Parks

Principles

Access

Local parks should be accessible and be a safe walking distance within 400m-600m of the surrounding residential area.

Passive Surveillance

Local parks must be located in a highly visible location to allow for passive surveillance. The park should have direct residential frontage with four road frontages. This includes incorporating Crime Prevention Through Environmental Design (CPTED) principles, such as the facilitation of casual community surveillance through layout and design.

Recreation opportunities

Local park features and activations must service the immediately adjacent residential population. Local parks should provide a range of recreation spaces with a flexible design.

Level of Embellishment

Local parks should not contain an excessive amount of embellishments that results in an unsustainable maintenance cost to the community. Features such as an integrated path network with variable seating options complemented by significant tree planting must be primary features of park designs. Embellishments should be appropriate to the type of park and associated service level, and to the intended catchment of users.

Significant shade planting must be incorporated into the park design with at least 40 percent of the park provided with natural shade. Tree species should be selected from a minimum of three genus types.

Requirements

• Size and Gradient - Local parks require a minimum area of zero point five (0.5) to two (2) hectares with a particular emphasis on the provision of a range of recreational opportunities. The minimum provisions for informal ball sports (kick-about areas) should be 40m wide x 60m long with a maximum gradient of 5 percent and minimum of 2 percent.







- Frontage requirements Local parks must be located on residential streets and not adjacent to major roads. The park should have direct residential frontage with four road frontages.
- Passive Surveillance residential dwellings must be orientated to overlook neighbourhood parks to allow passive surveillance and deter anti-social activities
- Connectivity to achieve active transport outcomes in the West Dapto Urban Release Area it is essential that local parks are connected with pathways and shared paths to ensure pedestrians and cyclists can safely access open space.

Top: Play feature, Emu Park West Dapto

Middle: Half baskethall court, Emu Park West Dapto

Bottom: Skate features West Epping Park, source City of Parramatta

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- Equal Access paths Entry points and at least one route within the internal pathway network linking key park features must achieve equitable access as per AS 1428.
- Play spaces within the local park play spaces should provide play equipment and experiences that provide a range of opportunities for play. Play spaces should be planned to be inclusive.
- Youth spaces park designs are required to respond to the progression of children to youth and include facilities such as ball courts and skate elements.
- Amenities Provision of infrastructure such as toilets is not required as most visitors are able to return to their homes if necessary.
- **Park Lighting** none required. Street lighting only.
- Figure 4
 Local Park
 typical features

 Maintenance and emergency access
 must be provided.

- Signage park signage is to be provided at all entries. Refer to West Dapto Technical Manual.
- Waste Litter bins should be located as close as possible to entrances and or road frontages for servicing, and near high activity areas such as play spaces.
- Urban Greening Tree planting is a major focus of local parks with mass planting bed provision confined to focal areas only or where slopes exceed 25 percent. Significant feature tree planting is required with the aim of establishing canopy and shaded pathway networks, recreational spaces, and play spaces with 40 percent of the park provided with natural shade. A variety of genus of tree planting to be selected to provide diversity.
- Picnic nodes picnic areas with tables and a variety of seating areas are to be provided through the park. Facilities such as shelters with furniture to accommodate family gatherings such as birthday parties, must be included.





4.0 OPEN SPACE DESIGN GUIDELINES

4.1 Natural Areas

Objectives

The West Dapto Urban Release Area presents opportunities to preserve and enhance remnant and regrowth vegetation and other biodiversity values. Natural areas such as riparian environments and remnant and regrowth bushland zoned as E2 (Environmental Conservation) and E3 (Environmental Management) are an important community asset. They provide opportunities to learn about flora and fauna and appreciate and enjoy the environment. The primary purpose of natural areas is conservation however balanced passive (informal) recreation is a key secondary function of natural areas in urban settings.

Requirements

Good example of walking

trail within a conserva-

Trails and Rest Areas

Activities such as walking, running and cycling can be integrated, creating varied

experiences enhanced by the diversity of landforms and site features. The creation of appropriate trail networks and rest areas in natural areas will increase access and create activity nodes for passive surveillance, encouraging social interaction in a natural setting.

By allowing controlled access for the public it can also deter damaging activities such as rubbish dumping and other anti-social activities. Designing a trail network within natural areas may also prevent the proliferation of informal trails and reduce impacts on biodiversity values. Trailheads or trail access points should be visible and defined by signage and/or fencing.

Conservation

The primary objective for natural areas is to ensure their ongoing conservation. Conservation can include rehabilitation of areas which have suffered misuse or have been impacted by previous land uses. Areas of thriving natural habitat are to be preserved to ensure they are not adversely impacted by development and human activity. Natural areas or parts of natural areas with biodiversity values of high conservation significance are to be protected and managed to minimise the potential for adverse impacts. As part of this protection there is a requirement for native grasses and groundcovers to be utilised adjacent to natural areas in place of Kikuyu.

Vegetation Management Plans

Vegetation Management Plans must





be developed for all natural areas such as riparian environments and remnant bushland. All works recommended in the Vegetation Management Plans must be undertaken by a licenced bush regeneration company. Embellishments such as trails proposed within a natural area must be integrated and considered as part of the Vegetation Management Plan. Monitoring and ongoing maintenance is required to ensure the effectiveness of the Vegetation Management Plan. Refer to Wollongong City Council Vegetation Management Guidelines for Development Applications.

Recreation and Conservation

Any embellishment works need to be targeted at providing recreation opportunities that minimise the impact to vegetation and wildlife. Low impact recreation such as walking, track running, cycling (on track only), observation points, and rest areas are suitable activities.

Trails and seats should be located away from high conservation areas.

Works within natural areas must make appropriate provisions to accommodate suitable activities and inhibit degrading ones such as vegetation vandalism, firewood collection, four wheeled driving, and motorbike riding.

Access and Frontages

Subdivision design must provide good connectivity to streets and pathway networks, with the majority of the natural area having road frontages to

allow for passive surveillance. Road frontages also provide an offset as a fire protection measure to residential dwellings. Vehicle barriers should be incorporated into the design where perimeter access control is required consistent with the open space fencing requirements listed in the technical manual.

CPTED Principles in Trail design

Trails for walking and running should be designed in consideration of Crime Prevention Through Environmental Design (CPTED) in order to facilitate casual community surveillance.

CPTED elements can guide trail design to reduce the likelihood of crime and enhance community safety. For example, routing walking trails around the perimeter of natural areas and the creation of active edges will encourage casual surveillance into these areas.

Routing walking trails on the perimeter will also allow for a clear line of sight for users enabling them to see what is ahead. This is an essential element of people's perception of safety and will therefore encourage use of the trail.

As part of the trail route design the applicant will be required to include a comprehensive risk assessment following CPTED principles within the Development Application documentation. Refer to DCP2009 Chapter E2 Crime Prevention through environmental design.

Good example of walking trail within a conservation area Wisemans Park, Gwynneville





Figure 5Natural Area within
Subdivision typical layout



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Riparian Corridors

Refer to Chapter E23: Riparian Land Management for riparian corridor objectives.

Classification of Watercourses

All watercourses within the Wollongong Local Government Area have been classified into one or more of the following three (3) categories, depending upon the nature and function of each watercourse:

- Category 1: Environmental Corridor -This category aims to provide extensive habitats for terrestrial and aquatic fauna and to maintain and restore the viability of riparian vegetation as well as protect water quality and provide bank stability.
- Category 2: Terrestrial and Aquatic Habitat - This category aims to maintain or restore the natural functions of a stream in order to maintain the viability of riparian vegetation and provide suitable habitat for terrestrial and aquatic fauna as well as improve water quality and provide bank stability.
- . Category 3: Bank Stability and Water Quality - This category aims to minimise sedimentation and nutrient transfer.

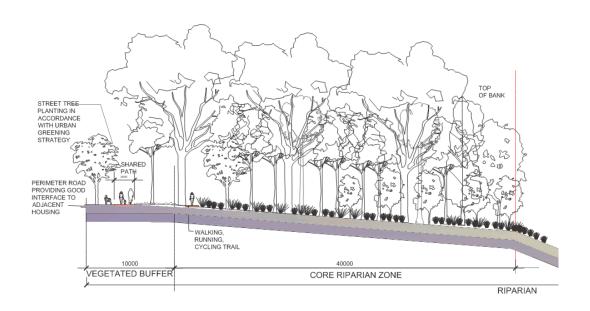
Requirements

- Frontage requirements subdivision layouts should provide a road frontage to all riparian areas.
- Services services must be located on the outer edge of the riparian corridor.
- Pathways locate shared pathways and walking trails sensitively so they do not compromise the integrity of the riparian corridor and facilitate passive (informal) recreation.
- Passive (Informal) Recreation integrate infrastructure such as picnic facilities and exercise equipment sensitively to facilitate passive (informal) recreation. Riparian areas accommodate self-directed recreational activities such as walking, running and cycling. This will increase access to these areas and create activity nodes for passive surveillance, and encourage social interaction in a natural setting.
- Riparian Vegetation Communities subdivision design must retain existing communities and revegetate where necessary riparian vegetation communities to achieve creek bank stability.
- Access the ecological integrity of existing riparian vegetation must be protected by limiting access to the watercourse to strategic locations where the stream bed and bank stability will not be compromised.



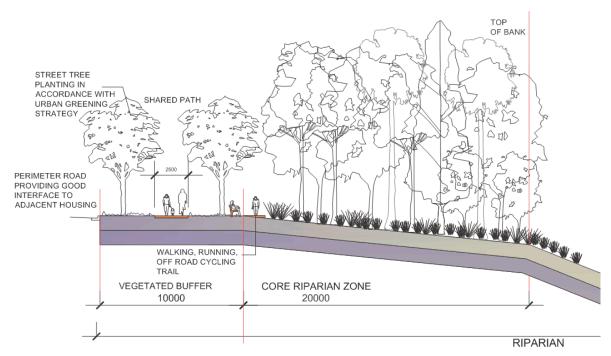
Riparian Corridor - Category One

Figure 6 Typical Riparian Corridor Frontage Category One

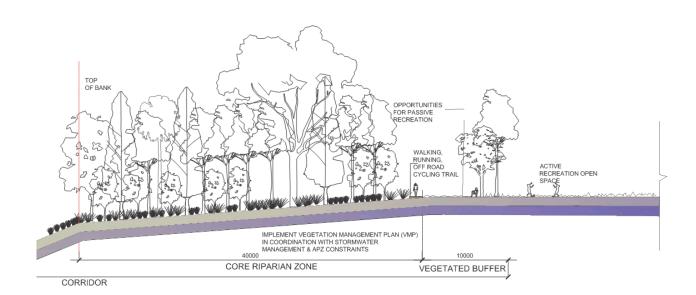


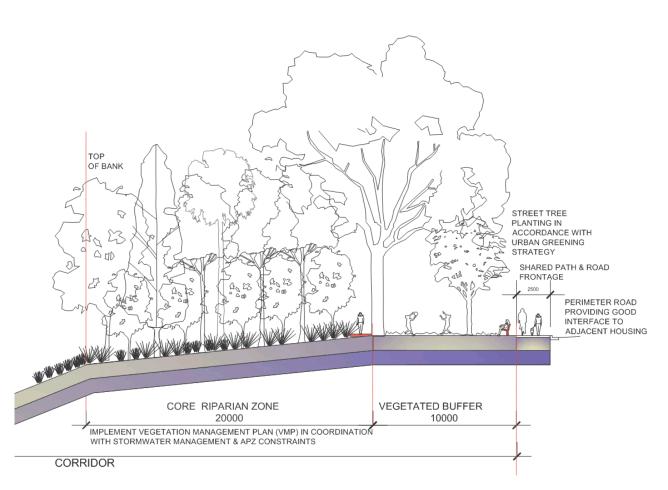
Riparian Corridor - Category Two

Figure 7 Typical Riparian Corridor Frontage Category Two





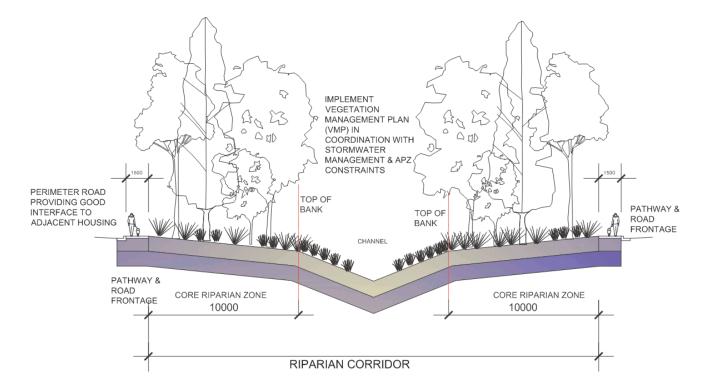






Riparian Corridor - Category Three

Figure 8 Typical Riparian Corridor Frontage Category Three



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4.2 Open Space Water Management

Objectives

The design of stormwater management at times has a significant impact on open spaces as it is often integrated. The required facilities should not impede the recreational function of an open space and where possible it should be designed to complement and enhance recreational opportunities.

Permanent detention basins and panels can not be included in open space calculations. Dual use of open space and detention areas must be carefully considered, as there are safety hazards associated with pairing of stormwater management in open space, which may not be obvious to users. Stormwater facilities should be located in consideration of the activity areas function.

The key criteria for the design of stormwater and flood management infrastructure in open space should be aesthetics, safety, maintenance, and public access risk analyses.

Stormwater engineers and landscape architects have a key role in shaping open space and contributing to community benefits that go beyond flood mitigation.

Requirements

If stormwater and flood plain management infrastructure are integrated into open space it must be demonstrated that all aspects of public access risk analysis, safety and aesthetics have been achieved in the design. The design of stormwater must be in accordance with 'Queensland Urban Drainage Manual Third Edition 2013 - provisional, Department of Energy Pnd Water Supply'. This requires that water management functions are assessed and graded for their ability to safely accommodate public interaction. Where possible the design should offer opportunities for the public to interact with components of the water cycle management system and provide environmental education. Fencing to prevent public access should only be used where all other safety in design measures are not feasible.

Safety in Design Report

A Safety in Design Report is required for the investigation of proposed stormwater infrastructure in open space design, considering the location, type and size of infrastructure necessary, as well as public access requirements and proposed recreational use. Types of stormwater structures may include pipe inlets / outlets, basins, grates and surface flow paths. The associated risks arising from the proposal must be detailed, and how those risks are to be mitigated. This report is required to identify and rectify any potential design safety issues such that future risks can be mitigated during the operational phase of the proposal.

Slope Gradients

The side slopes of detention basins should be a maximum gradient of 16 percent or flatter to allow easy egress up the likely wet surface. Areas with slopes steeper than 25 percent cannot be turfed and will require steps and a handrail to assist egress at regular intervals. Drainage swales and pits and pipes should not impede maintenance operations and the recreational function of a park.

Stormwater Management and Active (Formal) Sports

It is essential that the active (formal) sportsfield component of open space is designed to ensure that it is not significantly affected by flooding and is available year round for competition play except during the flooding event. Sportsfields should be located outside the 10 percent Annual Exceedance Probability (AEP) flood extent. Sportsfields incorporated into open space designs should be available for play with good diversion and subsurface drainage around any active playing areas. Designs of sportsfields should minimise the frequency of maintenance as a result of stormwater run-off.

Stormwater Management and Passive (Informal) Sports

The preservation of the natural waterways and riparian corridors also provides an important community asset that could provide passive recreational opportunities. Low impact recreation such as walking, track running, cycling (on track only) can be integrated into riparian corridors providing an opportunity for off road pedestrian linkages.

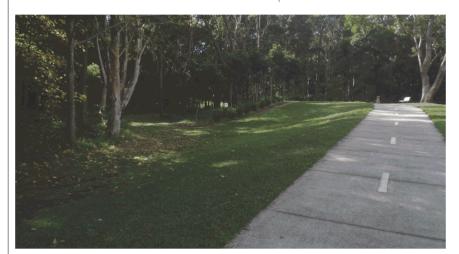


If the proposed subdivision water management infrastructure is intended to be dual purposed with open space activities (eg an informal ball sports area within a detention basin) there are specific requirements that must be provided:

- Side slope gradients cannot exceed 16 percent
- Informal ball sports area gradient cannot exceed 5 percent
- Informal ball sports minimum available area to be 40m x 60m. Any stormwater infrastructure such as outlets, weirs, and swales must be located outside this proposed area so as not to impede usage.
- Informal ball sport area to be provided with adequate subsurface drainage.

Urban Greening and Stormwater Management

Tree planting for shade and amenity wherever possible should be integrated in the floodplain. For example, basin floors and some bank designs offer scope for planting when compatible with the required open space provision. Where trees are proposed to be planted in a floodplain, flood modelling and flood impact mapping must be undertaken to identify the impact on flood behaviour and flood levels resulting from the change in vegetation densities and hydraulic roughness. The flood modelling and impact mapping should be undertaken as part of a flood study prepared by a suitably qualified civil engineer in accordance with Chapters E13 and E14 of the Wollongong DCP2009. This information will need to demonstrate compliance with Clause 7.3 of the Wollongong LEP and Chapter E13 of the Wollongong DCP2009, with respect to flood impacts.





Urban greening and stormwater management, Nyrang Park, Keiraville. A good example of pathways located at top of bank in open space

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4.3 WCC Urban Greening Strategy

Objectives

The Wollongong Urban Greening Strategy 2017-2037 aims to strategically increase the quality and quantity of all vegetation in an urban setting, particularly tree canopy cover on all land types.

The West Dapto Urban Release Area presents unique opportunities to increase the quality and quantity of vegetation with the provision of street tree planting, enhancing existing remnant vegetation and riparian areas, and the provision of significant feature tree planting within open space.

Open space should integrate natural areas such as riparian environments and remnant and regrowth bushland and the active recreational areas with provision of significant tree planting. Open spaces, which are greener and well shaded, will attract people and encourage them to stay longer.

Tree planting is a form of place making as it creates a pleasant place for users. Tree planting provides environmental benefits such as; shade and cooling, protection from prevailing winds, storing carbon, an increased sense of local identity, encouragement of outdoor activity, provision of habitat for local wildlife, and increased property values.

Tree planting can frame view corridors and provide privacy.

Tree planting is an essential part of shade provision for open space and associated facilities such as play spaces, seating areas and pathways. Provision of appropriate tree planting around play spaces is considered essential to provide shade for children and carers. Natural shade of play spaces by the provision of evergreen or deciduous trees is preferred to built shade structures.

Street Tree Planting Requirements

- Street tree planting provides a great opportunity to create streetscapes which deliver amenity and environmental performance. Street tree species selected should aim to create avenues of trees which provide shade and visual amenity. A variety of genus and species should be utilised to create diversity. Street tree species selected can be drawn from the West Dapto Open Space Technical Manual Tree Species List or as recommended by Parks and Open Space Manager.
- The equivalent of one (1) street tree for each lot on residential road frontages (ie with locations adjusted for driveway crossings, lighting, sightlines, utility services and the like) will generally be required to enhance the appearance of the locality.



Significant tree canopies contribute to urban amenity





New street tree planting, Paynes road Kembla Grange

- The location of street trees should take into account overhead and underground services.
- Where street trees are to be installed in areas with hard surfaces such as town and village Centres, suitable grates are to be laid around the tree to protect the roots and enable water infiltration.
- Minimum plant requirements for street trees is 100 litre container size, in accordance with AS 2303: 2018 Tree Stock for Landscape Use.
- Trees to be planted in accordance with the standard detail. Refer to West Dapto Open Space Technical Manual for detail.
- The planting of the street trees should occur, after at least 80 percent of the dwelling construction and infrastructure work has been completed for the subdivision.
- Where coal wash or heavy clay forms the subgrade of proposed street tree and verge planting a minimum depth of natural soil must be provided to allow healthy root growth. Refer to West Dapto Open Space Technical Manual for details and typical sections.
- A minimum of 52 weeks establishment period should be applied to all new tree plantings. Longer establishment periods may apply under DA conditions.

Tree Planting in Open Space Requirements

Tree planting is required in open space to provide shade and amenity. Canopy trees should be planted to provide shade to active recreational nodes such as sporting fields, basketball and netball courts, exercise stations, play spaces as well as seating areas.

A planting plan must be prepared as part of all open space submissions. Tree planting should be utilised to define spaces and functions in open space.

- Tree planting must be integrated with pathway networks. Tree planting must be offset from pathways in consideration of the tree's mature height and spread.
- Significant feature tree planting should be integrated into open space with the aim of establishing canopy and shade to amenities, parking and play spaces.
- Minimum plant requirements for amenity trees within open space are 75-200 litre container size.
- Tree planting must be spaced adequately to allow deck mowers to access all turfed areas or grouped together in mulch beds.
- Where coal wash or heavy clay forms the subgrade of proposed open space areas a minimum depth 600mm of

natural soil must be provided to allow healthy root growth.

- In lawns, tree pits are required to be backfilled with site soil if good quality or with good quality soil, mixed with a suitable soil conditioner. Trees in lawn areas are to be installed with a mulch ring of minimum 1500mm radius and 75 mm thickness.
- Tree planting locations must be compliant with service authority offset requirements.
- As per the WCC Urban Greening Strategy, provision of canopy cover is of the highest priority. Tree species should be selected to provide the maximum canopy size that fits within the context of the selected location.
- Further guidance on tree planting as required to be advised by Parks and Open Space Manager.
- Fruit trees and bush tucker tree species are permited in open space.

Planting in Natural Areas Requirements

Where remnants of existing vegetation will be retained, environmental weeds should be selectively controlled prior to enhancement planting. Weedfree mulch should be laid evenly to a nominal thickness of 75 mm over the prepared subsoil, except along waterways subject to flooding where erosion control matting or similar materials resistant to water movement are to be used.

- Select plants that are indigenous to the local area and appropriate to the existing vegetative community, and include a range of shrub, groundcovers and grass species. Species selection in natural areas is to be consistent with the recommendations in the Vegetation Management Plan. Plant a mixture of tube stock and plants in pots up to 140 mm, to achieve the maximum survival potential.
- Pioneer species should be used in conjunction with slower more permanent species, as to provide shade and protection during the establishment period.
- Plant at sufficient density (recommended average density of 6 native grasses per m2) with the tree

- component spaced at about 4 to 6 m centres to achieve substantial cover of the ground surface at the time of the Maintenance Inspection.
- Water and weed the rehabilitation area to ensure the site is well established at the time of the inspection, with plants conditioned to survive dry periods without supplementary watering. An approved temporary fence may be required around rehabilitation areas to deter deer and other pests.
- Further guidance on planting for Natural Areas is provided in Council's Vegetation Management Plan Guidelines or as otherwise advised by Council officers.

Protection of Existing Vegetation

Objectives

West Dapto presents opportunities to preserve remnant vegetation and enhance ecological connectivity.

The planning, design and location of open space should aim to preserve and enhance remnant native bushland and riparian areas. Existing trees are considered a valuable asset in the community.

A subdivision application must incorporate the following requirements:

- Tree survey of existing trees on the site and trees on adjacent properties, accurately located by a registered surveyor, indicating the trunk location and level to Australian Height Datum (AHD) and an accurate portrayal of the canopy spread,
- The applicant must engage an Australian Qualifications Framework (AQF) Level 5 consulting arborist to prepare an Arboricultural Impact Assessment (AIA) in the initial stages of planning the development to determine which trees are suitable to be retained and integrated into the open space. The suitability of vegetation for incorporation should be based on the tree's health, amenity value and significance of the tree.
- The arborist must assess trees from a public safety risk, where they are located in close proximity to proposed



active recreation spaces, pathways and play spaces. In assessing existing remnant/regrowth vegetation the arborist should carry out an AIA to make recommendations for pruning, dead wooding or removal of hazardous trees. This AIA must address the health, amenity value and Useful Life Expectancy (ULE) rating of each tree.

- Where appropriate an AIA Level 3 assessment may be required;
- Should the land be bushfire prone the landscape plan must be coordinated with the Arborist Report and in accordance with the Planning for Bushfire Protection Guidelines.
- The arborist must provide a Tree Protection Plan (TPP) outlining the specifications for tree protection to be in place during the construction

- phase including any pruning requirements. All development activity must be in accordance with the Australian Standard 4970 Protection of Trees on Development Sites.
- Tree protection fencing for retained trees must be installed as per the arborist recommendations prior to the commencement of any excavation or land clearing works.
- The applicant may also be required to have an arborist inspect and report on the tree/s at monthly intervals during construction. This report must be submitted to the Principal Certifying Authority.
- Tree protection details to be as per the Wollongong City Council Civil Specification 2019.

Significant stand of existing vegetation West Dapto Road



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4.4 Equal Access

Objectives

Open space should be designed by applying Universal Design principles to promote equal access and connectivity for everyone from the very young to youths and the elderly, families, carers, and people of all abilities.

The design of open spaces should provide equitable access to allow people to access the park in accordance with the Disability Discrimination Act as specified in AS 1428. This will ensure that the design of the open space will eliminate obstacles and barriers that prevent access by people of all ages and abilities and create an inclusive open space that considers as many people's needs as possible.

Open spaces should be easy to navigate, interesting and attractive. They should offer a variety of landscape settings to explore, and provide opportunities to connect with others. Pathways and paved areas must be provided for all weather pedestrian access to key areas and facilities such as lookouts, amenities and play spaces.

Equal Access Requirements

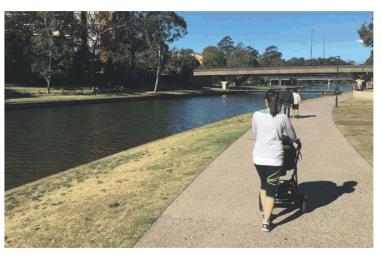
- · Points of entry to the park must be compliant with Australian Standard AS1428.1.2009 'Design for Access and Mobility general requirements for access'.
- At least one compliant path of travel must be designed linking to key features or facilities contained within the park such as play spaces, picnic areas and toilets.
- A pathway must link to the park from the Equal Access Parking spaces.

4.5 Material Selection

Objectives

The West Dapto Planning principle for infrastructure is to utilise robust and durable materials with high quality finishes that minimise maintenance requirements and discourage vandalism.

Materials and furniture items within an open space that are difficult to maintain and difficult or costly to replace can have a significant impact on both the aesthetics, function of a park, and the long-term maintenance costs.





Requirements

Open Space infrastructure materials must be:

- vandalism and graffiti resistant
- constructed with low maintenance high quality, durable materials.
- robust and fire resistant
- · non-corroding and non-corrosive
- sustainable, with low whole of life
- sourced locally where possible (such as site rock)
- comply with relevant Australian standards

Typical materials suitable for use are galvanised steel, stainless steel, aluminium, stone (sourced locally), concrete, recycled hardwood and non-toxic paint.

Refer to West Dapto Open Space Technical Manual for specifications.

Top: Equal access pathway. City of Parramatta

Above: Equal access pathway





High quality, durable seats. East Corrimal

4.6 Open Space Maintenance

Objectives

Open space and park infrastructure must be easy to maintain and financially sustainable. Parks shall not be over-embellished with multiple pieces of bespoke infrastructure. Often the most important elements in parks such as paths, trees, grass, and seats are the simple and long lasting features of parks that appeal to the community. Careful design and planning is required

to ensure sustainable ongoing maintenance costs and achieve long lifecycles.

- Maintenance access must be provided into open space. Access must be unobtrusive and be separated from pedestrian access points.
- Mass planting in centre medians within roads are not supported unless safe maintenance zones can be provided.
- A minimum of one maintenance access point should be provided at strategic locations along road frontages to provide for maintenance and emergency access.
- A driveway should be formed to create the maintenance access point. A controlled access device such as a removable bollard, gate or lock rail to be installed at each driveway. A 3.5m wide reinforced concrete driveway should be provided as per WCC Civil Specification 2019.
- Where a maintenance access route crosses an internal path, the path must be reinforced to withstand maintenance equipment traversing it.
- Provide for vehicular access to park facilities and areas requiring regular cleaning and ongoing maintenance (toilets, playgrounds, refuse bins, barbecues, mown areas, firebreaks, etc.). Wherever possible all weather access should be provided to these facilities and areas.
- Provide access to stormwater infrastructure such as stormwater detention basins, drainage swales/ channels, stormwater pits, manholes, water quality treatment facilities (eg wetlands, bio retention basins, etc.), and stormwater quality improvement devices (eg GPT's, CDS units, etc.).'
- Feature garden beds in open space should be minimal and be relative to the size, function and service of the public open space. For example, a local park would have minimal to no feature garden beds whereas a neighbourhood park with a civic space may include them.
- A maintenance schedule is required for all open spaces detailing soft and hard landscape features such as areas of turf, mass planting beds, edging, fencing and furniture.

Item 4 - Attachment 5 - Draft West Dapto Open Space Design Manual

5.0 OPEN SPACE INFRASTRUCTURE DESIGN

5.1 Play Spaces

Objectives

People of all ages and abilities engage in play. Play helps to enhance mental and physical wellbeing. Play happens at our parks, natural areas, beaches, public swimming pools, playgrounds, outdoor exercise stations, skate facilities, youth precincts, public art installations, ball courts, bicycle tracks and many other locations.

The West Dapto Urban Release Area is in a unique position to enable, enhance and promote play opportunities by providing a broad range of quality facilities and infrastructure.

Wollongong City Council has developed a strategy - 'Play Wollongong' which has been developed to guide the future direction of play across the Wollongong Local Government Area (LGA). This strategy focuses specifically

on toddlers to 12 year olds. Youth spaces are also required to respond to the natural progression of children to teenagers as outlined in the 'Social Cultural and Recreational Needs Study for the West Dapto New Release Area' Elton, 2007.

Design Principles

Distribution - quality play opportunities must be equitably distributed across the city, including large regional play spaces and smaller local play spaces. Ensure play spaces meet the function, service, size and catchment distance requirements of the park type.

Access - play spaces must be easily accessed by walking and cycling and encourage healthy living and independent access by children.

Engagement - ensure meaningful engagement is undertaken with the surrounding community including children, in relation to play space planning. Work with the local community and engage school children and young people when planning and designing play spaces. Involve children and the broader community in the design of public art features and in accordance with Council's Public Art Policy.

Below left: Play equipment, Bankbook Park Wongawilli

Below right: Inclusive equipment, Bankbook Park Wongawilli







Inclusive and age appropriate design -

play spaces are to be inclusive of all ages and abilities and encourage participation in play. Well-designed play spaces provide a range of age-appropriate experiences that can help to foster independence, support social interaction, develop learning and encourage creativity.

Informal play spaces - informal play spaces and the provision of natural play elements are to be given priority, recognising the benefits of connecting with nature. Children who are able to access natural play environments regularly are more active and resistant to stress, and play in more imaginative, diverse and creative ways. Natural elements that feature in good play space design include wet/dry creek beds, bridges and tunnels, mounds and slopes, plants and where possible existing trees.

Appropriate risk and challenge - play spaces must provide children with an appropriate level of risk and challenge while complying with relevant safety standards. Play spaces that encourage children to take manageable risks allow them to test their limits.

General Requirements

Playgrounds in parks should be designed, located and constructed in accordance with the following requirements:

- Certification is required that the impact attenuation surfacing and associated landscaping comply with the relevant Australian Standards AS/NZS 4442:1996 Playground Surfacing Specification Requirements and Test Method.
- Certification is required that the play spaces and play equipment comply with the relevant Australian Standards AS/NZS 4486.1:1997 Playgrounds and Play Equipment. Part 1: Development, Installation, Inspection, Maintenance and Operation, Standards Australia.
- Certification is required that the play equipment comply with the relevant Australian Standards series AS 4685.1, AS4685.2, AS4685.3, AS4685.4, AS4685.5, AS4685.6, AS85.11.
- Ensure play elements complement and enhance other recreation opportunities in a park. Where possible playgrounds

- should be linked to other areas of play including open activity areas, natural areas and recreation facilities such as shared paths and basketball courts.
- Ensure play equipment is readily maintainable and approved by WCC.
 A list of preferred Council suppliers can be provided to assist with the selection of suitable equipment.
- A minimum of five-year manufacturer's warranty is required for any off the shelf equipment.
- Custom playground equipment is permitted in neighbourhood playgrounds only unless approved by WCC
- Playground design should achieve a balance between carer supervision and independent play. Carer involvement in the play of young children is essential to reduce the risk and severity of accidents. However, older children need to be able to play without constant adult supervision, to maximise opportunities for social development.
- Fencing of play spaces is not encouraged. The location of play spaces should be carefully considered to design out the need for fencing. Where there is no alternative for the location of a playground, a safety fence is permitted between playgrounds and a main road, a water body with standing water, a shared pathway, when play elements are less than 20m from the road frontage, bikeway or water body.
- CCA treated timber must not be used in the construction of play equipment, fencing and furniture within playgrounds.
- The installation of water play elements requires specific involvement and approval of Council during the concept development stage to undertake risk analysis and to plan for sustainable water use.
- Incorporate natural shade and seating and other park furniture.

Playground Surfacing

Surfacing of playgrounds should comply with the following Council requirements.

 Grade the site to produce a gentle fall (maximum 2 percent) towards the perimeter of the playground to







enhance drainage, particularly away from fall zones and areas of high traffic or activity. A shallow swale or low bund may be required at strategic locations around the playground to divert overland flow.

- Typical drainage treatment will include the installation of a robust plastic agricultural drain fitted with a filter sock around the outer edge and below the under surfacing area, with disposal to the stormwater system.
- Construct an extruded 200 x 200mm reinforced concrete edge around the perimeter of the playground under surfacing and fill the entire area with an appropriate impact attenuation material, in accordance with AS/NZS 4422. The edge must be set back at least 2.5 m from any item of play equipment to provide adequate circulation and maintenance space.
- All features within 1.0 m of the proposed playground such as seats should be incorporated within the boundary of the surfacing by at least 0.5 m, to enhance the aesthetics of the playground and for ease of maintenance of the park.
- Impact attenuation should be provided over the entire fall zone and circulation space around play equipment, as specified in the AS 4685 series, and/or by the equipment manufacturer.
- WCC does not support the use of sand as soft fall due to poor performance, hygiene and high maintenance requirements.

- Solid impact attenuation surfacing such as wet pour synthetic surfacing should be installed under swings, basket swings, slippery dip exits, fireman's poles, and at the entrance and exits of flying foxes. Coverage should extend the length and width of a flying fox unit.
- All finished grass and impact attenuation surfaces should be flush with the concrete edge and internal solid surfacing if applicable, to avoid trip hazards.

Left: Wet pour surface treatment under swings. 'Brickworks' Bulli

Above: Inclusive play features, Beltana Park Googong Queanbeyan



Shade

The siting of playgrounds and infrastructure such as seating should take into account the relationship to existing mature vegetation. Advanced stock of suitable tree species should also be planted to provide future shade around playgrounds. More permanent shade structures such as shade sails are often required over larger play elements in neighbourhood playgrounds.

Shade structures are not desirable within local playgrounds with a preference for shade from existing vegetation or supplementary advanced planting of shade trees.

Natural shade to play spaces, 'Melaleuca Park' Jordan Springs Sydney



Item 4 - Attachment 5 - Draft West Dapto Open Space Design Manual

5.2 Sportsfields

Objectives

The location and design of sportsfields is intended to encourage, promote and facilitate recreational pursuits in the community involving organised competitive sporting activities and games as well as informal recreation. Sportsfields of the West Dapto Urban Release Area must provide for the active (formal) sporting needs of the new population with the provision of sporting facilities such as AFL, soccer, rugby and cricket.

Sportsfield design and location must accommodate flooding and water management without compromising the open space and recreation functions. Sportsfields should be located outside the 10% Annual Exceedance Probability (AEP) flood extent. The fields should be available for play within 3 days after the rain event.

An internal and external pathway network for pedestrians and cyclists must be provided ensuring connectivity within the park and externally to residences and public transport.

The adjacent proposed residential housing must encourage passive surveillance by orientating the dwellings to overlook the open space and deter anti-social behaviour.

Requirements

Standard of Construction - sportsfield construction and layout must be in accordance with the Transport Canberra and City Services (TCCS) publication - 'Design Standards for Urban Infrastructure, 24 - Sportsground Design.'

Sportsfield design principles - the sporting fields are to be planned in consideration of the specific requirements of the relevant sport code such as field size, posts, nets, line markings and safety, in addition to the following points:

- Gradient of fields to be no greater than 2 percent slope.
- Orientation of the fields are to be between north and 15 degrees east of north depending on the particular code to be catered for.
- Provide supporting facilities appropriate to the standard of sportsfield.

Neighbourhood Park, – West Epping Park, City of Parramatta. Image sourced from City of Parramatta





Fencing - Sportsfields should be fenced in accordance with the West Dapto Technical Manual, typically with a barrier fence separating road easement and active fields.

Goal Posts - Galvanised steel construction, with in ground sleeves.

Tree planting - sportsfield design must include significant shade tree planting with at least 30 percent of the off field areas of the park provided with natural shade.

Shelter - protection from dominant winds to improve spectator amenity must be provided wherever possible e.g. integrated tree planting to form wind breaks.

Utilities – sportsfields must be provided with all required utilities such as sewer, drainage and water and power connections.

Public amenities - an amenity block is required for Sports Field provision. Toilets with disabled access, showers and change facility must be provided as it is expected people will visit and stay in the park for extended periods. The

number of cubicles and size of change rooms is subject to an objective assessment of potential demand.

Passive surveillance - the majority of the park should be road frontage with activated edges to encourage passive surveillance on the frontages. In addition, the park design must include the provision of pathways and shared pathways within the park boundaries to improve passive surveillance within the park.

Signage - park signage must be as per the West Dapto Urban Release Area Open Space Technical Manual to define entries.

Emergency Access – sports park design must include provision for compliant emergency access.

Car parking - provide car parking within the park to facilitate off street parking for visitors.

Any new sportsfield application needs to be accompanied by an assessment of future visitor parking demand (prepared by a suitably qualified transport consultant), and must include the provision of public car parking to facilitate off



Integrated perimeter control



Standard Dimensions for Sportsfields

(Note: spectator area excluded).

SPORT	PITCH DIMENSION	RUN OFF AREA	ROTATION AREA/ SUBSTITUTION BENCH
AFL	177x 155m	6m from pitch perimeter	5 x 5m
CRICKET	138 x 119m	6m from pitch perimeter	6 x 2m
FOOTBALL	110 x 68m	6m from pitch perimeter	5 x 5m
RUGBY UNION	144x 69m	6m from pitch perimeter	5 x 5m
RUGBY LEAGUE	122x 69m	6m from pitch perimeter	5 x 5m
TOUCH FOOTBALL	76x 50m	6m from pitch perimeter	5 x 5m

Table 2

Sourced from Gold Coast Planning Policy II: Land Development Guidelines Section 6 - Open Space Requirements

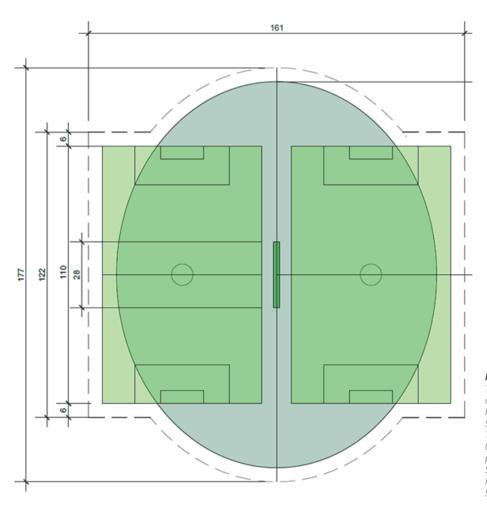


Figure 9
Typical layout
multi-sportsfield layout
for Cricket, AFL, and
Soccer: sourced from
Transport Canberra and
City Services (TCCS)
publication – 'Design
Standards for Urban
Infrastructure, 24 Sportsground Design



street parking for visitors.

As part of the visitor demand assessment the applicant needs to:

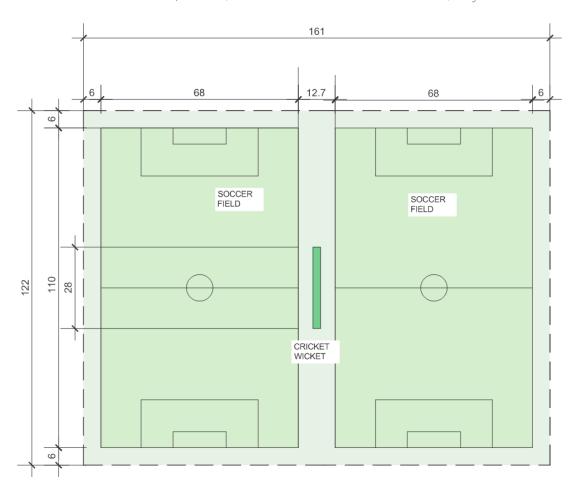
- Undertake a site-specific on-street car parking capacity survey to establish the number of available on-street and off-street 'public' car parking spaces within a 250 metre radius of the facility.
- Establish the projected weekend sportsfield car parking demand based on surveys of similar existing facilities during peak weekend operation (Saturday and Sunday during winter sport season).
- Provide details of public transport links (proximity of bus and rail stations).
- Provide details of pedestrian and cycling routes.
- Car park design must be in accordance with relevant civil design standards -AS2890 series.
- Disabled car parking must accord with AS2890.6 with the number of spaces

provided in accordance with BCA rates. These spaces must be located as close to the entrance of facilities as possible and be linked by an accessible path of travel as per AS1428.1.

- Car park design must include provision for buses.
- Car parking should not visually dominate the landscape and always incorporate substantial shade tree planting.
- Car parking must be linked to the pedestrian path networks within the park.
- A suitable number of bicycle racks to further encourage cycling must be provided. Bicycle racks must be located in areas with good passive surveillance.

Pathway networks - entry points and paths to internal key destinations such as sports fields and amenities must provide equitable access in accordance

Figure 10
Typical layout for dual use – Soccer and Junior Cricket Transport Canberra and City Services (TCCS) publication – 'Design Standards for Urban Infrastructure, 24 - Sportsground Design





with the Disability Discrimination Act. The pathway network should use different widths, path finishes and detailing to establish a clear hierarchy

Perimeter control - the park perimeter is to be furnished with a suitable barrier to define vehicle entry points, including maintenance and emergency access points.

Water supply – Sportsfields are to be provided with a compliant water supply to allow the provision of water for visitors and maintenance of sportsfields. In particular:

- Field irrigation water supply and irrigation system is required for sports grounds for maintenance. Explore opportunities for recycled water for sportsfield irrigation.
- Bubblers and water filling stations are required near play spaces and sportsfields where visitor use is high.

Lighting – sportsfields should comply with the appropriate Australian Lighting Standards, in particular:

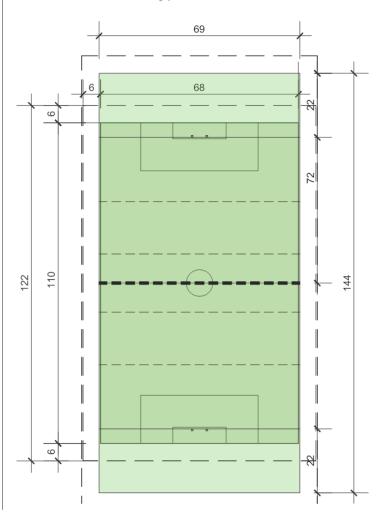
- Lighting to be provided to facilitate evening sports training and competition on sporting fields and pathway networks linked to car parking areas.
- Lighting design should consider illumination and spill requirements for functions, and the siting of light standards to enable free movement of specified mowing equipment.

Waste Requirements - consideration must always be given to the location of bins so that emptying can be undertaken as efficiently as possible, in particular:

- Bins should be located as close as possible to entrances and or road frontages of parks or high activity areas such as BBQ or picnic facilities.
- Bins should be located near a road or the perimeter of the open space to allow the bins to be serviced without the need to drive the collection trucks into the park.

Turf specification for fields – Kikuyu (Pennisetum clandestinum) installed as per West Dapto Open Spaces Technical Manual. Refer to sports turf detail.

Figure 11
Typical dual use layout for
Rugby and Soccer





5.3 Open Space Frontages

Objectives

Good design of park perimeters is essential to activate the park and enable passive surveillance. The majority of the park should be road frontage to allow for passive surveillance.

Parks should have active edges with the provision of pathways or shared pathways to enable passive surveillance.

Requirements

- The majority of park perimeters must be surrounded by a road network with footpath or shared pathways with defined entry points.
- Neighbourhood parks must be located along a minor collector road with additional smaller order roads leading to car parking. Seventy-five percent (75%) of the neighbourhood park must have road frontage. No boundary to be less than thirty (30) metres.
- Local parks should have direct residential frontage with four road frontages.
- Residential dwellings should be oriented to allow passive surveillance.
- All park perimeters should be provided with a suitable barrier to define vehicle entry points including emergency and maintenance access.

- Street trees should be provided to the perimeter of all parks.
- Signage across Council's parks must be consistent and of a high standard. Messages should be consolidated to reduce visual clutter. Refer to West Dapto Urban Release Area Open Space Technical Manual.

5.4 Pathways

Objectives

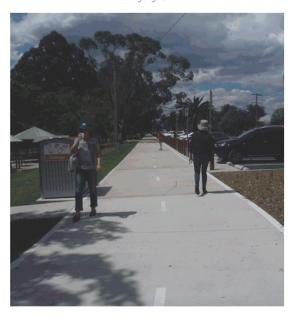
All neighbourhood and local parks must be linked to the shared pathway network. Walking and cycling is a very important component of active transport in the West Dapto transport system to achieve a sustainable, healthy and active community. Creating attractive walking routes will contribute greatly to the health and vitality of communities.

A hierarchy of internal pathways should be developed to connect the park perimeter pathways to key features and facilities within the open space. At least one internal path should be Equal Access connecting to the main entry point and linking to key facilities in the park such as sportsfields, picnic areas, toilets and play areas.

Pathways should link to shared pathways in riparian areas and to the street network. Walking and running trails are permitted in natural areas subject to careful route mapping in consideration of high conservation areas, natural



Below: Internal pathway networks, Stuart Park Wollongong





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landform, existing gradients, and points of interest. Trails should minimise impacts on existing landform and vegetation and other biodiversity values.

Tree planting should be integrated with pathway networks to provide shade and amenity.

Requirements

- All paths to be designed in accordance with WCC Civil Specification 2019.
- All concrete pathways shall have a minimum of 1500mm width.
- Utilise light and natural colours for pavement and surfaces to reduce heat absorption.
- The selection of planting adjacent to paths should be in consideration of Safety in Design Principles and not provide places of concealment.
- Trees should be offset from pathways to allow sufficient area for the root zone in consideration of the species and mature size.

Shared Pathways

Objectives

Active transport is achieved with the provision of convenient, connected, direct and attractive shared pathway networks between residences, schools, town and village centres, community facilities, parks and public transport nodes. The aim is to increase participation in all forms of cycling and walking by the development of safe, connected networks of shared pathways.

Site analysis of open spaces should map existing shared pathway and footpath networks. The parks need to connect to shared pathway networks to create safe and easy access to the park by bike, scooter or walking.

Neighbourhood parks should integrate the shared pathway network. The shared pathway network could be integrated into transmission easements, riparian areas and open space to create convenient pedestrian and cycle links that are safe, scenic and direct.

Shared path bridges are planned as part of the West Dapto Section Development contributions plans on major riparian corridors to allow direct linkages and maximise accessibility between precincts and land uses.

Requirements

Shared pathway networks must provide both connectivity within the proposed subdivision, and form part of the wider context of the West Dapto Urban Release Area active transport network.

- A site analysis should be undertaken mapping any existing or proposed shared path networks within the park's catchment area prior to commencement of shared pathway route planning.
- Shared pathway networks can be integrated into the riparian corridors to provide an off road cycle network.

Below: Shared pathway, Squires Way Wollongong

Bottom: Shared pathway adiacent to riparian area, Cordeaux Road Mt







- Utilisation of the riparian corridors can create pedestrian and cycle links that maximise accessibility between open spaces. Shared pathways should be located where possible outside the 10 percent Annual Exceedance Probability (AEP) flood extent.
- For any shared pedestrian footpath/ cycleway, a minimum 2.5 metre width is required and widened to 3 metres if the shared footpath/cycleway is adjacent to any embankment or structure.
- Fencing must be provided where required with safety fencing ie cycle rails.
- Where possible incorporate a level 0.6m shoulder (maximum cross fall of 2.5%) along both sides of a pathway. No planting should occur in this shoulder to create a safe and level run off area.
- All pedestrian footpaths or shared pathways / cycle ways should be designed in accordance with the requirements of Australian Standard AS 1428-2001. The maximum gradient for such pathways should be one in 14 with handrails, or 1 in 20 without, wherever practicable. The pathway should be constructed of concrete, except where varied by Council.
- Shared pathways should be designed in accordance with RMS NSW Bicycle Guidelines. These comprehensive guidelines assist in the planning and construction of high quality bicycle transport facilities in NSW including on-road and off-road facilities, intersection treatments, parking, line marking and signage. This document is to be read in conjunction with

- Austroads Guides part 6A: Pedestrian and Cyclist Paths, which prevails where there are differences between these two sets of guidelines.
- Provide end of trip facilities such as bubblers, water bottle filling station, seating and picnic facilities within parks.
- Provide bicycle parking at all parks.

Trails

Objectives

A trail is a component of the active transport network that is compatible with natural areas. Trail networks can facilitate activities such as walking, jogging and on trail cycling. The trail networks within a natural area should be planned around the high conservation areas, natural landform, existing gradients, and points of interest. Trails should minimise impacts on existing landform and vegetation and other biodiversity values.

Trails can also provide access to undertake maintenance in a natural area.

Requirements

- Trail construction materials can vary dependent on site conditions and anticipated uses.
- All walking trails should be in accordance with Australian Standard 2156.2:2001 - Walking Tracks Infrastructure Design. This standard specifies requirements for the structural design of walking track structures, to protect natural and cultural assets.



Concrete pathway adjacent to riparian area, Wongawilli



- Trail heads or trail access points must be visible. Trails should have good lines of sight.
- As part of the trail route design the applicant will be required to undertake a comprehensive risk assessment following CPTED principles.
- A hierarchy of trails should be determined with variable pathway widths dependent on function (with a minimum of 1.5m width). The width of a trail should respond to not only the hierarchy but also respond to natural features and vegetation.
- Trails should be designed to ensure that they are not significantly damaged in a storm event with a hard wearing surface preferred unless there is significant existing vegetation which may be impacted.
- Trails in natural areas, should incorporate long sweeping bends and meanders, with crests and gentle rises and falls, to create interest and assist drainage.
- Raised walkways and minor footbridges are permitted in natural areas in low-lying areas and areas of high environmental sensitivity.
 Materials for raised walkways and bridges must be durable, hardwearing and slip resistant. Structural components should be corrosion resistant such as galvanised steel and Fibre Reinforced Plastic (FRP). All boardwalks and pedestrian bridges to be designed in accordance with Australian Standard 2156.2:2001 - Walking Tracks Infrastructure Design.

Off Road Cycling

Objectives

Open space designs should provide a safe and fun environment to allow for cycling. Mountain biking is a rapidly growing recreational activity in NSW and the riparian corridors of West Dapto provide a unique opportunity for both a formal shared pathway network and for on trail off road cycle network.

Trail networks for off road cycling within a natural area should be planned in consideration of high conservation areas, natural landform, existing gradients and points of interest. Trails should minimise impacts on existing landform, vegetation and other biodiversity.

Planning, design and management of off road cycling trails can minimise environmental impacts, provide a quality experience for riders to enjoy and appreciate open space, and minimise conflict between park users.

Requirements

 The Australian Mountain Bike Trail Guidelines for trail planning, design and construction should be utilised to create a sustainable mountain bike network. Off road bike tracks must be designed and constructed so that water flows are managed and riders and other users are contained on the tracks. This is crucial to reduce erosion, sediment travel, track widening and proliferation, vegetation damage, and associated maintenance requirements.

Left: Off road cycling trails, Mt Kosciuszko

Below: Off road cycling trails Wollongong





Item 4 - Attachment 5 - Draft West Dapto Open Space Design Manual

5.5 Car Parking

Objectives

Car parks should be located in areas which have natural surveillance from adjoining residential areas. Car parking within the park should not visually dominate and always incorporate substantial shade tree planting.

Car parking should be separated from dedicated play spaces so there is no conflict between vehicles and pedestrians.

- Car park design within open space must comply with relevant civil design Australian Standards.
- Car parking within the park should not dominate the development and provide shade to a minimum of 50 percent of parked vehicles. This should be achieved by the provision of medians and planting beds within the car parks to allow for shade tree planting. Appropriate soil volumes must be provided in consideration of proposed stocking rate.

- Planting beds must have sufficient deep soil area for the trees to grow. The minimum dimension of the planting bed is 2.4 metres by 5.5 metres (one car space). If an elongated bed design is required, the minimum width of available soil is 1.5m.
- Pedestrian and vehicular movement is to be clearly separated by use of design devices such as kerbs, bollards and or fencing.
- Car parking must be linked to the pedestrian path networks of the park.
- Trees in car parks should be long-lived large canopy species that do not excessively drop branches or soft fruit that may damage vehicles.
- Car parking should incorporate water sensitive urban design principles.



Car Park and integrated shade planting. Stewart Street Wollongong

5.6 Public Art

Objectives

Public art as defined in the WCC Public Art Strategy & Guidelines is 'a broad term that refers to a range of sculptural installations in the public realm. Public art can be enduring in the form of iconic, stand-alone work and integrated artistic elements. Ultimately, public art embraces its environment, and helps create places that inspire investigation and interaction, and are enjoyable and meaningful in their own right'.

Public art can enhance open spaces by:

- · creating a sense of place,
- enhancing and enriching our experience in a public space by representing the local history of the area,
- increasing amenity and activating the open space,
- providing a medium to educate on the culture and heritage of an area.

Public art is permitted in neighbourhood and district parks only, due to the long term maintenance costs of the work.

Requirements

Public artwork and design proposals must be submitted to be assessed by the Public Art Advisory Panel and comply with the following requirements to be considered for approval:

- The artwork should not portray or depict material in a way which discriminates against or vilifies a person or section of the community on account of race, ethnicity, nationality, gender, age, sexual preference, religion, disability, mental illness or political belief.
- The artwork must principally include the work of artists and art-forms or designers and should not contain advertising or promotional material for any other product or service.
- The artwork must be the original work of the submitter and must have obtained all necessary clearances and approvals for subjects or materials featured in the work.
- The artwork should not employ sexual appeal in a manner which is exploitative and degrading of any individual or group of people.



 The artwork should not present or portray violence unless it is justifiable in the context.

- The artwork should not use language which is inappropriate in the circumstances.
- Public art should be located offline from pathways to ensure they do not create a hazard.
- Items should not have any sharp edges that could be a hazard to people.
- Artworks should be designed to prevent finger and head entrapment.
- A maintenance report is required to be prepared by the artist at the end of the project addressing the following:
 - a description of the artwork (including digital images and the date of completion);
 - artist/artist team contact details;
 - completed list of construction drawings;
 - a maintenance schedule
 - an agreement relating to decommissioning of an artwork once it has reached its intended lifespan, has been damaged or destroyed, and is no longer safe;
 - the method of construction, the types of materials used and details of the fabrication company (if relevant):
 - any specific instructions or products to be used when cleaning and maintaining the artwork.

Public art Bald Hill Stanwell Park



BMX Pump track (Barden Ridge). Image sourced from Sutherland Shire Council

5.7 Skateboarding, Scooting & BMX

Item 4 - Attachment 5 - Draft West Dapto Open Space Design Manual

Objectives

Parks need to cater to the needs of both young and older children with the provision of facilities for skateboarding, scooting, roller blading, and BMX riding.

This section does not relate to the provision of formal skate facilities but to features and elements where skating, scooting and roller blading can occur without conflict with other open space users. BMX riding activities can be accommodated in separate BMX and pump tracks.

Requirements

All concrete pathways can be used for skateboarding, scooting and roller blading.

- Hard landscape elements such as concrete steps, ramps, retaining walls, and steps that are not intended as skate facilities should integrate skate deterrent devices.
- Skating, scooting and roller blading provisions should be located offline from where young children are playing. Surface treatment changes such as unit pavers can be integrated to define skate area.
- Skate specific forms and typical furniture such as wedge boxes and fun boxes can be integrated adjacent to pathway networks to address the needs.
- For design guidelines for BMX facilities refer to BMX (Sports Dimension Guide) Department of Local Government, Sport and Cultural Industries (Gov of WA).



Right: Skate feature, Holborn Park Berkeley



5.8 Park Furniture

Objectives

Open space furniture selection should be appropriate to the size, function and service of the open space. Parks should not contain an excessive amount of park furniture that results in an unsustainable maintenance cost to the community. For example, a local park would have minimal furniture whereas a neighbourhood park with a greater intensity of use may have a variety of park furniture such as multiple seating options, barbecues, and picnic tables with shelters, drinking fountains and bike racks.

The required provision of furniture and amenities within the park hierarchy is detailed in the West Dapto Open Space Technical Manual – Furniture.

Requirements

- All specifications for park furniture are detailed in the West Dapto Urban Release Area Open Space Technical Manual. Below are some examples of requirements needed.
- Seats should be provided at regular intervals and at points of interest such as play spaces and sporting fields. Seats should be offset from the trail so as not to affect the path of travel. Refer to Open Space Technical Manual for seat specification.
- Seats are to be constructed on an extended concrete pad to allow for wheelchairs, prams, walkers etc. Seats are to be positioned with a continuous accessible path of travel where possible.
- Tree planting should be positioned to complement seat positions to maximise shade.
- Picnic nodes (picnic table with shelter) should be located adjacent to places of special interest, and to complement, and enhance other recreational opportunities in the park. The picnic node must have accessible pedestrian paths from adjoining car parks and roads.
- Within a neighbourhood park, electric barbeques are generally provided as part of a picnic node and must be covered by a shelter.



5.9 Lawn Areas

Objectives

Grass areas provide opportunities for formal and informal recreation in open space. Grass areas should be as large as possible to create functional and flexible spaces to suit a large array of recreational activities.

- Informal grass areas for ball sports or unorganised sport should be a minimum dimension of 60m long x 40m wide.
- Lawns should generally be kept clear of furniture elements such as signs, seats, lights, bins.

Picnic shelter, Sheaffes Road Kembla Grange

- Trees in lawns should be spaced to allow ease of mowing and be planted with a maintained 1.5m radius mulch ring where no edge is specified.
- The gradient of lawn areas proposed for informal kick about areas should have a slope of less than 6 percent and greater than 2 percent to allow for surface drainage and safe ball play.
- The maximum slope of turfed areas in public open spaces is to be to be 25 percent to ensure the safety of individuals carrying out maintenance. Areas with slopes steeper than 25 percent must be treated as a mass planting bed and may need stabilisation with a geo fabric.
- Stones, sticks and roots should be removed from all soil profiles.
- Turf areas should have a minimum of 100mm depth of top soil.
- For lawn species and construction details refer to West Dapto Open Space Technical Manual.

5.10 Mass Planting **Beds**

Objectives

Mass planting beds are defined as a mulched area that is densely planted. Mass planting beds in open space should be minimal and be relative to the size, function and service of the public open space. For example, a local park would have minimal to no mass planting beds whereas focal areas of a neighbourhood park with a civic space may benefit from appropriately sized mass planting beds.

In riparian zones mass planting beds will form part of the re-establishment of the original riparian vegetation community and therefore may be of considerable size dependent on the order of the stream being revegetated.

Although mass planting beds can be an important amenity improvement in the right location, the priority for open space upgrades should always be the establishment of canopy trees, groups of trees and feature trees.

All vegetation established in or around any open space shall be located to maximise passive surveillance opportunities, maintain clear lines of sight and avoid the creation of concealment areas.

- Areas with slopes steeper than 25 percent must be planted as a mass planting bed or constructed with materials specifically designed to stabilise the slope.
- All planting areas are to be prepared to a minimum depth of 300mm and free of weed species. This may require the importation of planting mix or a mixture of weed free site soil and soil conditioner.
- If planting areas are required, the garden beds should not be narrower than 750mm for grasses only, and 1500mm for a mix of trees and grasses.
- Planting beds should have hard and robust masonry construction edges installed. The edging should be straight, or with long sweeping curves with no acute angles, which would require hand mowing.
- Planting beds should comprise a mix of native canopy trees, groundcovers and grasses.
- Plants shall comply with AS 2303:2018 be healthy, of good form and be true to species and size. They must be free from pests and disease, and shall not be root bound.
- Advanced trees and grasses are to be planted in good quality soil and humus. The planting hole shall be twice the width and the same depth as the plant
- Any sites adjoining any natural areas or creek lines with native vegetation must use locally indigenous species (no cultivars) in the landscape plan and must have regard to any impacts of water flows and flooding.
- Planting selection should be based on a weeds risk assessment to prevent the dispersal of inappropriate species into natural areas.
- Mulch for all planting areas shall be hardwood clip mulch. Mulch is to be free of weed material and seed, debris and foreign matter. The contractor shall spread a 75mm thickness of approved mulch on all mass planting beds and 75mm thick mulch ring around all trees in lawn areas. The stems of all plants shall be kept free of mulch to protect the stem from possible rot.

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5.11 Water Supply

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Objectives

Open spaces must be provided with a water supply to allow the provision of water for maintenance of landscape areas as well as provision of water for bubblers. Taps should be provided in a park to allow the cleaning of infrastructure and the maintenance of turf and planting areas.

Bubblers and water filling stations are also required near play spaces and active recreation nodes where it is expected that people stay longer.

Water supply for irrigation of sportsfields should be obtained from sustainable sources such as recycled or harvested water supplies.

Requirements

- A minimum size of 25mm water service connection is required at the park boundary with a water meter and at least one vandal proof water tap.
- Taps should be located near the edge of the landscaping and turf to be maintained. The tap should not interfere with maintenance activities such as grass mowing.
- Taps to be placed in fifty (50) metre
- Water supply connections should be located within twenty five (25) metres of a maintenance vehicle access point.
- All water provided from Council's reticulated water supply system shall be metered and all irrigation systems shall comply with the back-flow prevention requirements of AS3500 Plumbing and Drainage - Part 1. Locate water supply connections and back-flow prevention devices away from public access points adjacent to other park infrastructure or within landscape beds where possible.
- Bubblers should be provided in parks in key locations, on shared pathway networks and near play spaces and active recreation nodes where visitor use is high.
- · A dog drinking bowl must be added to bubblers in proposed dog parks.

5.12 Fencing And **Barriers**

Objectives

Wherever possible, the need for fencing should be designed out of open space proposals. However, there may be special circumstances where fencing or barriers may be required, such as along road frontages of a park to prevent illegal vehicle access to open space or natural areas, or to provide protection from potential hazards such as permanent water bodies.

As detailed above, play space design should avoid the need for fencing by careful planning and placement of the play environment wherever possible.

The type of fence or barrier to be provided in open space should be consistent with the park type and existing site characteristics. Fencing must be robustly constructed and made from durable materials with high quality finishes that minimise maintenance requirements.

- Fence rails and the tops of bollards should be generally installed following the overall slope of the land, without minor dips and bumps.
- Vehicle barriers are to be installed along the perimeter of natural areas. along road frontages and near public entrances and facilities. Refer to the West Dapto Technical Manual for a range of appropriate fence types.
- · Barrier materials to control and define the entry points into natural areas should be as simple and robust as possible, such as quarry sawn sandstone 'logs', timber railing fences, bollards, or galvanised pipe and timber posts as detailed in the Open Space Technical Manual.
- Designated access gates to be provided for emergency and maintenance vehicles as detailed in the Open Space Technical Manual.
- · Ensure that fencing adjacent to riparian areas does not result in the undesirable obstruction of the free flow of floodwaters, or obstruct the connectivity and movement of fauna along riparian corridors.

• Fencing is required where there is a danger of children gaining access to high risk areas (eg around stormwater drain head walls, outlets and stormwater quality improvement devices) or where the drop height exceeds 1.0m. Fencing to be installed in accordance with stormwater design best practice and relevant standards. Refer to the West Dapto Urban Release Area Open Space Technical Manual for a range of appropriate fence types.

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 A safety fence is permitted when play elements are less than 20m from the road frontage, shared pathway or water body.

5.13 Retaining Walls

Objectives

Wherever possible, the need for retaining walls should be designed out of open space proposals. Retaining walls will

only be permitted in special circumstances such as to achieve accessible paths of travel or to retain the natural ground levels around significant vegetation.

- Retaining walls over 1000mm high are to be designed and certified by an experienced chartered structural engineer and will require safety fencing.
- Retaining walls must be constructed with low maintenance high quality, durable materials. In this regard, masonry and stone walls are preferred as retaining structures.
- Boulder walls may only be constructed where natural stone is a feature of the site and the retaining walls are less than one metre in height.
- Timber retaining walls are not acceptable.



Retaining Wall, Bulli

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5.14 Dog Parks

Objectives

The term 'dog park' is generally given to designated fenced dog off leash areas that contain a variety of landscape features and/or equipment that offer different activities and experiences for dog owners and their dogs. They are defined areas which offer a safe and controlled environment for dogs to play, socialise, interact and exercise with other dogs and their owners. Dog parks can contribute to enhancing social connectivity and improving community health. The provision of dog parks may also reduce impact on sensitive natural habitats by the creation of purpose built facilities.

The Companion Animal's Act 1998 states that dogs under effective control of a companion person are allowed in open space. Under the Act, dogs are not allowed within 10m of children's play equipment and in areas specifically prohibited by Council.

Dog parks must be located where people want to go, where people will feel safe, where natural surveillance is achieved through passing cars and/or foot traffic, and a site that is not within 50 metres of residential houses.

The design and detailing of dog exercise embellishments should blend in and complement the landscape quality of the space.

Requirements

- Minimum area required for a fenced dog park is 0.25 to 1.0 hectares.
- Dog parks must not be placed inclose proximity toto children's playgrounds.
- Dog parks cannot be co-located with formal sportsfields.
- · The site must have car parking options.

Dog exercise areas should have the following features as a minimum:

- The installation of double gate systems to allow people to enter/ exit the facility easily with their dogs not being able to run away. The entry point must be treated with a hard surface such as concrete;



Dog exercise equipment

- The installation of two entrance points to allow people to enter/exit without conflict if encountered;
- provision of a 1.2m high perimeter fence with tree planting to create natural shade around the perimeter;
- seating for visitors;
- waste bins at each entry point;
- a maintenance access gateway;
- a water service to allow for the provision of water for dogs and owners with water fountains and dog bowls;
- regulatory signage;
- open ball play area;
- dog agility equipment.



5.15 Waste Collection

Objectives

Bins should be located as close as possible to entrances and or road frontages of parks, or high activity areas such as BBQ or picnic facilities. Bins should be located near a road or the perimeter of the open space to allow the bins to be serviced without the need to drive the collection trucks into the park.

Bins shall not be provided in natural areas.

Requirements

- Consideration must always be given to the location of bins so that emptying can be undertaken as efficiently as possible.
- Provide a dispenser for dog waste bags on all bins at neighbourhood parks.
- Bins generally should be positioned offset from a pathway network on a concrete base with a minimum dimension of 1.2 x 1.2m in close proximity to either an entry point or an area of high activity.
- 240 litre size wheelie bins to be used with or without enclosure, depending on type of park.
- Refer to the West Dapto Open Space Technical Manual for specifications for waste bins.

5.16 Transmission Easements

Objectives

Transmission easements primary function is the distribution of power, however they can provide important links between the open space networks. Transmission easement areas should be accessible to the public where possible with the integration of pedestrian/cycle linkages.

Site analysis of open spaces should map existing shared pathway and footpath networks and plan to integrate a safe and easy access to the park by bike, scooter or walking through the transmission easement where possible.

Permitted uses and requirements for treatment of transmission easements vary. Professionals involved with the development, planning, design and integration of transmission easement in open space must consult with electricity service providers.

A general guide of permitted activities is as follows:

- · grazing;
- water storage dams, subject to sufficient clearances from conductors and towers:
- non-metallic fences up to three metres in height. Metallic fences, or fences incorporating metallic materials, must be suitably earthed and sectionalised, and are subject to approval by electricity service providers;
- dog exercise could be considered in transmission easement areas where there is good access and parking.

Requirements

The following guidelines apply:

- Pedestrian paths should connect to adjacent open space pathways and shared pathway networks;
- At least one key path must be provided for each transmission easement area;
- When a more complex path network is proposed the design should use different widths to establish a clear hierarchy. Minimum clear footpath width of 1500mm.



5.17 Signage

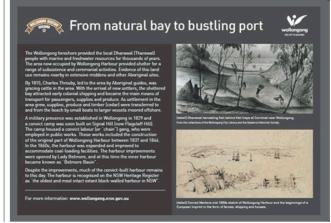
Wollongong City Council follows the guidelines of the NSW Geographical Names Board (GNB) for the assignment of names to parks, sportsgrounds, and natural areas within the Wollongong Local Government Area. Council will consider the naming of parks, sportsgrounds, natural areas and general community use lands (including features within those) based on the following:

- names of Aboriginal origin and Indigenous significance to the local area:
- botanical reference native to the area;
- historical or cultural significance to the local area;
- geographical relevance of the immediate area;
- · a person's name or
- a group charitable, social/cultural community.

It is acknowledged that the GNB's primary directive is to give precedence to the use of names of Aboriginal origin associated with the feature or a name with an historical background in the area of the feature. Council will utilise these long standing practices wherever possible.

Signage across Council's parks needs to be consistent and of a high standard. Messages should be consolidated to reduce visual clutter. Refer to the West Dapto Open Space Technical Manual for specifications.

Below and bottom: Small interpretive signage examples, Endeavour Drive, Wollongong



Below: Large interpretive signage 'Purrungully' West Dapto





Requirements for submission of Landscape Concept plans to Wollongong City Council when seeking approval for a subdivision development application, which contains open space:

- Site Analysis plan shows relationship of the open space to the development as well as its relationship to the surrounding open space network and original neighbourhood or precinct plan. Connectivity must be shown to shared pathway networks and linkages to key destinations such as town and village centres, community facilities, schools and public transport.
- Open Space inventory assessment of the existing and planned recreational facilities in the surrounding neighbourhood precinct.
- Landscape Plan Refer to Chapter E6: Landscape for Lodgement of a Landscape Plan. A statement from both a registered landscape architect and civil engineer that the proposed open space design complies with the West Dapto Open Space Design Manual
- Arboricultural Impact Assessment (AIA) report - to cover existing vegetation. Arborist report must correlate the cut and fill plans with proposed trees to be retained and removed.
- · Flooding impacts on proposed open **space** – mapping of flood impacts on proposed open space. For example sportsfields are to be located outside the 10 percent AEP flood extents and are available year around for competition play except during the flooding event.
- · Formal and Informal recreation concept designs must demonstrate the achievement of an equal split of active (formal) and passive (informal) play.
- Vegetation Management Plan a VMP must be provided to cover riparian areas and areas of remnant / regrowth vegetation.

6.0 SUBMISSION 7.0 DEFINITIONS

Active (formal) open space

As defined by Greater Sydney Commission 'Active open space is land set aside for the primary purchase of formal outdoor sports for the community. Active open space supports team sports, training and competition'.

Passive (informal) open space

Is land set aside for parks, gardens, linear corridors, conservation bushland and nature reserves. These areas are made available for informal recreation, play and physical activity. Examples of passive (informal) recreation are cycling, exercise stations, running, walking, play spaces, sitting and picnicking.

Consulting Arborist

An arborist qualified to be consulted in the preparation of subdivision documentation must have achieved an AQF Level 5 (or equivalent) qualification.

Dog park

The term 'dog park' is generally given to designated fenced dog off leash areas that contain a variety of landscape features and/or equipment that offer different activities and experiences for dog owners and their dogs.

Landscaped area

A landscape area is a part of a site used for growing plants, grasses and trees which does not include any building, or hard paved area.

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Natural areas

Natural areas are reserves created to protect the ecological biodiversity and habitat values of the land, the flora and fauna of the land, and other ecological values of the land. Natural areas include riparian environments and remnant, regrowth and restored bushland. Natural areas protect the aesthetic, heritage, recreational, educational and scientific values of the land. The management of the natural area protects and enhances the values and quality of the land and facilitates public enjoyment of the land with measures directed to minimising or mitigating any disturbance caused by human intrusion.

Public Art

Is defined in the WCC Public Art Strategy & Guidelines 'Public art is a broad term that refers to a range of sculptural installations in the public realm. Public art can be enduring in the form of iconic, stand-alone works and integrated artistic elements. Ultimately, public art embraces its environment and helps create places that inspire investigation and interaction, and are enjoyable and meaningful in their own right'.

Remnant vegetation

Any patch of native vegetation around which most or all of the native vegetation has been removed.

Shared pathway

A concrete or paved path, which is a shared pedestrian/cycleway with a minimum width of 2.5 metres designed in accordance with the requirements of Australian Standard AS 1428-2001 and WCC Civil Specification 2019.

Trail

A trail is usually a path or track to facilitate activities such as walking, jogging and on trail cycling. Trail construction materials can vary from compacted natural ground or compacted gravel to asphalt and concrete.

Tree Protection Zone

The Tree Protection Zone (TPZ) is defined as the optimal distance from the trunk of a tree that should be maintained free of development and construction activity in accordance with AS4970-2009 in order to protect the tree and keep the tree viable.

Urban Greening

Is strategically increasing the quality and quantity of all vegetation in open green spaces and on all land types in an urban setting with a particular emphasis on the increase of canopy cover.

Universal Design is the process of designing for everyone. It is the "design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation and specialised design", Ron Mace, 1997.

Vegetation Management Plan (VMP)

A VMP is a map-based report to assist the landowner to manage a site to ensure that biodiversity on the site is protected, maintained and enhanced.



Amendments

The following table summarises the changes in the document since the last version on exhibition August 2019.

Amendment Sequenced No.	Key Topic Addressed in Amendment	Amendment Location	Author Initials	Amendment Date
1	A change to text to update name of Contribution Plan	Page 4	DP	October 2019
2	Change to text in park frontage requirements	Page 10	DP	October 2019
3	Change to text in local park frontage requirements	Page 14	DP	October 2019
4	Change to text to refine requirements in conservation areas	Page 16- 17	DP	October 2019
5	Change to note in cross sections referencing APZ constraints	Page 20-22	DP	October 2019
6	Change to text to clarify timing of street tree planting and subgrade preparation	Page 26	DP	October 2019
7	Change to Tree planting in open space to include reference to fruit trees and bush tucker	Page 27	DP	October 2019
8	Change to requirement for Sportsfields for scoreboards	Page 35	DP	October 2019
9	Change to car requirements	Page 36	DP	October 2019
10	Change to text to clarify location of bicycle racks	Page 38	DP	October 2019
11	Change to text to clarify requirement for irrigation system for Sportsfield	Page 38	DP	October 2019
12	Reference added for Sport Turf Detail	Page 39	DP	October 2019
13	Addition of text in pathway requirements to clarify pavement colours	Page 41	DP	October 2019
14	Change to reference to Development Contributions	Page 41	DP	October 2019
15	Change to image of Off Road cycling	Page 43	DP	October 2019
16	Change image of tree planting in car parking	Page 44	DP	October 2019
17	Change to description of type of mulch in mass planting beds	Page 48	DP	October 2019
18	Change to text to locations of dog parks	Page 51	DP	October 2019

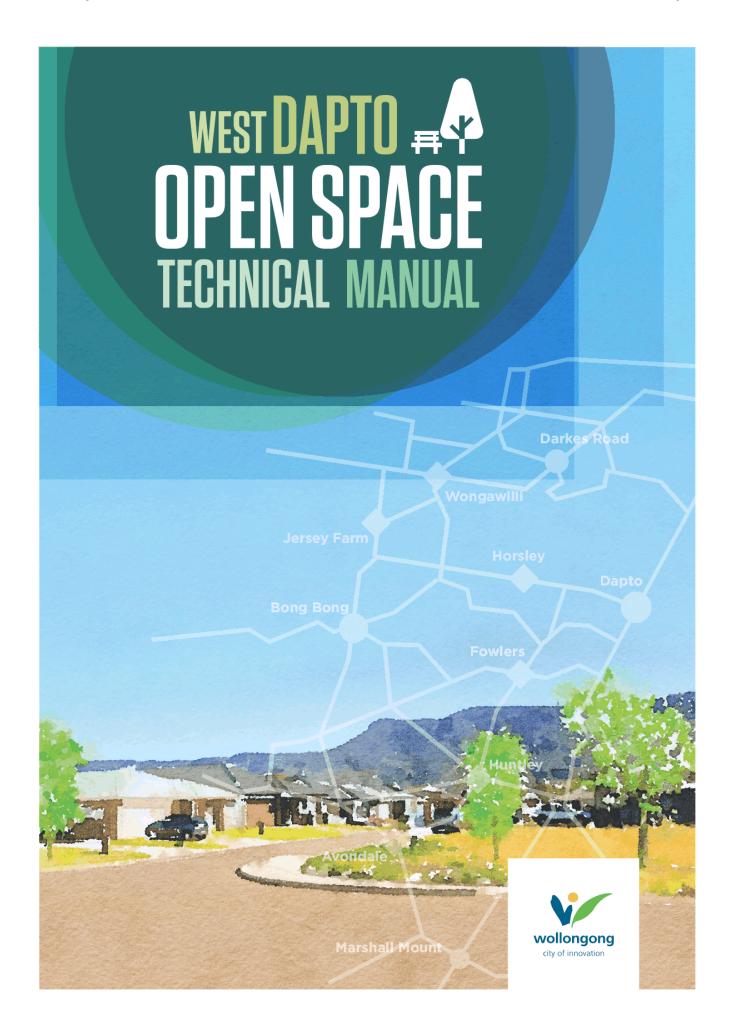














Document Revision Status

Author	Revision No.	Review	Date Issued
D. Pollock	Draft A	A. Goldie	2/4/19
D. Pollock	EMC Draft	A. Goldie	7/6/19
D. Pollock	Draft for Council	A. Goldie	20/6/19
D.Pollock	Final- Post exhibition	A.Goldie	25/10/19



OPEN SPACE TECHNICAL MANUAL

INTRODUCTION

This manual will be a controlled document that will be updated regularly in line with the changes in maintenance requirements, construction technology, and advances in environmentally sustainable design as experienced by the managing authorities.

Professionals involved with the development, planning and design of open space within the West Dapto Urban Release Area (WDURA) should in all cases also consider the specific qualities, technical requirements and existing site features of each design. The Open Space Technical Manual establishes a series of generic design materials, finishes, and performance standards to be used in open space design. Site specific character and constraints will also influence the design to give each individual space a particular character.

This manual provides technical specifications to ensure that all elements proposed in developments integrate quality design and apply consistent standards of infrastructure within open space that are required to adhere to and facilitate the delivery of, the West Dapto Vision and in line with Council's open space requirements.

Enquiries regarding this document may be directed to the Council's Landscape Architecture Section on telephone number (02) 4227 1111.

The following tables provide a list of the various infrastructure required to be provided in open space to achieve a consistent level of treatment to the type of park and associated service level of maintenance.

OBJECTIVES

Maintenance Costs

Open space and park infrastructure must be easy to maintain and financially sustainable. The level and nature of infrastructure required or considered appropriate will depend on Councils determination of the open space hierarchy, function and service (refer to tables below). Careful design and planning is required to ensure sustainable ongoing maintenance costs and achieve long lifecycles.



Materials and furniture items within an open space that are difficult to maintain and difficult or costly to replace can have a significant impact on the aesthetics, function, and the long term maintenance costs of a park. Materials should be hard wearing, and vandalism and graffiti resistant.

Durability

The West Dapto Planning principle for infrastructure is to utilise robust and durable materials with high quality finishes that minimise maintenance requirements and discourage vandalism.

Tree planting

The tree planting specifications detailed in Table 5 below recognises the importance of establishing street trees as part of the Urban Greening of the West Dapto Urban Release Area. Street trees improve the amenity and quality of city streets in measurable ways such as reduction of dust, glare and temperature extremes. In addition, trees improve streetscapes in more subtle ways that improve the visual quality of the street which is frequently reflected in higher property values.

Due to the importance of the streetscape, it is vital that correct stock is selected and correct methods of planting are applied, as per the details and specifications contained within this document.

Amenity and Security

Streets and open spaces must be safe, convenient and comfortable pedestrian spaces that cater to the needs of all users. The design of the open space should provide equal access for all users, such as pedestrian crossovers, and the choice of paving and street furniture should meet slip resistance and access codes. Design for pedestrian amenity should maximise the actual and perceived sense of safety in open space. Active use of all spaces and passive surveillance of streets and open space should be encouraged, particularly at night, in line with Safer by Design principles and in accordance with Crime Prevention Through Environmental Design (CPTED).



Codes and Standards

All infrastructure construction works, including hard and soft landscape material and workmanship must be in accordance with the relevant Australian Standards and Building Codes of Australia, and Wollongong City Council Standard Engineering drawings where applicable.

The Open Space Technical Manual outlines the soft and hard landscape treatments for inclusion in the Landscape Plans and other information in support of a Development Application for a subdivision in The West Dapto Land Release Area (WDURA).

HOW TO USE THIS MANUAL

The following tables provide a list of the various infrastructure to be provided in the park hierarchy to achieve a consistent level of amenity provision and associated service level of maintenance.



OPEN SPACE HIERARCHY PARK TYPE & INFRASTRUCTURE **TABLE 1 - PARK FURNITURE** PAGE ITEM NEIGHBOURHOOD NATURAL LOCAL **TRANSMISSION** DOG TOWN **PARK PARK AREA EASEMENT PARK CENTRES** 11 S1 Seat X X X X X S2 Bench 12 X X X X X 13 S3 Seat X 14 S4 Bench X 15 S5 Picnic X X Setting 16 PS1 Picnic X X Shelter 17 PS2 Picnic X X Shelter 19 PS3 Large X Picnic Shelter 21 PS4- BBQ X (optional) Shelter 22 BBQ X (optional) 23 GB1 - Bin X X Post Mount 24 GB2 - Bin X X Enclosure 25 TAP X X X X BU1 -26 Χ X Bubbler 27 BU2/BU3 X X Equal Access Bubbler 28 BR - Bike X X Rack 28 BR2 - Post mounted Bike Rack 29 B1 -Χ X Χ Timber Bollard 30 B2 -X X **Stainless** Steel Bollard 31 **B3** -X X X Removable Bollard 32 B4 -X X X Sandstone Log



0	OPEN SPACE HIERARCHY PARK TYPE & INFRASTRUCTURE							
		TABLE 2 - OPEN SPACE FENCING REQUIREMENTS						
PAGE	ITEM	LOCAL PARK	NEIGHBOURHOOD PARK	NATURAL AREA	TRANSMISSION EASEMENT	DOG PARK	TOWN CENTRES	
33	F1 - Single rail timber barrier.	X	X	X				
34	F2 - Vehicle access control			X				
35	F3 - Sports Field Fencing		X					
40	F4 – Play Space fencing							
41	F5 – Safety Fencing		X					
42	F6 – Dog Park Fence					X		
44	G1 - Boom Gate	X	X	Х				



OPEN SPACE HIERARCHY PARK TYPE & INFRASTRUCTURE								
	TABLE 3 – PATHWAY & PAVEMENT REQUIREMENTS							
PAGE	ITEM	LOCAL PARK	NEIGHBOURHOOD PARK	NATURAL AREA	TRANSMISSION EASEMENT	DOG PARK	TOWN CENTRES	
45	Decomposed Granite Path			X				
46	Raised Walkways		X	X				
47	Asphalt Pathway			X				
48	Broom Finished Concrete Pavement	Х	X	X	X	X	X	
49	Coloured Honed Concrete Pavement		X				Х	
50	Unit Paving		X				X	
51	Softfall	X	X			X	X	



OPEN SPACE HIERARCHY PARK TYPE & INFRASTRUCTURE TABLE 4 - PARK SIGNAGE PAGE ITEM LOCAL NEIGHBOURHOOD NATURAL **TRANSMISSION** DOG TOWN **PARK PARK AREA EASEMENT PARK CENTRES** 53 PS1 - Park X X X X X Name/ Ordinance PS2 - Trail 54 X X X X X Marker 55 PS3 - Small X X X X Interpretive Sign PS4 – large 56 X Χ X Interpretive Sign



OPEN SPACE HIERARCHY PARK TYPE & INFRASTRUCTURE TABLE 5 - LANDSCAPE DETAILS PAGE ITEM LOCAL **NEIGHBOURHOOD NATURAL AREA** DOG **TOWN CENTRES PARK PARK PARK** 58-59 Tree X X X X Species List 61 Street X X X Tree Planting Detail 62 Street X Tree with guard Detail 63 Tree X X X **Planting** with Mulch Ring 64 Street X X X X Tree Planting in coal/clay 65 Tree X X X Planting With Edging 66 Mass X X X X **Planting** Detail 67 Turf X X X X Detail 67 Sports X Turf

Detail



S1 - Seat

LOCATION:

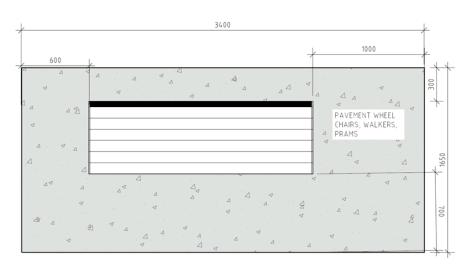
 Natural Areas, Dog Park, Transmission Easements, Local Parks, Neighbourhood Parks.

INSTALLATION:

• Concrete base slab. 3.4m x 1.65m

SPECIFICATION:

- Model: Gossi Park 'Parkway Seat' © or approved equal with armrests with skate guards.
- Frame: Die Cast legs: Powder Coated in standard Dulux colour range (Citi Pearl)
- Batten: Clear anodised aluminium planks, cast aluminium frame.
- Leg type: flange leg surface mounted
- Size:1800m long



S1 SEAT

PLAN



S2 - Bench

LOCATION:

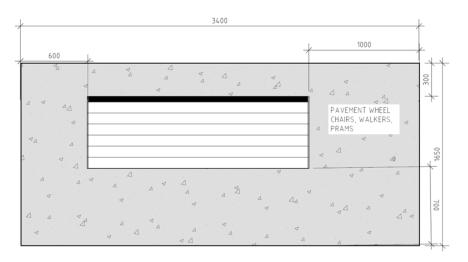
 Natural Areas, Local Parks, Neighbourhood Parks.

INSTALLATION:

• Concrete base slab. 3.4m x 1.65m.

SPECIFICATION:

- Model: Gossi Park 'Boulevard Bench' © or approved equal fitted with skate guards.
- Frame: Die Cast legs, Powder Coated in standard Dulux colour range (Citi Pearl).
- Batten: Clear anodised aluminium planks, cast aluminium frame, cast aluminium frame.
- Leg type: flange leg surface mounted.
- Size:1800mm length.





PLAN



S3 Seat

LOCATION:

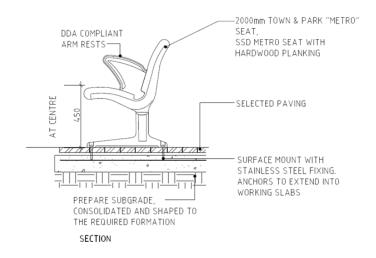
• Town, Village Centres.

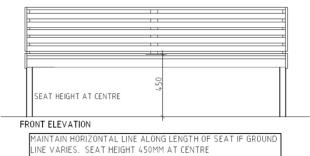
INSTALLATION:

Surface mounted on unit pavers on concrete base
elab

SPECIFICATION:

- Model: Town and Park Metro Seat with armrests and skate guards by Stoddart © or approved
 equal.
- Frame: Cast aluminium.
- Battens: oiled Forest Stewardship Council (FCR) certified hardwood timber planks or approved equal.
- Size: 2000mm length.
- Leg type: leg foot surface mounted.





S3 SEAT

SECTION & ELEVATION



S4 Bench

LOCATION:

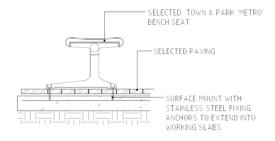
• Town Centres, Village Centres.

INSTALLATION:

 Surface mounted on unit pavers on concrete base slab

SPECIFICATION:

- Model: Town and Park Metro Bench by Stoddart © or approved equal with and skate guards.
 - Frame: Cast aluminium frame.
 - Batten: oiled Forest Stewardship Council (FCR) certified hardwood timber planks or approved equal.
- Leg type: leg foot surface mounted.
- Size: 2000mm long.



S4 BENCH SEAT

SECTION



S5 Picnic Setting

LOCATION:

• Town Centres, Neighbourhood Parks

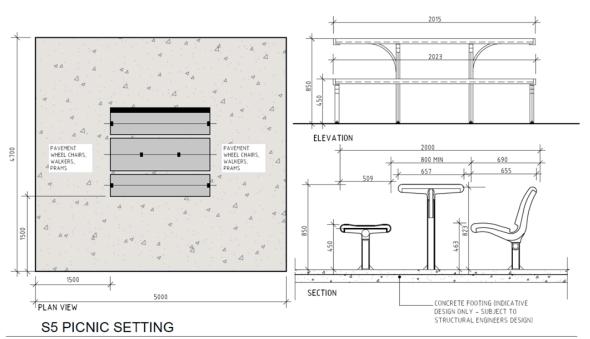
INSTALLATION:

 Unit pavers or coloured concrete base slab. 4.7m X 5m



SPECIFICATION:

- Model: wheelchair accessible Town and Park 'Metro' picnic setting by Stoddart © or approved equal. One (1) 'Metro' Seat and one (1) 'Metro' bench.
 - Frame: Cast aluminium frame.
 - Table Battens: Clear anodised aluminium planks.
 - Seat Battens: oiled Forest Stewardship Council (FCR) certified hardwood timber planks or approved equal.
 - Leg type: surface post.
 - Size: 2000mm long.



PLAN, ELEVATION, SECTION



PS1 Picnic Shelter

LOCATION:

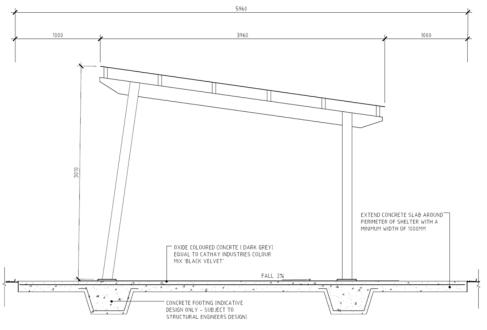
• Local Parks, Neighbourhood Parks

INSTALLATION:

 Surface mounted on oxide coloured concrete (dark grey) 5.96m x 5.8m

SPECIFICATION:

- Tathra Shelter by Precinct © or approved equal.
- Size: 3800mm X 3960mm
- Posts: Extruded aluminium posts 125 x 125 x 5mm powder coated
- Frame: Class 2 F27-Hardwood roof frame with exterior grade stained coating
- Roofing: Pre-cut Colorbond, custom orb roof sheeting Ultra grade (Surfmist)
- No guttering or downpipes.
- Fixing: Stainless steel brackets and fixings.
- Picnic setting: Wheelchair accessible' 'Bridgewater' table setting with cast aluminium legs by Precinct © or approved equal. Picnic setting: cast aluminium frame with aluminium battens.





SECTIONAL ELEVATION





PS2 Picnic Shelter

LOCATION:

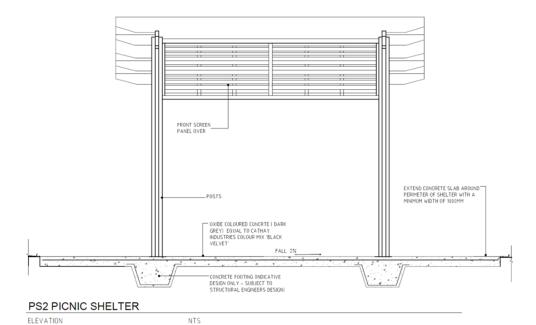
· Local Parks, Neighbourhood Parks

INSTALLATION:

On oxide coloured concrete (dark grey)
 6.m X 6m

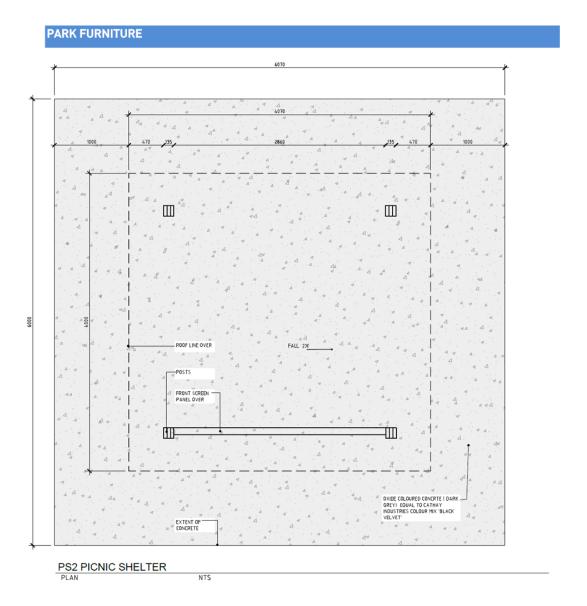
SPECIFICATION

- Skillion roof shelter Peninsula Series (K302) by Landmark © or approved equal
- Size: 4000mm x 4000mm
- Posts: Class 2 F27-Hardwood, factory exterior grade stained coating triple leaf posts.
- Roof frame: ACQ treated, factory exterior grade stained F27 hardwood timber roof frame
- Roofing: Pre-cut Colorbond, custom orb roof sheeting Ultra grade (Surfmist)
- No guttering or downpipes.
- Fixing: All remaining brackets and fixings are stainless steel G316 including Stainless steel
 anti vandal fastenings.
- Picnic setting: Wheelchair accessible' San Remo' by Landmark © or approved equal.











PS3 Large Picnic Shelter

LOCATION:

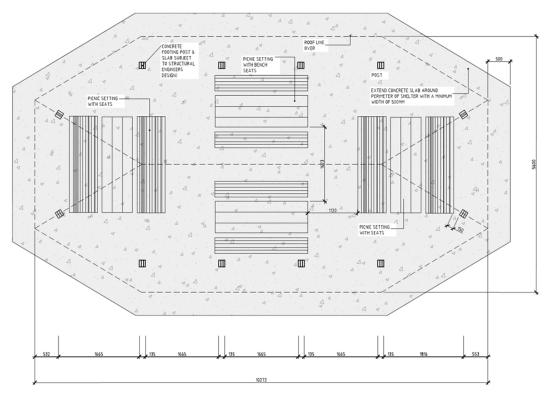
Neighbourhood Parks.

INSTALLATION:

· Oxide coloured concrete (dark grey)

SPECIFICATION:

- Large picnic shelter with gable roof 'Mulgrave' by Landmark © or approved equal. Product Code K504 10m x 5m
- Posts: Class 2 F27-Hardwood timber dual leaf posts with factory exterior grade stain.
- Roof Frame: ACQ treated, hardwood timber roof frame with factory exterior grade stain.
- Roofing: Pre-cut Colorbond, custom orb roof sheeting Ultra grade (Surfmist).
- No guttering or downpipes
- Fixing: All remaining brackets and fixings are stainless steel G316 including Stainless steel anti vandal fastenings.



PS 3 PICNIC SHELTER

AN



PS3 Picnic Setting

LOCATION:

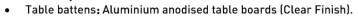
• In PS3 Large Picnic Shelter

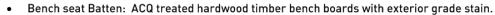
INSTALLATION:

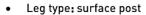
· Surface mounted.

SPECIFICATION:

- Wheelchair accessible x 4 San Remo' by Landmark or approved equal.
- Frame: aluminium powder coated table and seat frames (Powdercoat: APO Grey).











PS4 Barbecue Shelter

LOCATION:

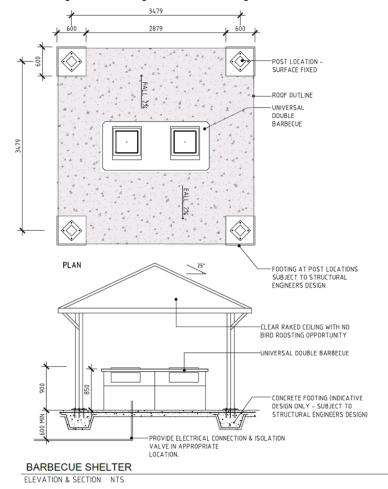
· Neighbourhood parks

INSTALLATION:

• Oxide coloured concrete (dark grey)

SPECIFICATION:

- Barbecue shelter with gable roof 'Tilba' by Precinct © or approved equal
- Size: 4000x 4000mm
- Posts: Class 2 F27-Hardwood timber posts with exterior grade stain.
- Roof Frame: ACQ treated hardwood timber roof frame with exterior grade stain.
- Roofing: Pre-cut Colorbond, custom orb roof sheeting Ultra grade (Surfmist).
- No guttering or downpipes
- Fixing: All remaining brackets and fixings are stainless steel.







Barbecue

LOCATION:

Neighbourhood parks where need has been demonstrated.

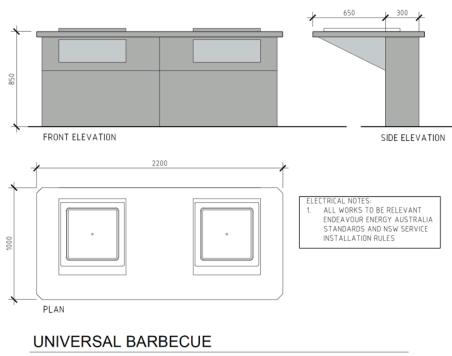
INSTALLATION:

 within Barbecue shelter on oxide coloured concrete (dark grey)



SPECIFICATION:

- Stoddart Town and Park Metro Double Barbeque © or approved equal. CODE: SPTP.BBQ.W.S.SM.DBL.800.D01
- Note: All service locations to be conducted prior and supplies to be continuous with no underground (hidden) connections points. All work to be relevant Endeavour Energy and Australian Standards and NSW Services installation rules.



ELEVATION & PLAN NTS



GB1 Garbage Bin Post Mount

LOCATION:

· Local Park, Neighbourhood and Dog Park

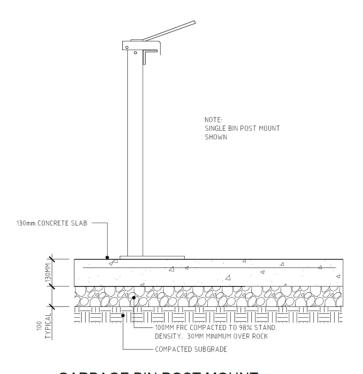
INSTALLATION:

- Surface mount on oxide colour concrete pad (dark grey)
 1.2m x 1.2m offset from a path in close proximity to either an entry point or an area of high activity.
- Double Wheelie Bin Post to be utilised in Neighbourhood Parks



SPECIFICATION:

- 240 Litre Modular post lock system. Product code: 383 or 394 by Draffin Street Furniture© or approved equal.
- Finish: Hot dip Galvanised Finish. 2.5mm TK RHS Upright, 5.0mm TK Mild Steel Angle and Channel, 8.0mm TK Mild Steel Top Arm.



GARBAGE BIN POST MOUNT

ECTION NT



GB2 Garbage Bin Enclosure

LOCATION:

Town Centres and Neighbourhood Parks

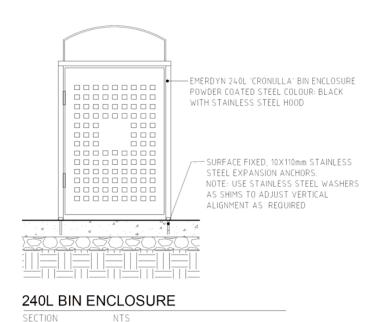
INSTALLATION:

- Surface mount on oxide colour (dark grey) concrete pad minimum 1.2m x 1.2m offset from a path in close proximity to either an entry point or an area of high activity. Ensure that enclosure is installed plumb with bin opening facing pathway.
- Note WCC may require a double bin arrangement for recycling.

SPECIFICATION:

- Emerdyn© 'Cronulla' EM 224 240 litre bin enclosure with hood or approved equal.
- Materials: galvanised steel body, stainless steel chute and hood, custom perforation, powder coated black.
- Signage panel may be required to indicate recycling.







TAP

LOCATION:

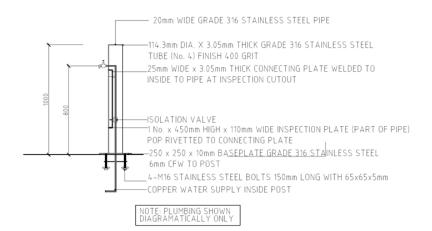
Dog Park, Local and Neighbourhood Parks.

INSTALLATION:

Installed in close proximity to Barbecue and picnic shelters.

SPECIFICATION:

- Vandal proof hose cock fitted on 316 stainless steel pipe finish 400 GRIT with inspection plate.
- Fixed on a stainless steel base plate.



TAP IN STAINLESS STEEL PIPE

SECTION



Item 4 - Attachment 6 - Draft West Dapto Open Space Technical Manual

PARK FURNITURE

BU1 BUBBLER

LOCATION:

Dog Park and Local Parks.

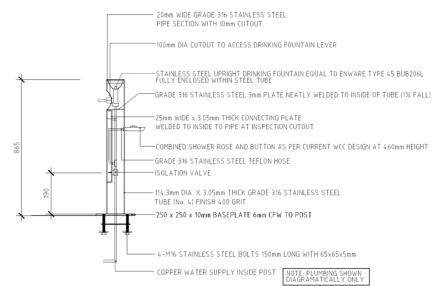
INSTALLATION:

 Located in area of high activity in association with picnic shelter and or nodes of park furniture of play features

SPECIFICATION

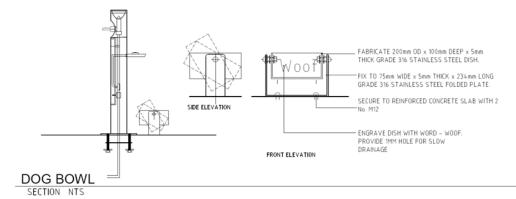
- Encat © pipe style or approved equal.
- Materials Marine grade 316 stainless steel frame, electro polished mirror finish.
- Features bottle filling tap and dog bowl.





WATER FOUNTAIN & DOG BOWL

SECTION NTS





BU2 - Equal Access Bubbler

LOCATION:

Town Centres

INSTALLATION:

· In area of high activity.

SPECIFICATION:

- 'Prospect' drinking fountain by Botton & Gardner © or approved equal. Conforms to the Australian disabled access standard. Product code PDF.316.DB.BT.WC
- Materials: marine grade 316 stainless steel frame, electro polished mirror finish.
- Features: bottle filling tap. Self-draining and levelling dog bowl. Perforated grate covering the drainage sump.



BU3 - Equal Access Bubbler

LOCATION:

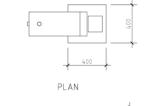
Neighbourhood Parks

INSTALLATION:

 In area of high activity in association with picnic shelter and nodes of park furniture.

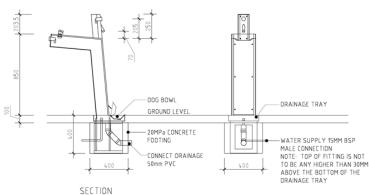
SPECIFICATION:

- 'Aquafil drinking fountain, bottle refill station with dog drinking bowl' by Civiq © or approved equal. Conforms to the Australian disabled access standard.
- Materials: marine grade 316 stainless steel
- Features: bottle filling tap and dog bowl.



BOLT THE DRINKING FOUNTAIN UNIT TO THE 4 X M12 BOLTS. DO NOT REMOVE THE M12 NUTS ON THE BOTTOM OF THE DRAINAGE TRAY. THESE PROVIDE CLEARANCE FOR THE WATER TO DRAIN.

REMOVE THE BACK OF THE DRINKING FOUNTAIN TO ACCESS THE INTERNAL PLUMBING. CONNECT THE DRINKING FOUNTAIN TO THE WATER SUPPLY VIA A 15mm BSD FLEXIBLE HOSE.



EQUAL ACCESS BUBBLER

PLAN & SECTION



BR - BIKE RACK

LOCATION:

· Local, Neighbourhood, and Civic Parks.

INSTALLATION:

- Surface mount on concrete base slab.
- Three grouped together.

SPECIFICATION:

- Single Hoop Bike Rail AS Urban © or approved equal.
- Material: 50mm dia polished 316 stainless steel
- Fixing: 316 Stainless steel M8 chemical Anchor. Surface mounted spaced at 1200mm centres in accordance with AS2890.3 Part 3 Bicycle Parking Facilities unless otherwise directed by WCC.



BR2 - POST MOUNTED BIKE RACK

LOCATION:

Town Centres.

INSTALLATION:

 Post Mounted bicycle rail to street sign posts

SPECIFICATION:

- Circular bike rack CORA © or approved equal.
- Material: 316 stainless steel
- Fixing: M10 Hex bolt G304 S/S with washer and M10 shear nut.



BIKE RACK MOUNTED TO STREET SIGNS

ISO VIEW NTS



B1 –Timber Bollard

LOCATION:

 Natural Areas, Local and Neighbourhood Parks.

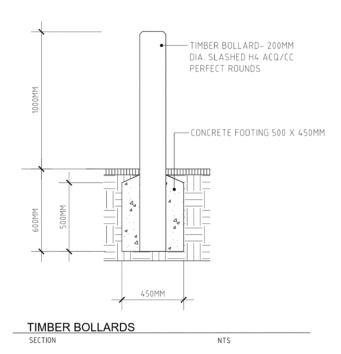
INSTALLATION:

 Within mulched areas adjacent to natural areas. If located in grass install in concrete strip.

SPECIFICATION:

- Dome topped timber 200mm dia. Bollard. H4 ACQ treated Slash Pine timber.
- Height: 1000mm spaced at 1500mm centres
- Finish: Two coats of exterior grade stain that protects against staining, sun deterioration and damage, water and fungal damage and provides stabilisation of the timber.







B2 - Stainless Steel Bollard

LOCATION:

• Neighbourhood Parks and Town Centres.

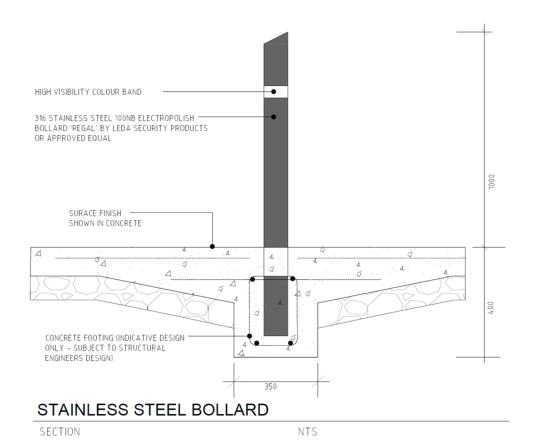
INSTALLATION:

· Within pavement.

SPECIFICATION:

- 316 Stainless steel mitre top 100mm dia with 5mm wall thickness by Leda Security Products © or approved equal.
- Height: 1000mm x 140mm dia. spaced at 1500mm centres
- Finish: Milled with high visibility reflective band.







B3 - Removable Bollard

LOCATION:

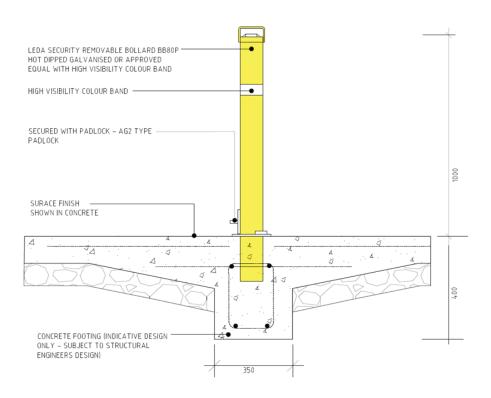
Local, Neighbourhood and Town Centres.

INSTALLATION:

• Installed within pavement of vehicle access points

SPECIFICATION:

- Hot dipped galvanised electrostatically powder coated in industrial yellow with reflective tape. Removable bollard BB80P by Leda © or approved equal.
- Materials: 80NB (88.9) x 10.4mm extra heavy duty galvanised pipe.
- Height: 1000mm x 80mm dia. spaced at 1500mm centres



HOT DIPPED GALVANISED REMOVABLE BOLLARD

SECTION NTS



B4 – Sandstone Log

LOCATION:

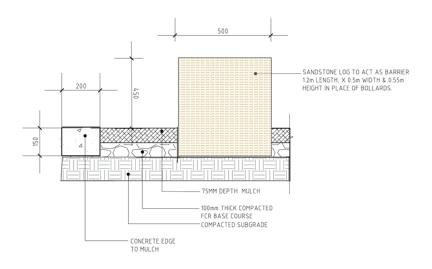
Natural Areas, Local and Neighbourhood Parks.

APPLICATION:

 Restriction of vehicle access to natural areas within mulched zones. Informal seating in play spaces.

SPECIFICATION:

- Quarry sawn sandstone 'log' shapes.
- Dimensions: approximately 550mm high and 1200mm long
- Material: sandstone 'logs' by Bundanoon Sandstone © or approved equal.
- Finish: 2 sides diamond sawn, 4 sides quarry sawn, grey in colour. 500mm x 1200m



SANDSTONE LOG

TYPICAL SECTION



OPEN SPACE FENCING REQUIREMENTS

F0 - General Fencing Requirements:

DESIGN

 The contractor shall be responsible for the design compliance, strength and durability of the finished fence and the fence elements.

DESIGN COMPLIANCE

All fencing shall be designed and constructed in accordance with all relevant regulations and standards, including but not limited to:

- National Construction Code NCC (formerly Building Code of Australia)
- AS1170.0 Structural design Actions General Principles
- AS1170.1 Structural design Actions Permanent, Imposed and other actions
- AS1170.2 Structural design Actions Wind Actions
- AS1428.1 Design for access and mobility General requirements for access
- . AS1725.1 Chain link fabric fencing Security fencing and gates General requirements
- AS1725.4 Chain link fabric fencing Cricket net fencing enclosures
- AS1725.5 Chain link fabric fencing Sports ground fencing General requirements

DESIGN LOADING

All fencing shall be designed to accommodate all relevant design loadings as set out in the following:

- AS1170.1 Permanent, Imposed and other actions –
- In particular, Table 3.3, Minimum Imposed Actions for Barriers. Categories C3 and C5 are typically most used by Council. Refer below.
- AS1170.2 Wind Actions
- Other reasonably expected loadings due to climbing, vandalism etc. i.e. must be fit for purpose.



TABLE 3.3
MINIMUM IMPOSED ACTIONS FOR BARRIERS

				Top edge			Infill	
A2		of occupancy for part building or structure	Specific uses	Horizontal	Vertical	Inwards, outwards or downwards		Any direction (see Note 2)
				kN/m	kN/m	kN	kPa	kN
	A	Domestic and residential activities	All areas within or serving exclusively one dwelling including stairs, landings, etc. but excluding external balconies and edges of roofs (see C3)	0.35	0.35	0.6	0.5	0.25
A2			Other residential, (see also C)	0.75	0.75	0.6	1.0	0.5
	B, E	Offices and work areas not included elsewhere including storage areas	Light access stairs and gangways not more than 600 mm wide	0.22	0.22	0.6	N/A	N/A
			Fixed platforms, walkways, stairways and ladders for access (see Note 1)	0.35	0.35	0.6	N/A	N/A
			Areas not susceptible to overcrowding in office and institutional buildings also industrial and storage buildings	0.75	0.75	0.6	1.0	0.5
	C Areas where people may congregate							
	C1/C2	Areas with tables or fixed seating	Areas with fixed seating adjacent to a balustrade, restaurants, bars, etc.	1.5	0.75	0.6	1.5	1.5
	C3	Areas without obstacles for moving people and not susceptible to over-crowding	Stairs, landings, external balconies, edges of roofs, etc.	0.75	0.75	0.6	1.0	0.5
	C5	Areas susceptible to over-crowding	Theatres, cinemas, grandstands, discotheques, bars, auditoria, shopping malls (see also D), assembly areas, studios, etc.	3.0	0.75	0.6	1.5	1.5
	D	Retail areas	All retail areas including public areas of banks/building societies, (see C5 for areas where overcrowding may occur)	1.5	0.75	0.6	1.5	1.5

Extract from AS1170.1



DESIGN LIFE

 All fencing is to be designed with due consideration to the site exposure classification (refer appendix A) and other site conditions for a service life of 20 years, with little to no maintenance.

WARRANTIES

- The Contractor shall provide with their quotation the warranties offered for their work.
 This shall include warranties offered with regard to protective coating systems for materials and workmanship.
- Minimum Warranty shall be 10 years on all protective coatings and workmanship

INSTALLATION

SITE WELDING

- On-site welding shall not be undertaken.
- Site cutting and drilling is to be avoided to maintain protective coating.
- Repairs to cut or damaged material which compromise the protective coating are to be repaired in accordance with protective coating manufacturer specification.

VANDALISM

 The fencing shall be designed and installed such that opportunities for vandalism are minimised. This may include the burring or bending of bolt threads after installation to prevent the unauthorised removal of nuts, use of anti-tamper screws etc.

POST HOLES

The top surface of footings is to be a trowelled concrete finish 10mm above the level of the
existing surface and shaped to fall away from the post.

MATERIAL SPECIFICATION

- All materials and workmanship shall be in accordance with the following:
 - o AS1450-2007 Steel tubes for mechanical purposes
 - AS1397-2011 Continuous hot-dip metallic coated steel sheet and strip Coatings of zinc and zinc alloyed with aluminium and magnesium
 - o AS/NZS 1163-2009 Cold-formed structural steel hollow sections
 - o AS4680-2006 Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
 - o AS1111.1-2015 ISO metric hexagon bolts and screws Product grade C -Bolts



- o AS1111.2 ISO-2015 metric hexagon bolts and screws Product grade C -Screws
- o AS1604.1-2012 Specification for preservative treatment Sawn and round timber
- AS1725.1-2010 Chain link fabric fencing Security fencing and gates General requirements

FITTINGS, FIXTURES AND BRACKETS

- All fittings, fixtures, brackets etc. shall be constructed of the same material as the fence proper wherever possible, with consistent protective coating system (including colour).
- Dissimilar metals shall be electrically isolated via neoprene washers, bushes etc.
- All fittings such as hinges, locks, latches etc. are to be Heavy Duty and suitable for the site
 exposure and require nil maintenance.

PROTECTIVE COATING SYSTEM

- Refer to fence types for specific requirements of protective coating systems.
- Generally, the Contractor is to provide details of the proposed system at the time of quotation and a 10 year warranty on materials and workmanship.
- Cut or damaged materials which compromise the protective coating are to be repaired in accordance with protective coating manufacturer specification.
- Any damage to the galvanised elements including where the thickness of the galvanising
 has locally been reduced to less than the relevant requirement of AS/NZS 4680 shall be
 repaired in accordance with Section 8.2(a) of AS/NZS 4680, using an approved two-pack
 epoxy zinc rich primer meeting the requirements of a Type 2 product of AS 3750.9.



F1 - Single Rail Timber Barrier

LOCATION:

 Natural, Local, and Neighbourhood Parks where vehicle access control is required.

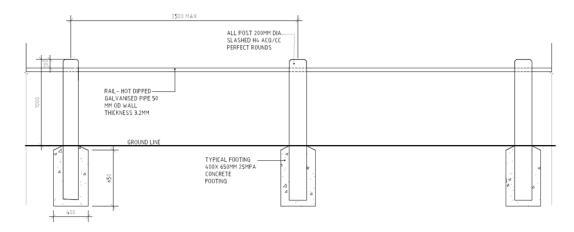


APPLICATION:

• Restriction of vehicle access in open space.

SPECIFICATION:

- ACQ treated Slash Pine timber post with hot dipped galvanised pipe rail.
- Height: 1000mm
- Material: H4 ACQ treated Slash Pine post with galvanised pipe top rail.
- Finish: Two coats of exterior grade stain that protects against staining, sun deterioration and damage, water and fungal damage and provides stabilisation of the timber.



F1 FENCE



F2 - Vehicle Access Control

LOCATION:

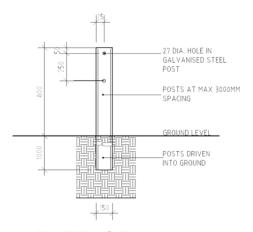
• Natural, Local, Neighbourhood Parks.

APPLICATION:

Restriction of vehicle and motor bike access to natural areas in open space.

SPECIFICATION:

- Galvanised steel post and steel cable by Ingal © or approved equal. The distance from the ground to the bottom steel cable is 500mm.
- Height 800mm
- Twin 19mm diameter cables pass through pre-punched holes in each post Hot dipped galvanized (HDG500) for improved durability
- Rigid C posts driven into the ground. Posts are at 3m centres



F2 FENCE







F3 - Sports Field Fencing

LOCATION:

· Neighbourhood Parks.

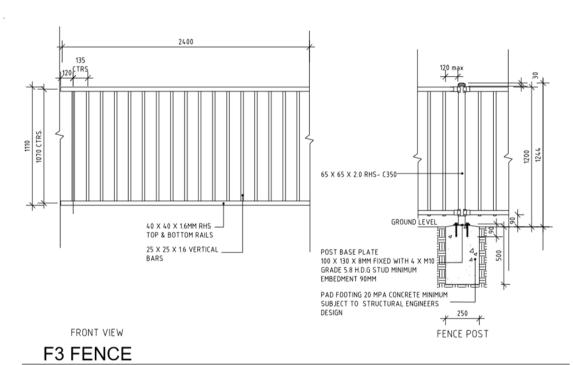
APPLICATION:

· Installation of fencing to sports fields

SPECIFICATION:

- Incorporate one or more self-closing single pedestrian access gates, and lockable maintenance/emergency vehicle access gates
- HDG500 in accordance with AS4680
- Height 1244mm
- Consideration for drain holes required during the hot-dip galvanising process
- All fixing screws to be Class 3 (or better)
- Expansion joints are to be provided in the fence rails at maximum spacing of 9m.
- All Brackets etc. shall have protective coating to match fence
- Expansion joints shall accommodate longitudinal movement whilst maintaining structural integrity, e.g. provide internal spigots at joints.





F4 - Play Space Fencing

LOCATION:

Local and Neighbourhood Parks

APPLICATION:

Installation of fencing to play spaces where identification of risk to children such as proximity to a road or water body.

SPECIFICATION:

- Height: 1100mm
- All elements are to be manufactured from pre-galvanised steel tube, zinc coated inside and outside to AS 1450-2007 and AS 1397-2011, 100g/m2 minimum average coating thickness.
- All powder coating to comply with AS5405 A minimum warranty of 10 years shall be provided
- All welding to be silicone bronze
- All fixing screws to be Class 3 (or better)
- All Brackets etc. shall have protective coating to match fence
- Expansion joints are to be provided in the fence rails at maximum spacing of 9m.
- Expansion joints shall accommodate longitudinal movement whilst maintaining structural integrity, e.g. provide internal spigots at joints.
- Unless otherwise specified the fence must be raked to follow the ground contour.
- The bottom of picket to ground level clearance is to be 100mm minimum and 150mm
- Where ground clearance exceeds 150mm, the panels are to be stepped or raked to achieve the foregoing level of clearance. Stepped panels must be a minimum length of 1200mm. After stepping or raking, in-fills are to be fitted rigidly beneath panels where the ground clearance still exceeds 150mm. This practice should not be utilised in covering designated waterways where such installation would obstruct the natural flow of water.



F5 - Safety Fencing

LOCATION:

 Natural Areas, stormwater infrastructure, Local and Neighbourhood Parks



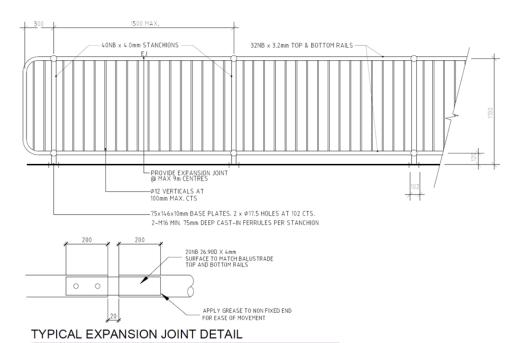
APPLICATION:

 To restrict access to high risk areas (eg around stormwater drain head walls, outlets and stormwater quality improvement devices), or where the drop height exceeds 1.0 m.

SPECIFICATION:

- All materials to be Grade C250LO in accordance with AS/NZS 1163.
- Minimum thickness of pipe to be 3.2mm.
- Height: 1100mm.
- HDG500 in accordance with AS4680.
- Consideration for drain holes required during the hot-dip galvanising process.
- All nuts, bolts and washers to be hot dip galvanised in accordance with AS4680.
- Bolts to be Grade 4.6 to AS1111, installed snug tight, minimum size M12.
- Expansion joints are to be provided in the fence rails at maximum spacing of 9m.
- Expansion joints shall accommodate longitudinal movement whilst maintaining structural integrity, e.g. provide internal spigots at joints.





F5 FENCE



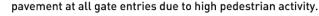
F6 - Dog Park Fence

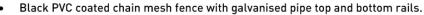
LOCATION:

Dog Park boundaries

SPECIFICATION:

- Height: 1150mm
- Incorporate one or more self-closing single pedestrian and dog access gates, and lockable maintenance vehicle access gates. Provision of concrete threshold



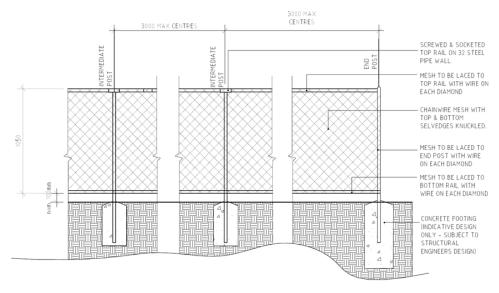


- Min thickness of pipe to be 3.6mm in accordance with AS1725.1
- Chain link and fencing construction to comply with AS1725 2003 and AS1163 grade (C250L0)
- · Galvanising:
 - Wire: Heavy galvanised coating W10Z/HG (240g/m2)
 - Pipe: HDG500 in accordance with AS4680
- All nuts, bolts and washers to be hot dip galvanised in accordance with AS4680
- All powder coating to comply with AS5405 A minimum warranty of 10 years shall be provided
- All items welded or cut on site must be primed followed by galvanising or black paint.
- Panel dimensions to be 1050mm height by 3000mm length maximum.
- Chain link fabric is to be 3.15mm PVC coated galvanised 50 pitch. Chain link fabric is to be finished with knuckled top and bottom selvedge.
- Post footings shall be in accordance with AS1725.1



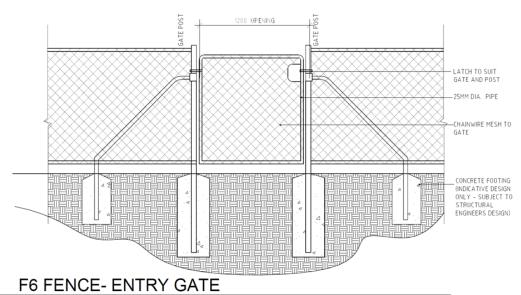


Above ground concrete finish is to be domed with steel trowel finish to eliminate water lying
at base of posts and is to be completed at time of original concrete pour. Ends of the support
cable wire are to be firmly secured to all terminal posts.



F6 FENCE

SECTION & ELEVATION NTS





G1 - Boom Gate

LOCATION:

Local parks, Neighbourhood Parks, natural transmission areas, easements.

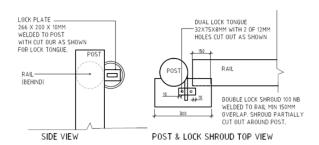
APPLICATION:

Boom gate to be used for maintenance access. Minimum distance of eight (8) metres is required as a threshold to the gate for service vehicles.



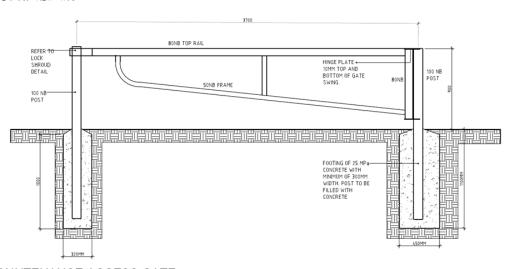
SPECIFICATION:

• 5mm gauge hot dipped galvanised steel.



MAINTENANCE ACCESS GATE- POST & LOCK SHROUD

SIDE & TOP VIEW NTS



MAINTENANCE ACCESS GATE TYPICAL ELEVATION NTS

Construction and installation as shown below



Decomposed Granite Path

LOCATION:

 Natural Areas, Local and Neighbourhood Parks.

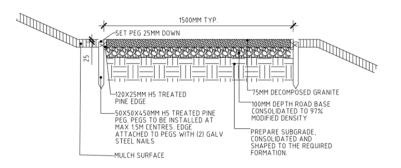
APPLICATION:

Walking trails within natural areas only.

SPECIFICATION:

 75mm stabilised compacted decomposed granite pathways with timber edges refer to detail.





DECOMPOSED GRANITE PATH



Raised Walkways

LOCATION:

 Natural Areas, Local and Neighbourhood Parks.

APPLICATION:

 High use walking trails within natural areas that are low lying or boggy.



SPECIFICATION:

 Fibre reinforced polymer (FRP) walkway decking with FRP or galvanised steel support structure.



Asphalt Pathway

LOCATION:

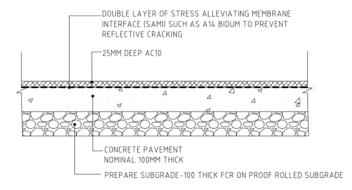
• Natural Areas, Local and Neighbourhood Parks.

APPLICATION:

• High use walking trails requiring unobtrusive, flexible, and semi permeable surfaces adjacent to existing vegetation.

SPECIFICATION:

Asphalt AC10 as shown below



ASPHALT

TYPICAL SECTION N



Broom Finished Concrete Pavement

LOCATION:

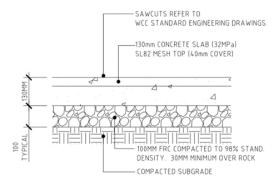
• Natural Areas, Local and Neighbourhood Parks.

APPLICATION:

· Paths and high use walking trails within natural areas.

SPECIFICATION:

- Slip resistance: P4.
- Approved oxide colour can be considered. Utilise light and natural colours for pavement and surfaces to reduce heat absorption.
- Refer to Wollongong City Council Standard Engineers Drawings 2019 for further details on jointing.



BROOM FINISH CONCRETE



Coloured Honed Concrete Pavement

LOCATION:

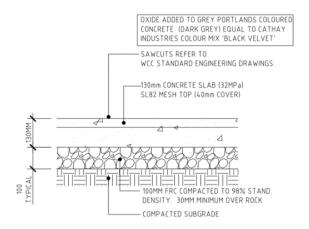
• Neighbourhood Parks, Town Centres

APPLICATION

· Paving within open space that require a high finish or coloured to reduce surface staining.

SPECIFICATION:

- Slip resistance: P4.
- Refer to Wollongong City Council Standard Engineers Drawings 2019 for further details on jointing.
- · Refer to detail below.



OXIDE CONCRETE

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PATHWAY & PAVEMENT REQUIREMENTS

Unit Paving

LOCATION:

Neighbourhood Parks, Town and Village Centres

Item 4 - Attachment 6 - Draft West Dapto Open Space Technical Manual

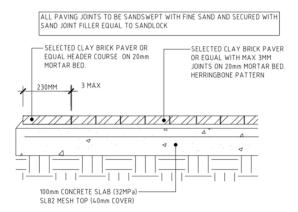
APPLICATION:

Paving within open space that require a high finish. Town and village centres treatment to footpaths.



SPECIFICATION:

· As shown below



BRICK PAVING ON CONCRETE SUBGRADE



Softfall to play spaces/ fitness stations

LOCATION:

· Local, Neighbourhood Parks.

APPLICATION:

 Softfall to play spaces and fitness equipment

SPECIFICATION:

- As per AS 4685 series.
- Colour: CBSR Rubber with a 50/50mix if Mid Blue and Mid Green
- Construct an extruded 200 x 200mm reinforced concrete edge around the perimeter of the
 playground under surfacing and fill the entire area with an appropriate impact attenuation
 material, in accordance with AS/NZS 4422. The edge must be set back at least 2.5 m from
 any item of play equipment to provide adequate circulation and maintenance space.





PARK SIGNAGE

Park Signage Guidelines

The Landscape Plan should incorporate a signage strategy to provide locations for park naming signage, walking trail markers and interpretive signage. A standard Blank Council PS1 Park name sign shall be provided at the park's primary public access point(s). Any sites of special interest in the park, such as heritage sites should have interpretive signage (PS3 or PS4).

Park naming signage infrastructure can be installed at completion of the park construction. The final naming of the park and associated graphics can be determined when the Park naming has been approved in accordance with the WCC Management Policy 'Naming of Community Facilities and Parks (including sports grounds and natural areas)' May 2017 and the name is gazetted.

Interpretive Signage

Interpretive signage should be developed as part of the Heritage Interpretation Plan for the development site. The interpretive signage should use both text and images to reference the European and Aboriginal history of the site and its significance to the history of West Dapto.

The location and proposed type of all signage should be indicated on the submitted Landscape Plan.

The details of images and text proposed for any interpretive signage must be provided to Councils Heritage Officer for written approval. We would recommend the text to be limited between 200-300 words.

Item 4 - Attachment 6 - Draft West Dapto Open Space Technical Manual

PARK SIGNAGE

PS1 - Park Name Sign

LOCATION:

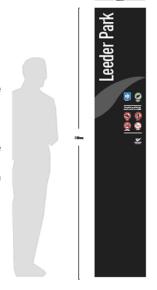
• Local and Neighbourhood Parks

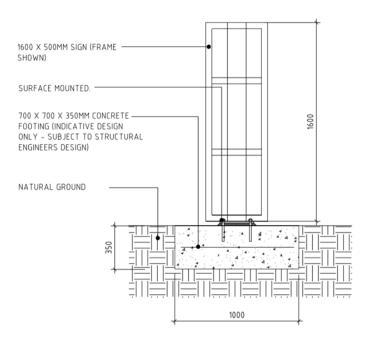
APPLICATION:

 Installed at major entry points to park to maximise pedestrian exposure to information.

SPECIFICATION:

- Galvanised steel frame fixed with aluminium composite panel top sheets. Steel frame painted in black.
- Vinyl graphics prepared by WCC. Rear panel of the sign can also be utilised for the display of intrepretive information.





PARK SIGNAGE

Item 4 - Attachment 6 - Draft West Dapto Open Space Technical Manual

PARK SIGNAGE

PS2 - Trail Marker

LOCATION:

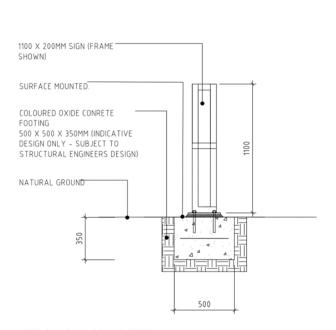
• Local, Natural Areas and Neighbourhood Parks

APPLICATION:

 Track marker installed at track junctions and secondary entry points and along tracks at strategic locations.

SPECIFICATION:

- Galvanised steel frame fixed with aluminium composite panel top sheets.
 Steel frame painted in black.
- Vinyl graphics prepared by WCC.





TRACK MARKER

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PARK SIGNAGE

PS3 - Small Interpretive Sign

Item 4 - Attachment 6 - Draft West Dapto Open Space Technical Manual

LOCATION:

• Local and Neighbourhood Parks

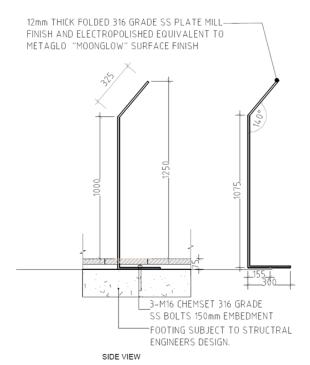
APPLICATION:

Small format signage to display interpretative information.

SPECIFICATION:

- Stainless steel plate with milled finish.
- The details of images and text proposed for any interpretive signage must be provided to Councils Heritage Officer for written approval. Vinyl graphics prepared by applicant.
- Recommend maximum word count for text (200 - 300)





SMALL INTERPRETATIVE SIGN

SECTIONAL NTS

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PARK SIGNAGE

PS4- Large Interpretive Sign

LOCATION:

· Local and Neighbourhood Parks

APPLICATION:

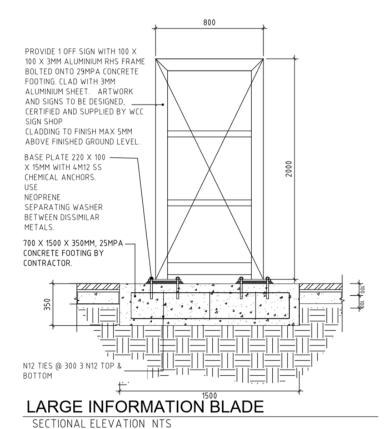
· Large format signage to display interpretative signage.

Item 4 - Attachment 6 - Draft West Dapto Open Space Technical Manual

SPECIFICATION:

- Galvanised steel frame fixed with aluminium composite panel top sheets. Steel frame painted in black.
- The details of images and text proposed for any interpretive signage must be provided to Councils Heritage Officer for written approval. Vinyl graphics prepared by the applicant.







Tree planting Guidelines

TREE SELECTION CRITERIA

Trees are to be selected in accordance with AS2303:2018. Tree Stock for Landscape Use. All stock is to be inspected for Myrtle rust (*Uredo rangelii*) prior to delivery to site. No transactions should be conducted if the nursery is not compliant with the Nursery Industry Myrtle Rust Management Plan.

STREET TREE LAYOUT

The limitations to the positioning of street trees on footways immediately behind the kerb line are listed below:

CLEARANCE NEEDED

- · Street intersection 10m from intersection kerb line
- · Telegraph pole 5m from centre of pole.
- Storm water inlet 2m from edge of inlet
- Major underground service junction 3m from edge of junction box
- Bus stops no trees planted along length of stop.
- Traffic lights 10m from pole of traffic lights.
- · Driveways 4m from vehicle crossing

TREE PLANTING SPECIFICATION

SOIL TYPES

Soil mixes to be used as the growing medium in tree pits as minimum all soils must comply with AS4419 – Soils for Landscaping and Garden Use.

MAINTENANCE

Newly planted street trees require deep watering once a week for a minimum of 52 weeks from Practical Completion. At each watering the guards should be checked and repaired or tightened as necessary.



Indicative Tree Species List

Indicative species list only with additional species as recommended by Park and Open Space Manager.

STREET TREES

Exotic

Pyrus ussuriensis - Manchurian pear.

Zelkova serrata 'Green Vase'

Fraxinus pennsylvanica 'Urbanite'

Pistacia chinensis - Pistachio

Ulmus parvifolia - 'Todd' Chinese Elm

Lagerstroemia indica x L. fauriei - 'Sioux' Crepe Myrtle

Lagerstroemia indica

Geijera parvifolia

Hibiscus tiliaceus 'Rubra'

Native

Tristaniopsis laurina - Water Gum

Melaleuca linariifolia - Snow in Summer

Waterhousia floribunda - Waterhousia

Waterhousia floribunda 'Amaroo'

Lophostemon confertus - Brushbox

Elaeocarpus reticulatus - Blueberry Ash

Elaeocarpus eumundii - Quandong

Bracychiton acerifolium - FlameTree

Backhousia myrtifolia - Grey myrtle

Ceratopetalum apetalum-Coachwood

Syzygium leuhmanii - Weeping Lily Pily

Acmena smithii var. - Minor Lily Pily

Alphitonia exclesa - Red Ash

Callistemon 'Kings Park' - Kings Park Bottlebrush

Glochidion ferdinandi - Cheese Tree

Polycias elegans - Celery Wood

Planchonella australis- Black Apple

Elaeodendron austral- Red Fruited Olive Plum



Guioa semiglauca- Guioa

Streblus brunonianus- Whalebone Tree

Celtis paniculata- Native Celtis

Toona ciliata- Red Cedar

TREE PLANTING IN OPEN SPACE

Ficus macrophylla - Moreton Bay Fig

Ficus obliqua - Small leaf fig

Ficus rubiginosa - Port Jackson Fig

Ficus coronata - Sand Paper Fig

Araucaria cookii - Column Pine

Fraxinus pennsylvanica 'Urbanite'

Zelkova serrata 'Green Vase'

Podocarpus elatus - Illawarra Plum

Waterhousia floribunda - Waterhousia

Melaleuca decora - Feather Honeymyrtle

Melaleuca styphelioides - Prickly Leaf Paperbark

Livistona australis - Cabbage Tree Palm

Ulmus parvifolia Todd' - Chinese Elm

Lophostemon confertus - Brushbox

Lagerstroemia indica - Crepe Myrtle

Syzygium leuhmanii - Weeping Lily Pily

Alphitonia exclesa - Red Ash

Backhousia citriodora - Lemon Ironwood

Callistemon 'Kings Park' - Kings Park Bottlebrush

Glochidion ferdinandi - Cheese Tree

Polycias elegans - Celery Wood

Planchonella australis- Black Apple

Elaeodendron austral- Red Fruited Olive Plum

Guioa semiglauca- Guioa

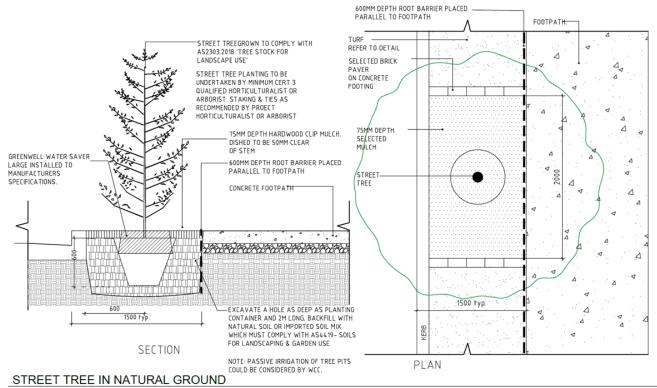
Streblus brunonianus- Whalebone Tree

Celtis paniculata- Native Celtis

Toona ciliata- Red Cedar



Street Tree Planting Detail

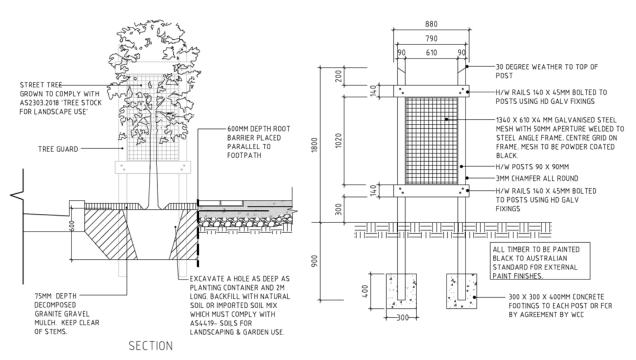


PLAN & SECTION

NTS



Street Tree Planting in Village and Town Centre Detail



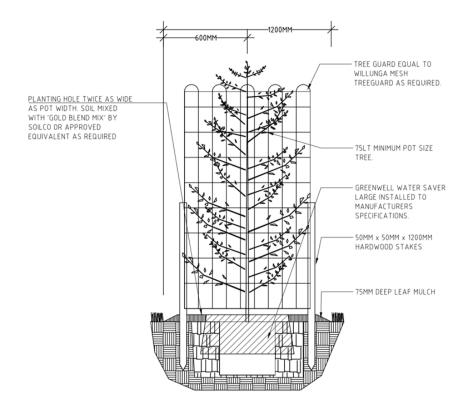
STREET TREE IN TOWN & VILLAGE CENTRE WITH GUARD

PLAN & SECTION

NTS



Tree Planting in Lawn Areas with Mulch Ring



TREE PLANTING IN MULCH RING

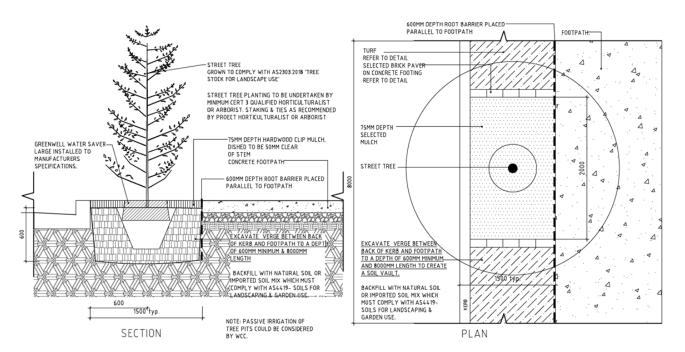
SECTION NTS



Street Tree Planting in Coal Wash / Clay soils

To ensure the establishment of trees and ensure their long term health and life expectancy it is required that a minimum top soil depth be established in streetscapes and open space. A minimum depth of 600mm of top soil must be installed in all open spaces to establish street trees, mass planting beds and turf areas.

Refer to the following details for street tree planting.



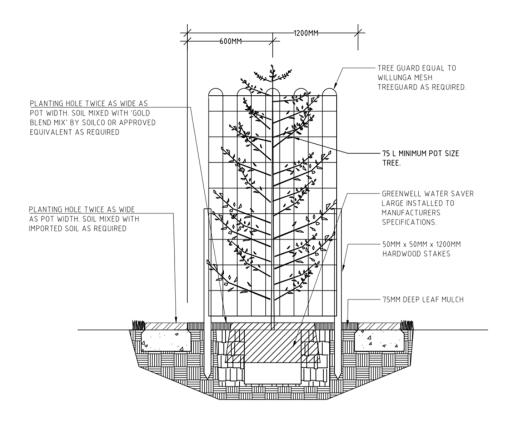
STREET TREE IN COAL WASH/ CLAY SOILS

PLAN & SECTION

NTS

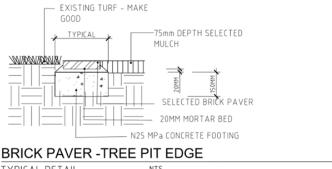


Tree Planting with Edge Detail



TREE PLANTING IN EDGING

SECTION NTS

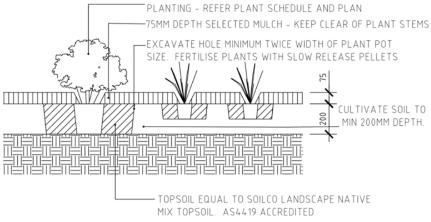


TYPICAL DETAIL



Mass Planting Detail





MASS PLANTING

TYPICAL DETAIL

NTS

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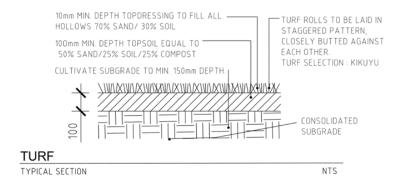
LANDSCAPE DETAILS

Turf Detail

Turf Species to be Kikuyu for Open Space areas, and Buffalo adjacent to Natural Areas

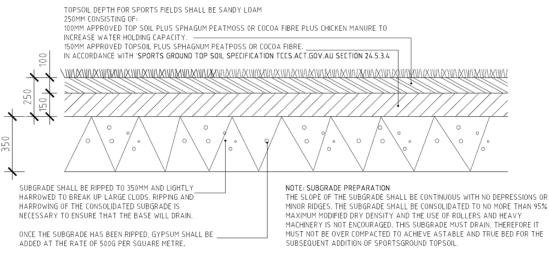
Item 4 - Attachment 6 - Draft West Dapto Open Space Technical Manual





Sports Turf Detail

Turf Species to be Kikuyu for Sports Fields



SPORTS FIELD TURF

TYPICAL SECTION



AMENDMENTS

The following table summarises the changes in the document since the last version on

Amendment Sequenced No.	Key Topic Addressed in Amendment	Amendment Location	Author Initials	Amendment Date
1	Change to Table 1- Park furniture- additional post mounted bike rack added	Page 6	DP	October 2019
2	Change to Table 5- Landscape details- additional Sports Turf Detail added	Page 10	DP	October 2019
3	Change to include reference for Double wheelie bin post for Neighbourhood Parks to allow for inclusion of recycling bin	Page 23	DP	October 2019
4	Change to detail to include bike rail mounted to post	Page 28	DP	October 2019
5	Change to text to clarify requirements for vehicle access control	Page 37	DP	October 2019
6	Add reference to the use of light colours in surfaces to reduce heat absorption	Page 49	DP	October 2019
7	Additional species added to indicative tree species list	Page 58-59	DP	October 2019
8	Street tree detail amended	Page 61	DP	October 2019
9	Street tree detail with tree guard	Page 62	DP	October 2019
10	Street tree detail amended	Page 64	DP	October 2019
11	Additional Sports Turf Detail	Page 67	DP	October 2019

exhibition August 2019









File: CST-100.03.072 Doc: IC19/742

ITEM 5 MT KEIRA SUMMIT PARK PLAN OF MANAGEMENT

On 29 October 2019, Council resolved to exhibit the draft Mt Keira Summit Park Plan of Management. Mt Keira Summit Park is a relatively small and discrete site on top of Mt Keira and is surrounded by steep slopes that form part of the Illawarra Escarpment State Conservation Area. The draft Plan was exhibited from 31 October to 21 December 2018 and 563 submissions were received. Concurrently the NSW National Parks and Wildlife Service exhibited the draft Illawarra Escarpment Plan of Management which included a draft Mountain Biking network proposal.

It is recommended that Council adopt the Mt Keira Summit Park Plan of Management incorporating the changes outlined in this report.

RECOMMENDATION

- 1 The Mt Keira Plan of Management, for the Summit Park (Attachment 10) be adopted, incorporating the changes outlined in this report.
- 2 A notice be placed in the local media advising of the adoption of the amended Plan of Management.

REPORT AUTHORISATIONS

Report of: Chris Stewart, Manager City Strategy

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

ATTACHMENTS

- 1 Location Plan
- 2 Current Land Classification Map
- 3 Current Land Categorisation Map
- 4 Current Land Zoning Map
- 5 Draft Exhibited Community Land Category Map
- 6 Engagement Report
- 7 Public Hearing Report
- 8 Illawarra Escarpment Mountain Bike Strategy Engagement Report
- 9 Revised Proposed Land Categorisation
- 10 Mt Keira Summit Park Plan of Management

BACKGROUND

Mt Keira is a prominent scenic landmark which, at 464 metres above sea level, provides a unique visual backdrop to the west of the City of Wollongong. It is part of the Illawarra Escarpment which forms an impressive line of steep slopes and cliffs bordering the Wollongong coastal plain and is a major topographic feature that contributes to the character and amenity of the city and surrounding region.

The Mt Keira Summit Park occupies 9.4 hectares of relatively flat land on the top of Mt Keira (Attachment 1). The Mt Keira Summit Park is owned and managed by Council and is a natural area annex of Wollongong Botanic Garden. The Park forms a small and discrete part of Mt Keira, with the surrounding steep bushland being part of the Illawarra Escarpment State Conservation Area, managed by the NSW National Parks and Wildlife Service (NPWS).

The boundary between the Summit Park and the NPWS land is the cliff top. This boundary has not been surveyed, and until recently was shown as straight lines between survey points. This has caused some confusion, as for example Victoria Lookout (located above cliff) was incorrectly shown in the NPWS area.

Mt Keira is very significant to the Aboriginal community. The cultural significance is summarised in the following statement from the Illawarra Local Aboriginal Land Council (ILALC) -



The Illawarra Escarpment State Conservation Area is located within the Country of the Dharawal People and in the area of responsibility of ILALC. The escarpment, named Merrigong, has great symbolic and historical importance for local Aboriginal people, who have an ongoing association with the area. It remains an important site for traditional ceremonial practices as well as providing a rich source of food, medicine and other resources for Aboriginal people. Prominent on the escarpment skyline are Mt Keira Djera and Mt Kembla (Djembla), which are significant landforms with additional cultural value. Aboriginal creation stories express deep cultural and physical connections between the people and their environment. Along with the Five Islands, the creation stories associated with Djera and Djembla are fundamental to the values and beliefs of the traditional Aboriginal families living in and from this area. As custodians of these stories, we preserve the knowledge and share with all Aboriginal people residing within our boundaries. These stories are who we are. ILALC has a responsibility to ensure this connection to Country continues.

The Summit Park has two land classifications under the Local Government Act 1993 -

- The area currently housing the Communications Tower is classified as Operational land (Attachment 2) (725m²).
- The balance of the site is Community land (Attachment 2) (9.32 hectares) which is further divided into two community land categories (Attachment 3) -
 - The area where the former restaurant/café was located is categorised as "General Community Use" which is covered by a Generic Plan of Management (1,720m²).
 - The remaining Community land is categorised as an "Area of Cultural Significance" (9.15 hectares). Under the Local Government Act 1993, this categorisation requires a site specific Plan of Management to guide appropriate use of the site.

The Mt Keira Summit Park currently has two zonings under the Wollongong LEP 2009 (Attachment 4) -

- The area occupied by the Communications Tower, former restaurant/café, picnic area and northern lookout is zoned SP3 Tourist (1.31 hectares).
- The balance of the Council land is zoned E2 Environmental Conservation (8.09 hectares).

The surrounding Illawarra Escarpment State Conservation Area, managed by the National Parks and Wildlife Service, is zoned E1 National Parks.

There are significant natural, scenic, environmental and cultural heritage values of the place. Featuring unique layers of heritage and history, its natural and scenic character has been enjoyed by generations of residents and visitors.

As noted, Mt Keira is an integral part of country for the traditional Aboriginal custodians of the Illawarra with Dreamtime creation stories linked to the mountain and surrounding areas. Mt Keira remains in active use for cultural purposes.

There are significant natural constraints within and surrounding the site, including geotechnical, bushfire and high environmental sensitivity. The site is not connected to the Sydney Water drinking water or sewerage networks. Council has recently installed a permanent power supply, to replace a diesel generator.

There are significant community assets surrounding the Summit Park including the Scout Camp, Girl Guides, Archery Range, Walking trails, Rhododendron Park and links to Mt Kembla. There are numerous mountain bike trails in use below the Summit Park in the Illawarra Escarpment Conservation Area.

The Wollongong Rotary Club has an ongoing association with the site, having established the original lookouts and entry road in the 1950s, and being active in the ongoing promotion and embellishment of the facilities for the community.

The Summit Park lookout is a popular destination for tourists and residents, to enjoy the views and scenery and to picnic and bushwalk. The Summit is also a destination for road cycling and has featured several regional recreational and sporting events.



Changes within and adjacent to the Summit Park have affected public use and enjoyment and have implications for the ongoing management and use of the Park. These include landslips and slope instability which has led to the closure of the Five Islands Lookout and parts of walking tracks in the adjacent Illawarra Escarpment State Conservation Area. Rock climbing has also been limited to an area to the west of the Park.

In 2015, the former restaurant/function centre /caretakers cottage was demolished and was replaced in 2016 with a container kiosk and associated upgraded amenities to improve safety, visitor experience and accessibility.

In 2018, CCTV was also installed to improve safety.

It is envisaged that strong growth in Wollongong's population and a projected increase in visitor numbers to the region will lead to increased demand for recreational use of the Summit Park and improved visitor facilities and opportunities.

Mt Keira Summit Park Vision and Planning Principles

In January 2016, Council engaged specialist consultants TRC Tourism to conduct a comprehensive stakeholder engagement process and compile a draft Vision for Mt Keira. The Vision was prepared with input from the community and key stakeholders and identifies the objectives and planning principles for the site.

The draft Vision was exhibited during May 2016 and 84 submissions were received (31 written submission and 53 comments on the Have your Say exhibition webpage).

On 27 June 2016, Council endorsed a Vision for Mt Keira Summit Park. Council resolved that -

- 1 Council adopt the Mt Keira Summit Park Vision.
- 2 The adopted Mt Keira Summit Park Vision be used as the basis for the development of a Plan of Management and Landscape Masterplan for the site.
- 3 All stakeholders and community members who have contributed to the process of formulating the Vision be formally acknowledged and invited to stay involved with the development of a Plan of Management and Landscape Masterplan for Mt Keira Summit Park.

The adopted Vision and planning principles are provided below –

VISION

A trip to Mt Keira Summit Park will change the way people see and experience Wollongong. It will be a place to enjoy the beautiful views of the city, mountains and the sea and to appreciate the cultural and environmental landscape of the Illawarra Escarpment through a range of exceptional visitor experiences



The following Planning Principles will be applied in achieving the Vision.

Planning Principles for Mt Keira Summit Park

EXPERIENCE

Provide exceptional cultural and nature based experiences that support tourism of the region and that are integrated with the Illawarra Escarpment State Conservation Area

APPRECIATE

Present information and experiences in a way that will enhance appreciation and understanding of the cultural and natural values of Mt Keira and the Illawarra

Escarpment

INVOLVE

The Aboriginal community, tourism industry, local community and NPWS will be involved in decision making

INTEGRATE

Ensure visitor infrastructure and services are integrated and connected with the surrounding Illawarra Escarpment State Conservation Area so that visitors are offered outstanding, high quality visitor experiences

RESPECT

Respect the wishes of the Aboriginal people to safeguard and present their culture through a variety of means they consider most appropriate

CONSERVE

Contribute to the protection and conservation of the Escarpment's natural, cultural and scenic values

SUSTAINABLE

Visitor experiences will be economically viable and financially sustainable and demonstrate social and environmental benefits to the community

Draft Plan of Management

Following the endorsement of the Mt Keira Vision, a workshop was held on 13 September 2016 with the community members and representatives of all key stakeholder groups to discuss the creation of the draft Plan of Management for Mt Keira Summit Park.

The draft Plan of Management identifies the types of uses that should be permissible on the site into the future and an Implementation Plan of Council actions.

The draft document contains the following key elements -

- A list of permissible uses and developments that comply with the Vision and planning principles work, enabling flexibility for Council to consider suitable proposals by proponents; and
- A Plan of Management Action Plan which identifies that a detailed Landscape Masterplan will be completed in the future if significant changes to current uses and developments were proposed in the areas currently categorised as culturally significant beyond the improvements identified in the Landscape Concept Plan.

Table 3 in the draft Plan of Management sets out the uses and development permissible within the Summit Park. These can be summarised as -

- Protection and enhancement of the Summit Park's values
- Improvements to scenic viewing infrastructure
- Improved tracks and trails
- Sustainable access infrastructure
- Picnic facilities
- Public toilets



- Food and beverage infrastructure and services
- Improved wayfinding and interpretation
- Art, sculpture and commemorative plaques
- Aboriginal cultural activities
- Education and learning
- Group tours and activities
- Events and functions
- Site services
- Flora and fauna management.

Prohibited uses include -

- Overnight camping
- Hang gliding (not permitted in the surrounding National Park and over Mt Ousley Rd).

As required by the Local Government Act 1993, the scale and intensity of each permissible use and development is described with the aid of a draft Landscape Concept Plan. This provides a visual representation of various elements and the spatial relationship between them. It also identifies lookout and trail upgrades that Council may consider undertaking subject to funding.

To protect the natural and cultural values of the Summit Park and provide for a range of sustainable visitor uses, different types and level of use are proposed in the two Community Land categories, namely General Community Use and Area of Cultural Significance areas.

Higher intensity uses and major infrastructure and facilities were proposed to be located within the General Community Use area. The existing General Community Use area was proposed to be expanded from 1,720m2 to 2ha to include the former restaurant site, kiosk, lookout and car park (Attachment 5). The balance of the Summit Park was proposed to retain the Area of Cultural Significance category, with the proposed uses being compatible with the purpose of that land category and the protection, management, restoration and public appreciation of its cultural and natural values.

Specific infrastructure and facility developments in the Summit Park would be subject to -

- Community consultation, appropriate investigation of biodiversity, cultural and social impacts; relevant development applications and environmental assessment process; and the provisions of other applicable plans, the Local Environmental Plan and State Planning Policies.
- Financial feasibility assessment.

The draft Plan of Management also includes provision for agencies, commercial businesses, education institutions, not-for-profit organisations and other groups to potentially offer products or participate in the management of the Summit Park. The draft Plan of Management would permit Council to enter into casual, short, medium or long term leases or licences up to a maximum of 30 years for any permitted use or development.

To help explain what might be possible under the Plan of Management, a draft Landscape Concept Plan was prepared. The draft Landscape Concept Plan showed an improved track network and lookouts, new amenities building and a possible high ropes course.

On 29 October 2018, Council considered a report on the draft Plan of Management and resolved that -

1 The draft Mt Keira Summit Park Plan of Management and Landscape Concept Plan be exhibited for a minimum of 42 days including an independently chaired public meeting and Information Stand on site.



- 2 The draft Mt Keira Summit Park Plan of Management include a proposal to recategorise a portion of community land from cultural significance to general community use to enable future suitable land use activities that align with the planning principles for the site.
- 3 Previously engaged stakeholders involved in the Mt Keira visioning process be advised that the Draft Plan of Management has been prepared and will be placed on public exhibition.
- 4 Following the exhibition period and public meeting the submissions and comments be reported to Council.
- 5 The post exhibition report consider whether any changes to planning controls under the Wollongong Local Environmental Plan 2009 are required to assist with the implementation of the Plan of Management.

The draft Plan of Management was exhibited from 31 October to 21 December 2018, the exhibition arrangements are detailed later in this report.

Councillor briefing were held on 29 July 2019 and 25 November 2019.

PROPOSAL

As a consequence of the exhibition 135 written submissions and 392 comments were received via the Have your Say webpage. The Engagement report is Attachment 6. A Public Hearing was held on 21 November 2018. The Public Hearing report is Attachment 7.

The main issues arising from the exhibition -

- Aboriginal significance
- Mountain Biking
- Categorisation of Mt Keira Summit Park
- Zoning of Mt Keira Summit Park.

Aboriginal significance

As highlighted by the statement from the Illawarra Local Aboriginal Land Council (ILALC), Mt Keira is of great importance / significant to the Aboriginal community. Ten submissions, including ILALC acknowledged this significance. Many of the submissions in support of Mountain Biking also acknowledged the need to respect cultural values.

The submission from ILALC also proposed that -

- No change be made to the proposed categorisation of areas within the Plan of Management and that the current categorisation of land of cultural significance remain. Council work with the Illawarra Local Aboriginal Land Council to develop appropriate objectives and performance targets to achieve a best case outcome with due consideration for the Aboriginal heritage significance of the area.
- The reference to mountain biking be removed from the Plan of Management entirely as this is viewed as incompatible development for this area of the Illawarra Escarpment.
- The proposed high ropes course be removed from the Landscape Concept Plan.
- Inclusion of the Aboriginal community, through the Illawarra Local Aboriginal Land Council, as an explicit partner in the implementation of this Plan, especially actions 4, 5, 7, 16 and 17.

The submission also indicated that a nomination had been lodged for the declaration of the whole Mountain (excluding private property) as an Aboriginal Place under the National Parks & Wildlife Act 1974.



In view of the significance of Mt Keira to the Aboriginal community, it is recommended that -

- A new action in the Plan be included to progress the joint naming of the Summit Park as Djeera (or Geera) Mt Keira Summit Park. Consultation occur with the community about the joint naming, including the appropriate spelling. Preliminary consultation has occurred with the ILALC and is planned with the Aboriginal Reference Group.
- Following the joint naming, Summit Park signage be updated to reflect the new name.
- The ILALC be listed as a partner or consultation organization in actions 2, 5, 7, 12, 16 and 17 and Council work with the Lands Council, NPWS, Rotary and other stakeholders to implement the actions in the Plan of Management.

Mountain Biking

The draft Plan of Management was exhibited concurrently with the National Parks and Wildlife Service (NPWS) draft Illawarra Escarpment Mountain Bike Strategy, which caused some confusion.

Various activities including mountain biking were considered by Council staff as part of the preparation of the Vision and draft Mt Keira Plan of Management. As a consequence of pre-exhibition consultation with the ILALC, mountain biking was not included in the exhibited document.

The NPWS's draft Illawarra Escarpment Mountain Bike Strategy proposed a network of existing (30km) and new trails (52km) across the LGA, but concentrated at Mt Keira, Mt Kembla and Balgownie. The new trails would be constructed over a number of years, with 37km in stage 1. Mountain biking already occurs at Mt Keira within the State Conservation Area and across private property.

At Mt Keira, the draft Illawarra Escarpment Mountain Bike Strategy proposed tracks in the State Conservation Area, not in the Summit Park, as shown below.



The regulation of the existing informal tracks and their removal from private property was considered to be a positive environmental initiative. However, the ILALC and other submissions advised that the use was incompatible with the Aboriginal cultural values of Mt Keira.

Some 270 submissions commented on mountain biking, of which 240 supported its inclusion in the draft Mt Keira Plan of Management and 30 submissions opposed the use being permitted. A further 47 submissions commenting on the draft Illawarra Escarpment Mountain Bike Strategy were forwarded to the NPWS for their consideration (these submissions have not been counted as Plan of Management submissions).



In October 2019, the National Parks and Wildlife Service released the Illawarra Escarpment Mountain Bike Strategy Public Exhibition Report on the outcomes of the exhibition (Attachment 8). The report indicates that they received 956 submissions, both in support and opposed. The report indicates that the NPWS will continue to engage with stakeholders to finalise the strategy and will form an Advisory Group to assist the process.

Mountain biking is an activity contrary to Aboriginal cultural values of Mt Keira, and it is recommended that off-trail riding not be permitted within the Summit Park. Riding on-road will remain permissible.

High Ropes

The draft Landscape Concept Plan showed a high ropes course, on the western side of the Summit Park as a visitor attraction. Similar courses have been provided at other locations, including Shoalhaven Zoo, where wires are connected to trees to provide an adventure course.

The submission from ILALC and others suggested that the proposal was contrary to the Aboriginal cultural values of the site. The draft Landscape Concept Plan is not proposed to be progressed. The Plan of Management includes an action to prepare a master plan, for the General Community Use area. The cultural values of Mt Keira and the input from stakeholders will be considered as part of this process.

Categorisation of Land

The draft Plan of Management proposed the expansion of the General Community Use area from 1,720m² to 2ha, which would cover the former restaurant site, kiosk, lookout and car park. The balance of the Summit Park was proposed to retain the Area of Cultural Significance category, with the proposed uses being compatible with the purpose of that land category and the protection, management, restoration and public appreciation of its cultural and natural values.

Some submissions noted that all of Mount Keira is culturally sensitive.

Many submissions in support of Mountain Biking supported the draft Plan of Management.

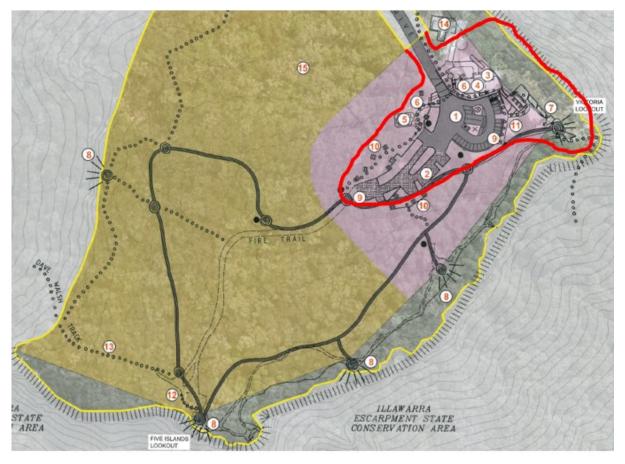
Ten submissions opposed the change to the category boundaries.

At one of the onsite meetings, the option of reducing the proposed extent of General Community Use category, and introducing an additional category of Natural Area bushland was discussed.

From a management view it is important to clarify what uses can occur in what location. If the entire Summit Park was one category, then all uses listed as permitted could occur in any location. Table 3 in the Plan of Management has been updated in response to the community input.

As a consequence of the consultation it is proposed that the extent of the General Community use area be reduced to one (1) hectare, as shown outlined in red below and in Attachment 9.





Annex of Wollongong Botanic Garden

Mt Keira Summit Park is managed as an annex of the Wollongong Botanic Garden, protecting escarpment vegetation communities. One submission objected to the Summit Park being an annex of the Garden, as Mt Keira is a natural area and should not be managed as a Garden.

The Wollongong Botanic Garden is a collection of sites and vegetation communities that reflect the differing landscapes in the LGA. The main Garden at Keiraville has collections of endangered communities, and the nursery promulgates endangered plants. The annexes at Puckeys Estate, Korrongulla and Mt Keira protect different plant remnant communities.

It remains appropriate for the Mt Keira Summit Park to remain an annex of the Garden.

Zoning

Under the Wollongong LEP 2009, Mt Keira Summit Park is zoned SP3 Tourism and E2 Environmental Conservation. The draft Plan of Management did not propose an amendment to the zone boundaries.

On 29 October 2018, Council resolved (in part) that -

5 The post exhibition report considers whether any changes to planning controls under the Wollongong Local Environmental Plan 2009 are required to assist with the implementation of the Plan of Management.

Some 22 submissions supported tourism uses, including submissions proposing the installation of a "Hollywood" style sign, and a Christ statue. Two submission supported and one submission opposed a gondola / cable car.

Two submissions proposed a reduction in the extent of the SP3 Tourism zone.

For Council land, the Plan of Management provides an additional layer of land use control. Proposed development needs to be permitted by both the LEP and the Plan of Management. Additionally, Council as land owner also needs to provide owners consent to any development proposal.



No amendment to the SP3 Tourism zone is required to implement the recommendations of the Plan of Management and no amendment is proposed at this time.

CONSULTATION AND COMMUNICATION

Draft Vision

In 2016, Council undertook community consultation prior to adopting a Vision and a set of Planning Principles for Mt Keira Summit Park. This work was used to develop a draft Plan of Management for the site which is required to be placed on public exhibition and involve further community engagement.

Given the special significance of the site to Aboriginal people, pre-exhibition consultation of the draft Plan of Management has occurred. As part of this, a range of Aboriginal people stressed the importance and significance of Mount Keira to the Aboriginal Community. The Illawarra Aboriginal Land Council advised that they have commenced work on nominating Mount Keira (including the Summit Park) as and Aboriginal Place. The following feedback has been provided by members of the Aboriginal community -

- a desire to rephrase wording in the Vision to reflect Aboriginal cultural sensitives
- only allow activities that show respect for the site (this is our Uluru)
- no mountain bike activity or activities that generate a lot of noise should be allowed
- opportunity to make the Summit Park a showpiece for cultural learning and interpretation
- would like the opportunity for further facilitated engagement during the exhibition process and to meet with Councillors and State members to voice their concerns

The Aboriginal community feedback highlights an opportunity for residents and visitors to learn and share a deeper insight and appreciation of our indigenous heritage through a cultural experience on the Summit Park.

Draft Plan of Management

The draft Plan of Management was exhibited from 31 October to 21 December 2018. As part of the exhibition the following occurred -

- Letters to key stakeholders
- Council's "Have your Say" website and social media
- Media briefing and advertisements
- On-site signage
- 2 drop-in information sessions, including on-site
- 5 group discussions, including on-site
- An independently chaired public meeting held on 21 November 2018 (33 attendees)

Previously engaged stakeholders involved in the Mt Keira visioning process were advised that the draft Plan of Management had been prepared and placed on public exhibition.

The draft Illawarra Escarpment Mountain Bike Strategy was exhibited concurrently by the Office of Environment and Heritage / NPWS.

As a consequence of the exhibition 135 written submissions were received, and a further 392 comments were received via the Have your Say webpage, and many additional conversations held. The engagement report is Attachment 6. The Public Hearing report is Attachment 7.



PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 goal "We are a healthy community in a liveable city". It specifically delivers on the following -

Community Strategic Plan	Delivery Program 2018-2021	Operational Plan 2019-20
Strategy	3 Year Action	Operational Plan Actions
5.2.1 Provide a variety of quality public spaces and opportunities for sport, leisure, recreation, learning and cultural activities in the community.	5.2.1.5 Provide statutory services to appropriately manage and maintain our public spaces.	Finalise the Mt Keira Plan of Management

Local Government Act 1993 – Adoption Requirements

The Local Government Act 1993 sets out how Plans of Management are prepared, exhibited, adopted and amended. Section 40 of the Act requires Council to consider submissions received during an exhibition, and then adopted and or amend the draft Plan of Management. This report recommends that the exhibited draft Plan of Management be amended and adopted. The Act enables Council to either reexhibit an amended draft Plan of Management, or adopt the amended Plan of Management if it is of the opinion that the amendments are not substantial. Council is required to publish notice that it has adopted an amended Plan of Management and the terms of the amendments.

In this instance, it is considered that the proposed amendments are not substantial as they refer to issues raised during the exhibition and remove or reduce the extent of proposals, namely –

- Including an action to renaming the Plan to include the Aboriginal name of "Djeera"
- The extent of land being categorized as General Community Use is proposed to be reduced from that exhibited
- The Illawarra Local Aboriginal Land Council is being acknowledged as a stakeholder/partner.
- The action of updating the Park boundaries be deleted as it has been completed
- Other minor changes to correct typographical errors, grammar or to improve the clarity of the Plan.

FINANCIAL IMPLICATIONS

At this time there are no financial implications other than already accounted for in preparing the draft Plan of Management and its exhibition. Future Council investments will be resourced via approved Delivery and Resource Plans and/or future grant funds.

It should be noted that there exists scope for private investments or public/private partnerships into the future.

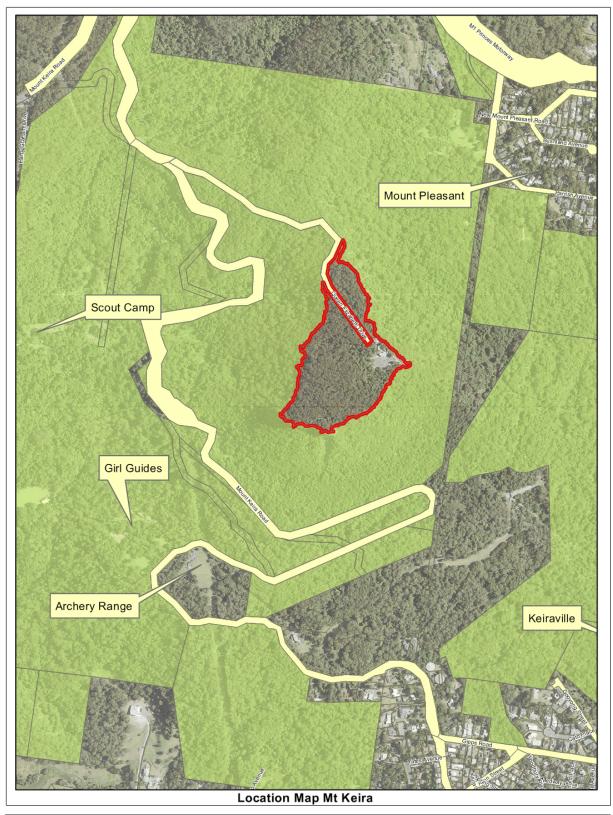
CONCLUSION

The draft Mt Keira Summit Park Plan of Management was exhibited from 31 October to 21 December 2018 and 563 submissions were received.

As a consequence of the exhibition, 135 written submissions were received, a further 392 comments were received via the Have your Say webpage, and many additional conversations held.

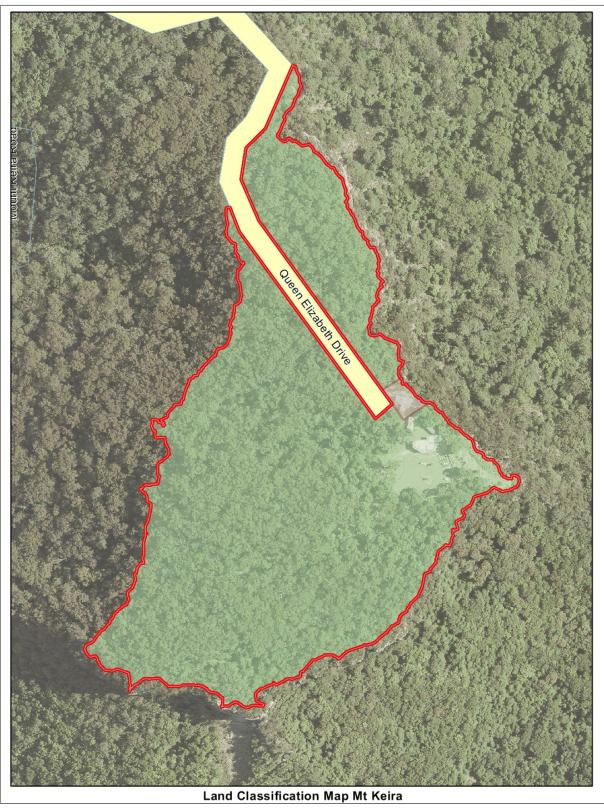
The issues raised in the submissions have been reviewed. It is recommended that Council adopt the amended Mt Keira Summit Park Plan of Management (Attachment 10) incorporating the changes outlined in this report.







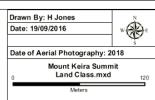




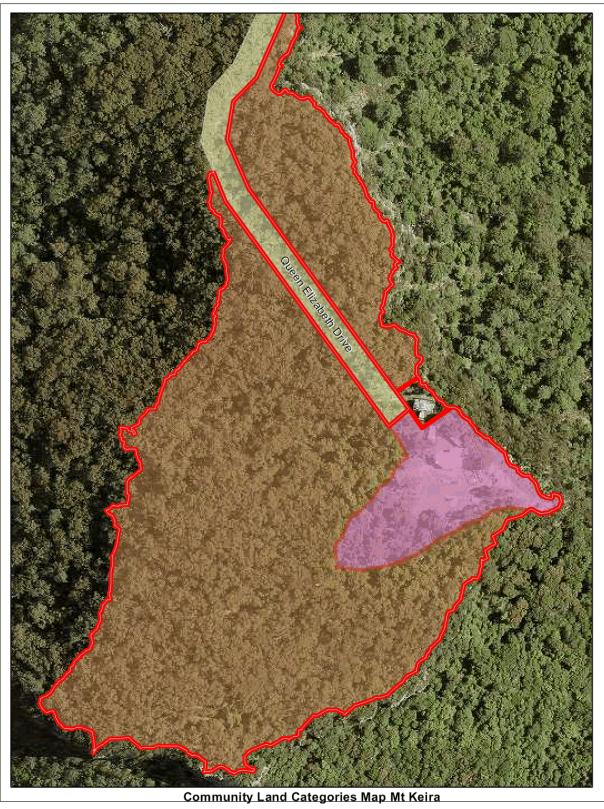


Mount Keira Summit Park Land Classification



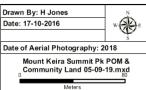




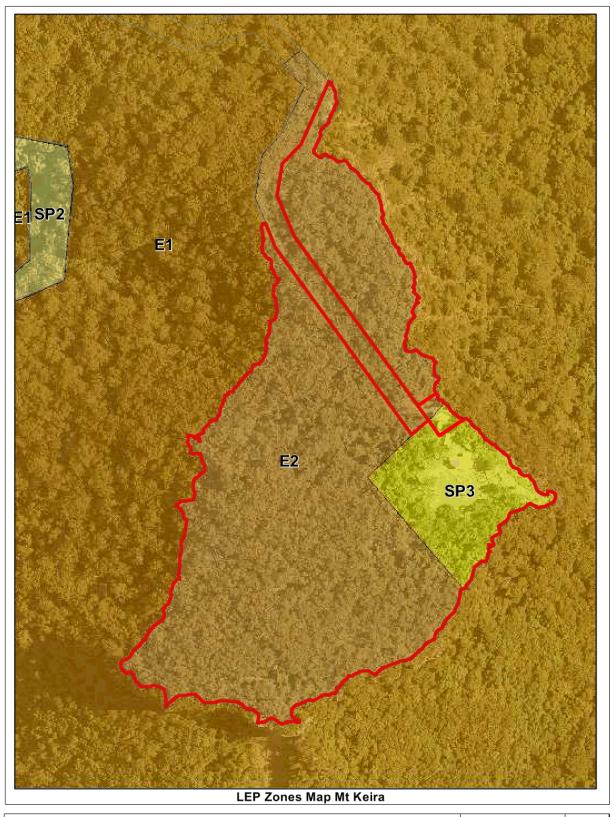














Mount Keira Summit Park LEP2009

Subject_Site

SP2 Infrastructure

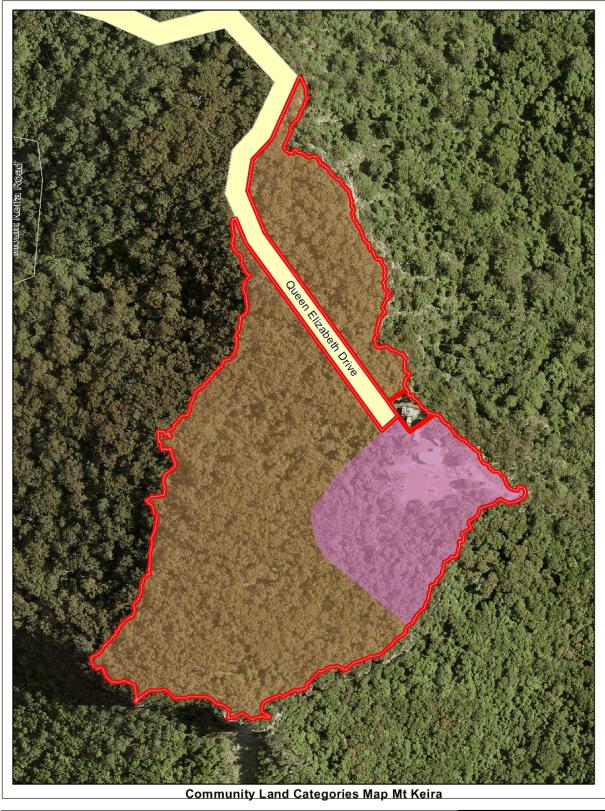
E1 National Parks and Nature Reserves SP3 Tourist
E2 Environmental Conservation

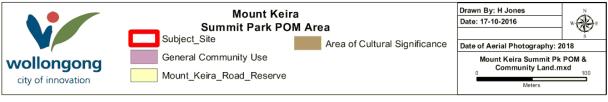
Drawn By: H Jones
Date: 17/10/2018

Date of Aerial Photography: 2018

Mount Keira Summit Pk Zone Map.mxd











MT KEIRA SUMMIT PARK DRAFT PLAN OF MANAGEMENT

ENGAGEMENT REPORT

February 2019





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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 issues. While it's not possible to include all the details feedback we received, feedback that was relevant to the project has been provided to technical experts for review and consideration.



Executive Summary

A draft Plan of Management (PoM) has been developed to guide the revitalisation and sustainable management of Mt Keira Summit Park in a way that showcases its special scenic, natural and cultural values. The community were asked to comment on the draft Plan from 30 October 2018 to 21 December 2018. The draft Illawarra Escarpment Mountain Bike Strategy (IEMBS) was also exhibited during this time allowing the community to comment on the documents concurrently. The draft IEMBS was developed as a joint project between National Parks and Wildlife Service (NPWS) and Council to address the adverse safety, environmental and cultural impacts of illegal use and ad-hoc trail development in the Illawarra escarpment.

In recognition of the cultural significance of Mt Keira, specific Aboriginal engagement activities were held prior to exhibition including face to face meetings and information sessions between. These activities informed the draft PoM and engagement strategy.

The communication process for the exhibition included a media briefing, social media posts, Council's Community Update in the Advertiser and signage onsite. Information was distributed to key stakeholders, and the Register of Interest participants. A project page on Council's Engagement HQ website provided copies of the draft PoM, draft Mt Keira Summit Park Concept Plan, frequently asked questions and links to an online survey. These documents as well as a feedback form were made available at Council libraries and the Customer Service Centre.

During the exhibition targeted Aboriginal engagement activities were held including an Aboriginal Community Information Session, an Aboriginal Women's Circle and an Aboriginal Men's Discussion Circle. Community engagement activities for the broader community included a Public Hearing with an independent facilitator, presentations at the Aboriginal and Wollongong Heritage Reference Groups, an onsite Information Stand and an onsite discussion regarding the proposed changes to the general community land category.

563 submissions were received from 19 groups/organisations and 543 individuals. An analysis of the feedback received provides an insight into the varied views the community has regarding the content of draft PoM. Comments received have been themed with the structure of the draft PoM. An overview of feedback is as follows:

Section 1: Introduction: The history of the site was presented and it was suggested historical details about Rotary and Vickery and Sons connection to Mt Keira should be added to the introduction.

Section 2: Planning Requirements: Comments concentrated on the proposed increase in the General Community Use category, with 66 rejecting the increase and three supporting it. It was suggested there was no clear justification for the increase and the relevance of Aboriginal significance in that location could be diminished if the category was changed. It was also suggested the increase would result in further degradation of the summit. Those in support of the increase suggested an expanded community use footprint would accommodate a broader range of activities.



Section 3: Existing Uses and Structures:

Concerns exist about the stability of Queen Elizabeth Drive and the ability for Mt Keira Road to cope with increased traffic was questioned suggesting a series of safety measures could be implemented if needed.

The cultural significance of infrastructure on the land was presented and alternatives suggested. It was suggested that the current name 'Queen Elizabeth Drive' was culturally insensitive and should be renamed considering the Aboriginal significance of the site.

Section 4: Values of the Summit Park: Feedback highlighted the importance of Aboriginal cultural heritage, natural significance and historical heritage. There is desire to preserve and protect these aspects of the Summit. The value and impact of recreation and tourism was also recognised.

Section 5: Vision: Support for respecting the wishes of the Aboriginal community were presented and it was suggested that Council "seek the permission" of the Aboriginal community before any changes are made to the draft PoM. The conditional donation of land to Council for the purpose of environmental protection in perpetuity was presented as well as the desire to conserve the area rather than develop.

Section 6: Achieving the Vision: The draft PoM lists 17 permissible uses and developments. The value of the natural beauty, flora and fauna was evident in feedback. The need to consider parking and public transport services and connections was presented. Suggestions were made to provide more toilets and change tables in both and it was also posed that the current septic system is inappropriate, negatively impacts the environment and composting toilets suggested as an alternative. It was suggested the current container café should be removed and a permanent restaurant be built. There was both support and opposition to a gondola and a high ropes course. Feedback included the importance of working with the Aboriginal community when making decisions about the Summit.

Permissible Use 3 refers to new trails/trail sections for beginner mountain bike opportunities as part of a broader Escarpment Mountain Bike Strategy. 270 submissions referred to mountain biking with 240 supporting mountain biking and 30 opposed to mountain biking on Mt Keira. Those in support of mountain biking suggested the tracks would be beneficial for healthy lifestyles and tourism and would increase safety for riders. It was also suggested that a strong connection to mountain biking be including in the PoM. The submissions against mountain bikes cited reasons including the cultural significance of the site, the negative environmental impact, issues with safety and the impact on parking.

It was evident that exhibiting the draft PoM and IEMBS at the same time as the draft PoM created some confusion. The feedback suggests that responses were submitted regarding the draft PoM which were intended for the IEMBS. Of the 563 responses received, feedback from 95 community members was not associated with the draft PoM due to the language used, for example, the submission referred to the 'Mt Keira Mountain Bike Park' or made comments such as 'the proposed mountain biking plan is a great initiative'.



Background



Image: Mt Keira Summit Park Lookout

The Illawarra Regional Aboriginal Heritage Study (conducted for NPWS in 2004) attributes Mount Keira with exceptional to high local historic and social significance to Aboriginal people. The mountain is part of the creation of storylines from the dreaming. The summit was used for ceremonies, sourcing medicine and food, exchange of gifts and trade. Mt Keira is a significant women's place and the Aboriginal community continues to connect to the mountain for ceremonies, storytelling and teaching.

Vision and Planning Principles

In 2016 community and stakeholder input was sought to develop a Vision to set out the community's aspirations for the protection, use and sustainable management of Mt Keira Summit Park. The Vision for the Summit Park was adopted by Council in June 2016. The Vision and Planning Principles are as follows:

Vision Statement

A trip to Mt Keira Summit Park will change the way people see and experience Wollongong. It will be a place to enjoy the beautiful views of the city, mountains and the sea and to appreciate the cultural and environmental landscape of the Illawarra Escarpment through a range of exceptional visitor experiences.



Planning Principles

- Integrate Ensure visitor infrastructure and services are integrated and connected with the surrounding Illawarra Escarpment State Conservation Area so that visitors are offered outstanding, high quality visitor experiences.
- Experience Provide exceptional cultural and nature based experiences that support tourism to the region and that are integrated with the Illawarra Escarpment State Conservation Area.
- Respect respect the wishes of the Aboriginal people to safeguard and present their culture through a variety of means they consider most appropriate.
- Appreciate Present interpretation and experiences in a way that will enhance appreciation and understanding of the cultural and natural values of Mt Keira and the Illawarra Escarpment.
- Conserve Contribute to the protection and conservation of the Escarpment's natural, cultural and scenic values through sustainable design and practice.
- Involve The Aboriginal community, tourism industry, local community and NPWS will be involved in decision making.
- Sustainable Visitor experiences will be economically viable and financially sustainable and demonstrate social and environmental benefits to the community.

Draft Mt Keira Summit Park Plan of Management



The Vision and Planning Principles were used to develop the draft Plan of Management (PoM). Several background studies were also conducted to inform the development of the draft Plan and assess the feasibility of future options for the Summit Park. The Draft PoM is presented in six sections:

- Section 1: Introduction
- Section 2: Planning Requirements
- Section 3: Existing Uses and Structures
 - Section 4: Values of the Summit Park
- Section 5: Vision
- Section 6: Achieving the Vision

Draft Illawarra Escarpment Mountain Bike Strategy



A draft Illawarra Escarpment Mountain Bike Strategy (IEMBS) has been developed as a joint project between National Parks and Wildlife Service (NPWS) and Council. The adverse safety, environmental and cultural impacts of illegal use and ad-hoc trail development need to be addressed to ensure the activity is sustainable into the future. The draft Strategy aims to ensure that future track construction is undertaken in a way that is sensitive to the environmental and cultural heritage of the area. The draft Strategy was exhibited at the same time as the draft PoM, providing the opportunity to discuss both documents with the community concurrently.



Methodology

The following section outlines the various activities undertaken during the engagement period. This included pre exhibition from July to September 2018 and during the exhibition period from 30 October – 21 December 2018.

Pre-Exhibition – July to September 2018

The site has significant Aboriginal cultural heritage therefore engagement with members of the Aboriginal community was undertaken prior to the general exhibition period.

Table 1: Details of Pre-Exhibition Communication and Engagement Methods

Method	Details of Methods			
Communication Methods				
Letter to key stakeholders	A letter was sent to key members of the Aboriginal community inviting them to participate in the activities and encourage them to share the information available to others.			
Face to face visits	Staff visited key services and stakeholders to introduce the PoM and invite them to participate.			
Engagement Methods				
Initial drop in sessions	Informal drop in sessions were held aimed at giving participants the opportunity to talk with staff from Council and NPWS about the draft documents and the consultation process before the documents went on exhibition. Sessions were held on 31 July 4pm – 6pm in Council Administration building and 3 August 9.30am – 11.30am at Dapto Ribbonwood Centre.			
On site information session	An onsite session was held including an issues mapping activity, options for brainstorming and a 'Walk and Talk' session on 26 September 1-3pm at Mt Keira Summit Park. NPWS attended this activity.			
Individual meetings	Individual meetings were offered to any interested parties at a time and location suitable to them.			

Exhibition Period - 30 October to 21 December 2018

Table: Details of Communication and Engagement Methods

Methods	Details of Methods	
The Advertiser	Details of the public hearing, onsite information stand and Engagement HQ webpage were included in Council's Community Update pages.	
Media briefing	An onsite briefing was held on 9 October to launch the engagement with Council technical, engagement and communication staff attending.	
Signage	Signage was installed onsite to promote the project, opportunities to get involved.	



A letter and FAQ were sent to all stakeholders who participated in engagement to date.
An email was sent to all participants with registered interest in 'Environment'.
FAQ's and hardcopy surveys were sent to key stakeholders and made available at libraries and customer service.
Information about the exhibition were promoted through Council's Facebook and Twitter accounts.
An online survey tool was used to capture participant's feedback. The page also hosted background info, supporting documents and a link to NPWS IEMBS online engagement page.
A hard copy feedback form was made available at libraries and engagement activities.
A discussion circle was held at Mt Keira Scout Camp on 14 November 10-2pm. NPWS also attended this event to discuss the IEMBS.
A discussion circle was held at an Aboriginal Men's Group meeting on 22 November at 10-12noon. NPWS also attended this event to discuss the IEMBS.
An opportunity to discuss the draft PoM and get community feedback was held at Council Administration building 14 November 4-5.30pm. The activity location was informed by the Aboriginal community. NPWS also attend this event to discuss the IEMBS.
A presentation was made to the Aboriginal Reference Group and the Wollongong Heritage Reference Group
A public hearing, chaired by an independent chairperson, was held at the Council Administration building on 21 November at 6pm.
An opportunity to provide information about the PoM and get community
feedback was be held at Mt Keira Summit Park on 24 November 10-12pm.
NPWS also attended this event to discuss the IEMBS.
An onsite meeting was held with key stakeholders to discuss concerns about
the proposed changes to the general community land category. The area was
physically mapped out to show the boundary and issues discussed. NOTE: this
meeting was not part of the original strategy, however was held in response to community concerns.



Results

This section provides details on the participation at engagement activities (Table 3), and the feedback received during the exhibition period.

Engagement Participation

Details of the number of participants for each engagement activity are presented in Table 3.

Table 3: Engagement participation results

Engagement Activities	Participation
Pre-exhibition - initial drop in sessions with Aboriginal Community	8
Pre-exhibition - on site information session with Aboriginal Community	3
Pre-exhibition - Individual meetings with Aboriginal Community	3
Women's Discussion Group	10
Aboriginal Information Session	1
Men's Discussion Circle	17
Onsite Information Stand	80
Onsite meeting - proposed changes to the general community land category	6
Aboriginal Reference Group meeting	7
Wollongong Heritage Reference Group meeting	6
Public Hearing	33
Online Participation Aware — Total number of users who viewed the project page Informed - Total number of users who opened a hyperlink or read a document Engaged — Total number of users who have actively contributed to the project	1702 1107 392



Submission Results

The community were asked to provide feedback on the draft PoM. Feedback came from 563 submissions, which included 19 groups/organisations and 543 individuals.

The groups/organisations include:

Aboriginal Men's Discussion Circle
Aboriginal Reference Group
Aboriginal Women's Discussion Circle
Appin House Team
Destination Sydney Surrounds South
Destination Wollongong
Heritage Reference Group
Illawarra Birds Observers Club
Illawarra Historical Society
Illawarra Local Aboriginal Land Council

Mountain Bike Australia
National Parks Association of NSW
National Trust of Australia
Neighbourhood Forum 5
Northern Illawarra Resident's Action Group
Regional Development Australia Illawarra
The Colong Foundation for Wilderness Ltd
Wilderness Society Illawarra
Wollondilly Macarthur Mountain Bike Club

Submissions were made online (392), emails (135), oral feedback from Aboriginal discussion circles (2) and verbal submissions from the Public Hearing (33) and letter (1). The feedback received is now presented based on the six sections of the draft PoM.

Section 1: Introduction

Four submissions from 1 group/organisation and 3 individuals related to Section 1- Introduction. The history of the site was presented including the contribution of the Rotary Club and the need to honour the intent of the Vickery family dedication of land in perpetuity. It was suggested that these contributions be added to the introduction. It was also suggested that Mt Keira Summit Park should no longer be an annexe of the Botanic Gardens as it is a natural area and the current vegetation management is not appropriate for the area.

Section 2: Planning Requirements

Comments were received from 10 groups/organisations and 59 individuals relating to the proposal to increase the general community use area of the Summit Park, with 66 rejecting the increase

The draft Plan needs to contain justification for this expansion and evidence it is a culturally and ecologically sound decision'.

and three supporting it. Those who rejected the increase highlighted the Aboriginal significance and the importance of respecting Aboriginal culture. It was suggested there was no clear justification for the increase and it that the relevance of Aboriginal significance in that location would be diminished if the

community land category was changed. At an onsite meeting held with key Aboriginal stakeholders to discuss the proposed changes, a smaller area was presented by some participants as an indication of what may be supported for categorisation. It was also suggested there has been a decline in the density of natural vegetation around the carpark and the proposed



increase would result in further degradation of the summit. Those in support of the increase suggested an expanded general community use footprint would accommodate a broader range of activities.

The relationship of the Summit Park with the Illawarra Escarpment State Conservation Area (IESCA) was recognised and it was suggested that the Summit Park should be incorporated into the IESCA. It was also suggested that maps in this section are inadequate stating a single map displaying the E2 and SP3 zones with the existing area of General Community Use and the proposed area would be beneficial.

Section 3: Existing Uses and Structures

Feedback relating to Section 3 - Existing Uses and Structures was provided by 4 groups/organisations and 11 individuals.

Aboriginal groups and representatives suggested that infrastructure built with concrete did not support the cultural significance of the land suggesting concrete does not allow 'Mother Earth to breathe'. Alternative methods for building infrastructure with reduced impact was presented such as constructing buildings on piers and using gravel in a carpark. It was suggested that the current name 'Queen Elizabeth Drive' was culturally insensitive and should be renamed considering the Aboriginal significance of the site.

The ability for Mt Keira Road to cope with increased traffic was questioned, including emergency vehicles if mountain biking is permitted, and it was suggested that a traffic study be conducted. It was recommended that a series of safety measures are needed such as convex mirrors, unbroken double line, guard rails and 'beware of cyclists' signage. Concerns exist about the stability of Queen Elizabeth Drive with a request for the road to undergo a complete reconstruction to ensure safe vehicular passage.

Section 4: Value of the Summit Park

15 submissions made comments related to the values listed in Section 4 including 8 groups/organisations. The value associated with Aboriginal cultural heritage was presented citing that Mt Keira and Mt Kembla are sacred sites and should be protected. It was suggested Council should work with the Illawarra Aboriginal Land Council to manage and protect the cultural, scenic and environmental heritage values of Mt Keira.

The natural significance of the Summit Park was presented and that 'this must be the key factor in the management of the site and outweigh the temptation to incorporate high impact adventure seeking activities'. Quotes were provided from the Atlas of Living Australia data on number of life forms and plant species on Mt Keira coupled with the concern that increased visitation will have negative impacts for the sensitive locations. It was also suggested that the values in the draft PoM made it easy for Council to introduce the ropes course and mountain biking activities.

The potential recreation and tourism value of the site was also recognised. Feedback focussed on the perceived benefits of the Plan including tourism, economic benefits, regional opportunities and creation of an asset for the community. It was suggested the draft PoM provides an opportunity to create the Summit Park as valuable to our community, visitors, events and jobs



'Wollongong has always been a manufacturing city. We need look forward and see new opportunities for employment and tourism'. while building on the economic impact for the Illawarra. The opportunities presented in the draft PoM were seen as an opportunity for the region to 'embrace another means of tourism dollars and another outlet for the community to enjoy'.

A request was made that when assessing development applications for investment at Mt Keira Summit Park Council

should carefully consider the economic benefits of growing the tourism sector. Further, assessments of DA's should occur in a timely manner and within the vision and planning principles of the plan.

Section 5: Vision

Submissions were received from 6 groups/organisations and 54 individuals commenting on the planning principles presented in Section 5 of the draft PoM.

In relation to the principle 'Respect', submissions stated their support towards respecting the wishes of the Aboriginal community. The majority of these submissions were respondents who attached a copy of the Mountain Bike Alliance letter with their comments which stated:

"I acknowledge that Aboriginal people are the original custodians of the Illawarra area, including Mt Keira and the surrounding escarpment. Any development needs to respect their wishes and cultural connection to the country where the Summit Park is located"

Other submissions requested Council work with the Aboriginal community regarding any changes to the draft PoM.

A comparison was drawn between Mt Keira and Uluru presenting

"as of 2019, tourists will no longer be permitted to climb Uluru. Mt Keira has been described by local Traditional Owners as the Uluru of the Illawarra escarpment. It seems disrespectful, that WCC would want to encourage intensification on Mt Keira, without the permission and inclusion of Traditional Owners".

Comments from five respondents aligned with the planning principle *'Conserve'*. The conditional donation of land to Council for the purpose of environmental protection in perpetuity was presented as well as the desire to conserve the area rather than develop.

Section 6: Achieving the Vision

Section 6 of the draft PoM includes three areas: Permissible Uses and Developments; Prohibited Uses and Development and Management Strategies.

Permissible Uses and Developments

The draft PoM lists 17 permissible uses and developments. Comments were received regarding 14 of these uses.



270 comments were received about mountain bikes which are referred to in Permissible Use 3 – Improved track and trails. 240 (including 4 groups/organisations) provided positive comments on mountain bikes and 30 (including 10 groups/organisations) provided negative comments about mountain bikes on Mt Keira. Those in support of mountain biking suggested the tracks would be beneficial to promote healthy lifestyles and tourism and would increase safety for

'Mountain bike provides opportunities for social engagement, has health, wellbeing and economic benefits'

those currently using the site for mountain biking activities. It was also suggested that a clear connection and support of mountain biking should made in the PoM. The submissions against mountain bikes cited reasons including the cultural significance of the site, the environmental impact the bikes would have and the impact on safety and parking. Submissions were received that presented concerns around the timing of the release of the POM and IEMBS and a lack of clarity about bikes on the Summit.

The biodiversity of the area is both precious and fragile. It must be prioritised and protected'

The value of the natural beauty, flora and fauna was also evident in feedback. It was suggested to identify the presence of threatened species and better define potential threats and that animals and environment should be the primary focus and recreation and increasing visitor numbers second. Indigenous education opportunities were supported with suggestions to include a facility for indigenous education and

to make Mt Keira into a storytelling cultural hub. There was both support and opposition to a gondola. Those in support suggested it would provide a great adventure tourism attraction. The need to consider parking and public transport services and connections was presented. Suggestions were made to about the toilets including provision of more toilets and change tables in both male and female toilets. It was also presented that the current septic system creates highnutrient effluent which alters the surrounding forest and has a degenerative effect on native species. It was suggested that the toilets be pumped-out or composting toilets introduced. It was suggested that the current container café should be removed and that a permanent restaurant be built with consideration to making it eco-friendly. Signage was discussed including installation of a large 'Hollywood' style billboard and the need for wayfinding and informative signage. A high ropes course was included in the draft Concept Plan that accompanied the draft PoM. Ten submissions mentioned high ropes, including 7 groups/organisations. The majority did not support high ropes on culturally significant land, with some suggesting Mt Keira was a biodiversity hotspot and this, rather than high ropes, should be a priority. One organisation supported high ropes. Two submissions suggested more should be included to entice visitors to the Summit including guided tours that focus on the history of the mountain and on the flora & fauna, while two suggested large events are not suitable.

Feedback included the importance of working with the Aboriginal community when making decisions about the Summit Park.



Prohibited Uses and Development

Four submissions mention the prohibited uses listed in the draft PoM. One group submission agreed with the three activities listed as prohibited in the draft PoM. One respondent wanted dogs on leads to be permitted in the Summit Park and two submissions thought large scale gatherings in a bushland setting should be added to the prohibited uses. These two submissions thought the prohibited uses should be more robust.

Management Strategies

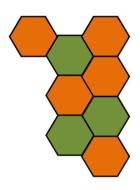
Submissions were received requesting the action "continue to contribute to the investigation on the feasibility of, and development of a consistent approach to, mountain biking across the Illawarra Escarpment" be removed. It was recommended that if this section was to remain, the Aboriginal Community should be added for consultation.

It was requested that Council jointly manage Mt Keira Summit Park with members of the Aboriginal Community, involving traditional owners in decision making rather than as a stakeholder group. It was also suggested that the site be solely managed by Aboriginal community. It was suggested Council to manage Mt Keira in accordance with the Burra Charter, a set of principles that have been adopted to create a nationally accepted standard for heritage conservation practice, rather than to "seek to avoid those obligations by re-categorising the status of the land in the way proposed in the draft PoM". It was suggested that a proper assessment of cultural sites to be undertaken prior to any development and that all sacred and cultural sites be avoided in all developments.

Comments on extending the exhibition period

The original exhibition period ran from 30 October to 10 December 2018. The closing date for submissions was extended to 21 December 2018 following requests from the community.







Report on Public Hearing

Draft Plan of Management for Mt Keira Summit Park.

Prepared by Martin Bass, Independent Chair. November, 2018.



Background and Context

Mt Keira Summit Park occupies 9.4 hectares at the top of Mt Keira about 10 kilometres north-west of the Wollongong CBD. Mt Keira is a prominent scenic landmark which, at 464 metres above sea level, provides a unique visual backdrop to the west of the City of Wollongong. It is part of the Illawarra Escarpment which forms a line of steep slopes and cliffs bordering the Wollongong coastal plain.

Mt Keira Summit Park is owned and managed by Council and is a natural area annex of Wollongong Botanic Garden. The surrounding slopes are managed by the NSW National Parks and Wildlife Service (NPWS) and form part of the Illawarra Escarpment State Conservation Area.

The boundary between the Council Summit Park and the NPWS land is the cliff top. The Councilowned Summit Park has two land classifications under the *Local Government Act 1993*:

- 1. The area currently housing the Communications Tower is classified as Operational land; and
- 2. The balance of the site is Community land which is further divided into two community land categories:
 - I. The area where the former restaurant/café was located is currently categorised as "General Community Use" which is covered by a Generic Plan of Management.
- II. The remaining community land is currently categorised as an "Area of Cultural Significance". Under the Local Government Act 1993, this categorisation requires a site specific Plan of Management to guide appropriate use of the site.

Previously the General Community Use area was limited to the former restaurant site and was included in Council's Generic Plan of Management for Community Land. By the making of the Plan of Management for Mt Keira Summit Park, the General Community Use area will be extended to cover the Park's main visitor infrastructure which is in the vicinity of Victoria Lookout. The former restaurant site will be excised from Council's Generic Plan of Management for Community Land. The rest of the Mt Keira Summit Park will have a Plan of Management over it for the first time.

The Mt Keira Summit Park currently has two zonings under the Wollongong LEP 2009:

- The area occupied by the Communications Tower, former restaurant/café, picnic area and northern lookout is zoned SP3 Tourist
- 2. The balance of the Council land is zoned E2 Environmental Conservation.

The surrounding Illawarra Escarpment State Conservation Area, managed by the National Parks and Wildlife Service, is zoned E1 National Parks.

The Plan of Management is a statutory document which outlines how Wollongong City Council will manage Mt Keira Summit Park into the future. The draft Plan will guide revitalisation and sustainable management of the park in a way which protects and showcases its special scenic, natural and cultural values; recognises community aspirations for use of the area as an important natural, cultural and recreational asset; and provides quality experiences for its visitors.



Public Hearing Process

The public hearing was held at 6.00pm on 21 November 2018 to provide communities of Wollongong with an opportunity to ask questions, seek clarification and provide comments regarding the draft Plan of Management for the park.

The hearing was held at Wollongong Council's Administration Building, 41 Burelli Street, Wollongong, and was organised in accord with relevant provisions within the Local Government Act (1993) and the Environmental Planning and Assessment Act (1979).

The public hearing commenced with a brief presentation by the Chair, providing an outline of the conduct of the hearing process. This was followed by briefings by the two Council representatives to provide additional background and context regarding the draft Plan of Management (ref Appendix 1). These presentations were followed by verbal submissions from community members present at the hearing. A record of these submissions form the latter part of this report.

Attendance

The public hearing was attended by 29 members of the community. Wollongong City Council was represented at the hearing by Vanni De Luca, Manager Environment and Conservation Services Wollongong City Council, and Alistair Henchman from TRC Tourism, a consultant who developed the draft Plan of Management in collaboration with the Council. Martin Bass acted as Independent Chair of the hearing.

Public Hearing Submissions

The following is a record of all verbal submissions presented by community members in attendance at the hearing. Where appropriate, Council staff provided responses and clarifications to points raised in verbal submissions.

NOTE: At the commencement of the meeting the Chair clarified that, despite the likely level of interest amongst participants in mountain biking activities on land managed by Council and NSW National Parks and Wildlife Service (NPWS) on Mt Keira, Council representatives would be unable to speak on behalf of NPWS in regard to any questions relating to mountain bike activities on NPWS land.

Submission 1: What is Council's policy on the use of drones in the area?

Council response to Submission 1: Unsure of Council's approach to drones – this question will need to be taken on notice



Submission 2: Looking at the Plan of Management, there is a lot of jargon but not much detail. What is Council's approach to mountain biking on the summit?

Council response to Submission 2: The Plan of Management is effectively a rule book that tries to draw a balance between flexibility for future suitable uses and regulation. Only uses that are permitted uses identified in the Plan of Management can be considered

Submission 3: NPWS maps show mountain biking trails on land within the Summit Park. Why is this?

Council response to Submissions 3: Council has conducted extensive consultation with Aboriginal communities in the process of developing the PoM. Those communities have highlighted that Mt Keira is part of a network of local sites with great cultural and historic significance – Mt Keira and other sites within this network are referred to Grandmother Mountain, Grandfather Mountain and the Five Islands. Local Aboriginal communities expressed their strong concerns about mountain biking activities on such sacred land. In acknowledgement of this, Council has removed the beginners trail from the Summit Park in the Landscape Concept Plan. NPWS has removed this trail from its maps also, but text remains in the written documentation pending finalisation of the draft exhibition.

Submission 4: If Council proposes any particular uses in the park, are these uses included in the Concept Plan?

Council response to Submission 4: Council lists all permitted uses in the Plan of Management. The next step for each permitted use is the development of detailed designs and consultation/approval processes should they progress.

Submission 5: If a commercial operator approaches Council with an idea for an activity in the park, will Council give the idea consideration?

Council response to Submission 5: Yes, however any commercial activities proposed by operators need to demonstrate compatibility with the PoM and be subject to further community consultation including a Development Application if required.

Submission 6: Has Council considered the placement of any medical equipment within the park? The site is quite isolated and equipment such as a defibrillator may be good to have in the park.

Council response to Submission 6: This is a good suggestion and Council will give it consideration.



Submission 7: A great concern to communities in the vicinity of Mt Keira is what is or isn't being done to reserve the vision for the park. There is constant antisocial behaviour in the area such as burnt out cars, vandalism and dangerous driving.

Submission 8: Council has done a safety audit of the area with Police and other services. One recommendation was the installation of CCTV to deter anti-social behaviour and assist with Police investigations. There is currently a CCTV operating proposal open for public comment which can be viewed on Council's website.

Submission 9: Is there any provision for volunteers in the Plan of Management? The local community has been active in clean-ups of the park and surrounding areas.

Council response to Submission 9: Yes – volunteers are acknowledged and included in the Plan.

Submission 10: What is the 'change of tenure' referred to in the Plan of Management?

Council response to Submission 10: Tenure refers to management of the land. Some land on Mt Keira is managed by Council and some by NPWS. Any change of tenure in relation to a piece of land means a change in responsibility for management of that land.

Submission 11: What is the meaning of 'economic sustainability' in the Plan?

Council response to Submission 11: Any commercial activities proposed for the site need to be assessed for their economic viability in the long term, so that any outlay by Council for infrastructure is based on knowledge of the ongoing costs and benefits for the community.

Submission 12: The area should be left undeveloped for walking and other similar activities. We should all respect the significance of the land to Aboriginal communities. A letter written by Keith Muir (see Appendix 2) in relation to an earlier proposal expresses these concerns well.

Submission 13: Mountain biking has totally degraded parts of the park – it should be restored and left undisturbed.

Submission 14: Are there any current proposals for third party commercial uses in Summit Park?

Council response to Submission 14: There has been a recent proposal for a mobile zoo. The proposer has been advised to lodge the idea as a submission in response to the Plan of Management as a starting point.



Submission 15: The Plan of Management is quite a high-level document. It may be useful to inform the community of what it costs to maintain the park – outline what is the current funding for the park, any current commercial uses proposed, current and potential new funding sources and what plans there may be for addition of power, water, sewer and similar things.

Council response to Submission 15: The Plan of Management clearly lists all permitted uses and Council has processes to consider all proposals for commercial and other uses in the future. Council worked for many years to get the kiosk established in the park and there is now potable drinking water. A permanent power supply is currently under construction. Funding models do not form part of the PoM. Proposals are received and reviewed individually on merit. The Plan of Management provides a vision for the area and a rule book for uses of the land, by which proposals can be assessed for suitability.

Submission 16: It would be good to include details in the Plan of Management about the cultural significance of the site to Aboriginal communities to facilitate a better understanding of this.

Council response to Submission 16: It is difficult for Council to appropriately articulate the deep cultural significance of the land to Aboriginal communities. There is some information about this in the PoM and at the park that visitors can refer to. It is an area with vast potential to improve understanding, and is something the PoM seeks to improve.

Submission 17: Mountain bike groups are not trying to ruin the park. There are plenty of good examples around in Victoria and Tasmania, of mountain biking activities that are well managed in sensitive locations. The presence of mountain bikers may also deter any antisocial behaviour by others.

Submission 18: It is difficult to truly understand the cultural significance of a site to other groups or communities – there is a need for communities to just accept that some areas have this significance.

Submission 19: Many others also have a strong connection with this land.

Submission 20: The NPWS management plan for the area proposes 82 km of mountain bike trails along the Illawarra escarpment.

Submission 21: Does the Plan of Management allow for abseiling?

Council response to Submission 21: All abseiling activities beyond the cliff edge would occur on NPWS land. There needs to be some consideration given to unstable cliff faces. Access through the Park to abseiling areas is permitted.



Submission 22: Is the Botanic Gardens annex identified in the Plan of Management?

Council response to Submission 22: Yes.

Submission 23: How do we integrate surrounding attractions with Summit Park? While mountain biking happens on NPWS land, access is via Council land. Don't we need to integrate these aspects?

Council response to Submission 23: Cyclists can use the Public Road. Links to walking and off road tracks through the broader escarpment would be permissible but needs more detailed resolution.

Submission 24: If you can't drive up and park, you can't mountain bike, get coffee, etc.

Council response to Submission 24: The Plan of Management does acknowledge the linkages between mountain bike trails and broader networks – access roads.

Submission 25: Is the beginners trail in or out of Summit Park?

Council response to Submission 25: As mentioned earlier due to the cultural sensitivity of the site to Aboriginal communities, it has been removed from the concept plan. The plan of Management acknowledges the use of the existing road by mountain bikers for access to NPWS land and trails.

Submission 26: It seems that the beginners trail has been taken out of the maps but is still being considered.

Council response to Submission 26: Based on recent Aboriginal consultation, it is not proposed within the Summit Park but consideration will be given to integration between the park and surrounding trail network to enable access. This amendment has been made to maps, but not yet in the written documents.

Submission 27: In management of its land, NPWS focuses on more intensively used areas. It's hard to manage land in isolation of all other activities. How can Council manage Summit Park properly when 99 percent of activities are out of your control? The Plan of Management falls short as it doesn't address this. Summit Park is the access point for many uses that Council prohibits on its land.

Submission 28: Council is walking away from the difficult issues. Summit Park is a crucial part of mountain biking and other activities on NPWS land.

Submission 29: NPWS already has a Plan of Management for their land on Mt Keira, as part of the Illawarra Escarpment State Conservation Area.



Submission 30: Who is running the meeting on November 24?

Council response to Submission 30: The meeting is an information session and Council and NPWS will be there. The purpose of the meeting is to provide information so that people can make submissions with a greater understanding of plans for the area.

Submission 31: Consideration has to be more than just the summit. It is all connected – Mt Keira, Mt Kembla, etc.

Submission 32: There are good examples around of good land use integration to refer to – Mt Wellington in Hobart is a great example. There is untapped potential here.

Submission 33: There was a very successful café/kiosk previously in Summit Park that was removed. It needs to be restored to provide food and dining facilities for visitors.

End of verbal submissions and discussion.

NOTE - One written submission was presented to the Chair at the close of the meeting. This submission is attached to this report as Appendix 2.

The Chair thanked all present for their submissions and the hearing closed at 7.20pm.

End of report



Appendix 1.



→WOLLONGONG | CITY OF INNOVATION

Mt. Keira Summit Park Draft Plan of Management

Public Meeting

Independent Chairperson: Martin Bass

Wednesday 21 November 2018





Agenda

- Welcome and Introductions
- Public Meeting Process
- Presentation of Draft PoM
- Participation Guidelines
- General discussion/Comments/Questions
- Summary of Issues raised
- Meeting Close





The Public Meeting Process

- Sign In at the door All present
- Presentation on the Draft Plan of Management for Mt Keira Summit Park - Wollongong City Council and Consultant
- Ask questions for clarity all present
- General discussion to hear points of view and provide clarification on relevant issues – all present
- Summary of issues raised in general discussion
 - Chairperson
- Report on the issues raised at the Public meeting by the Chairperson included in a future report to Council on the results of the exhibition and community feedback of the draft Plans for Mt Keira Summit Park PoM - Chairperson





Draft PoM Presentation

Vanni De Luca Alistair Henchman

- Outline the background and process for development of a Plan of Management and Landscape Concept Plan for Mt Keira Summit Park
- Discuss key aspects of the proposed draft Plan of Management
- Timeframes





What's happened so far?

- Council endorsed a Vision for Mt Keira Summit Park back in June 2016
- Extensive community and stakeholder consultation was undertaken at that time
- Formed the basis upon which the Plan of Management and Landscape Concept Plan has been drafted





Council adopted Vision:



VISION

A TRIP TO MT KEIRA SUMMIT
PARK WILL CHANGE THE WAY
PEOPLE SEE AND EXPERIENCE
WOLLONGONG...
IT WILL BE A PLACE TO ENJOY
THE BEAUTIFUL VIEWS OF THE
CITY, MOUNTAINS AND THE
SEA AND TO APPRECIATE THE
CULTURAL AND
ENVIRONMENTAL LANDSCAPE
OF THE ILLAWARRA
ESCARPMENT THROUGH A
ANGE OF EXCEPTIONAL
SITOR EXPERIENCES





Planning Principles for Mt Keira Summit Park

EXPERIENCE

Provide exceptional cultural and nature based experiences that support tourism to the region and that are integrated with the Illawarra Escarpment State Conservation Area

APPRECIATE

Present information and experiences in a way that will enhance appreciation and understanding of the cultural and natural values of Mt Keira and the Hawarra Escarpment

INVOLVE

The Aboriginal community, tourism industry, local community and NPWS will be involved in decision making

INTEGRATE

Ensure visitor infrastructure and services are integrated and connected with the surrounding illawarra Escarpment State Conservation Area so that visitors are offered outstanding, high quality visitor experiences

RESPECT

Respect the wishes of the Aboriginal people to safeguerd and present their culture through a variety of means they consider most appropriate

CONSERVE

Contribute to the protection and conservation of the Escarpment's notural, cultural and scenic values

SUSTAINABLE

Visitor experiences will be economically viable and financially sustainable and demonstrate social and environmental benefits to the community





What is a Plan of Management?

- Sets out the objectives and permissible uses for Council managed lands.
- Defines the category of community land
- Site objectives
- Description of current condition and use of the land
- Future permissible uses / developments for the site
- Scale and intensity of future permissible uses
- The means by which Council proposes to achieve objectives and assess performance
- Not all permissible uses will occur and not all will be undertaken by Council





Endorsed 27 June 2016
 Sets out Planning Principles, Objectives and Opportunities for the site

Vision

Vision is the basis for the PoM

Community / Stakeholder workshops late 2016

· 42 day exhibition period including engagement strategy and public meeting

· Aboriginal consultation ongoing

Not a detailed masterplan

• Visual representation of PoM (prepared concurrently with PoM)

• Testing concepts in the PoM

Landscape Concept plan

PoM

Implement

- PoM is the enabling mechanism to achieve the Vision
- WCC and other stakeholders will implement various actions
- Resourced actions by Council reported via Delivery Plan and Capital program



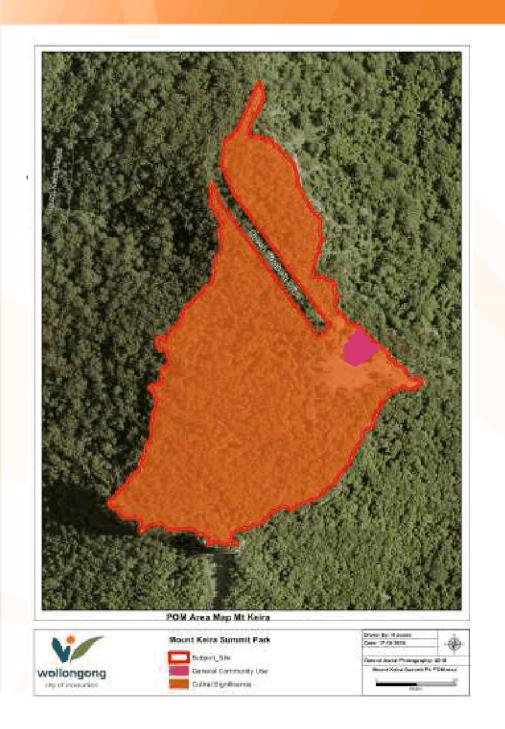






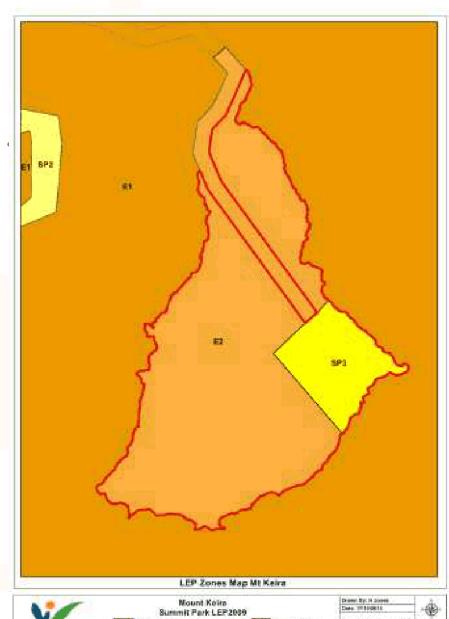
































- In general higher intensity uses and major infrastructure and facilities will be located within the General Community Use area (pink area)
- Uses and developments within the Area of Cultural significance will be compatible with the purpose of that land category and the protection, management, restoration and public appreciation of its cultural and natural values (brown area)





Specific infrastructure and developments will be subject to:

- Community consultation; appropriate investigation of biodiversity; cultural and social impacts; relevant development applications and environmental assessments; the LEP and SEPP's
- Financial feasibility assessment
- Provision is made for other agencies, commercial businesses, education institutions, not-for-profit organisations and other groups to participate in the activation of the Park
- It permits Council to enter into casual, short, medium or long term leases or licences up to a maximum of 30 years for any permitted use or development





What does the Plan allow for?

- ✓ Protection and enhancement of the Summit Park's values
- ✓ Improvements to scenic viewing infrastructure
- ✓ Improved tracks and trails (including high ropes course)
- ✓ Sustainable access infrastructure
- ✓ Picnic facilities
- ✓ Public toilets
- Food and beverage infrastructure and services







What does the Plan allow for (cont'd)?

- ✓ Improved wayfinding and interpretation
- ✓ Art, sculpture and commemorative plaques
- ✓ Aboriginal cultural activities
- ✓ Education and learning
- ✓ Group tours and activities
- ✓ Events and functions
- ✓ Site services
- ✓ Flora and fauna management







What does the Plan prohibit?

- Overnight camping
- Dog walking
- Hang gliding





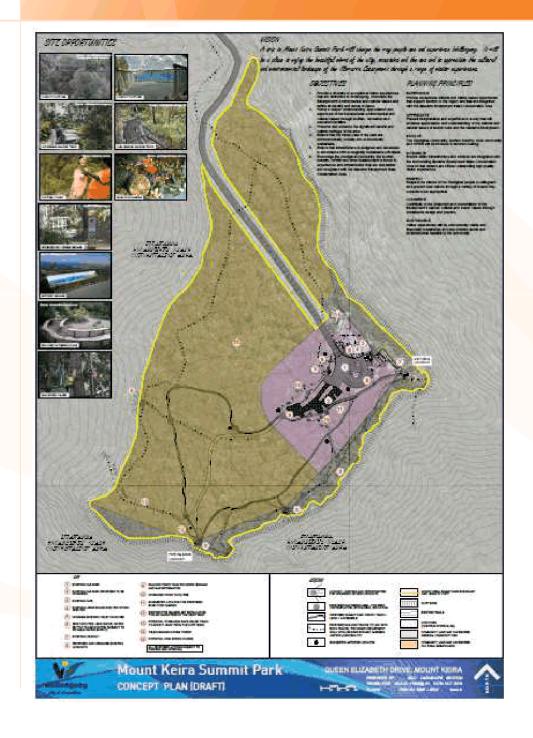


Landscape Concept Plan

- Prepared concurrently with Plan of Management
- Not a detailed masterplan
- Visual representation of Plan of Management to test ideas and concepts
- On exhibition with the draft Plan of Management

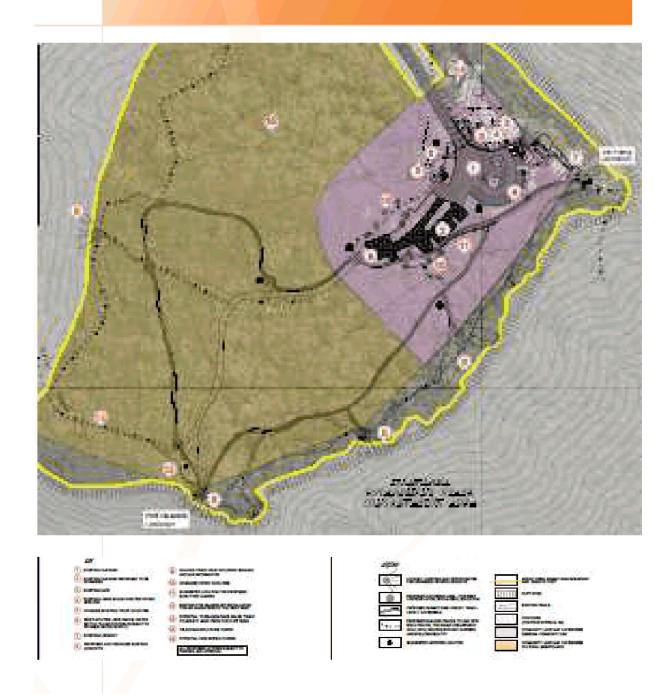
















When will the Plan be finalised?

- 42 day Plan of Management exhibition period closes 10 December 2018 written submissions via 'Have Your Say' website or hard copy to Council.
- Public hearing (tonight) 21 November 2018. All comments recorded.
- On-site information session this Saturday 24 November 2018, 10am-12pm. Verbal and written comments received.
- Submissions report and final Plan of Management to Council early 2019.





Participation Guidelines

- We will act together to ensure the forum is as constructive and informative as possible for all parties present
- We acknowledge at the outset that there is a range of differing views and opinions aired during this public meeting/hearing
- We respect the rights of others to voice opinions, ask questions and hear responses without interruption
- We will be clear and concise in asking questions and/or expressing our opinions and will give others equal time to ask their questions and express their points of view





Questions and discussion





Summary of Issues Raised

Brief overview of the meeting's discussion points





Meeting Close

Thank you for your interest and contributions!





Appendix 2.

1

Thursday 21st April, 2016 Mr David Farmer General Manager Wollongong City Council Locked Bag 8821 Wollongong DC NSW 2500

Dear Mr Farmer

RE: MT KEIRA ADVENTURE PLAYGROUND "A MOUNTAIN OF POSSIBILITIES" 2016 UPDATE

The Colong Foundation object to the vision document by Cardno (NSW/ACT) Pty Ltd that inappropriately spruiks a broad range proposed tourist infrastructure that might possibly be established on Mount Keira Summit Park without consideration of its environmental impacts.

These speculative proposals do not relate to or consider the ecological carrying capacity of the 9.5 hectare Mt Keira Summit Park.
Cardno's ideas are incompatible with the

2



reserve's primary purpose to protect flora and fauna. The vision report does not adequately consider the Illawarra Escarpment Strategic Management Plan, the objects of the E2 zone, the requirements for community land and the visitor management specified in the draft plan of management for the Illawarra Escarpment State Conservation Area.

The Colong Foundation for Wilderness requests that Wollongong City Council gift the Summit Park to the Foundation for National Parks and Wildlife for which the City may gain a tax-deduction. This reserve of community land was gifted to Council by Messrs E. Vickery and Son in 1925. The reserve must to be held in trust for conservation of flora and fauna in perpetuity. It is now appropriate that this land be added to the state conservation area to ensure the area's heritage and scenic values are not compromised by tourism developments envisioned by Cardno.

viable.

3



The Cardno report presents a dozen tourist development proposalsⁱ (perhaps seeking to maximise notional community support) with no real thought given to whether they are appropriate or

These proposals might be appropriate for a Disneyland-style adventure park on privately owned farmland, but not for an **E2 zoned** community reserve surrounded by a State Conservation Area.

As you know, the **E2** zone prohibits major recreational facilities. The objects of the **E2** zone also require that the high ecological, scientific, cultural or aesthetic values of the Summit Park be protected, managed and restored. Further, the proposal for a chairlift would cause visual **blight** and is incompatible with the E2 and E1 zoned land on the Illawarra Escarpment.

Remarks by some political leaders that the Summit Park is a blank canvas or a derelict site have further **distorted** public discourse on



the future visitor use management for this public reserve. This Park is well loved and cared for, except by those who constructed very steep and illegal bike trails within it.

The Colong Foundation agrees with concerned local conservationists who have made media statements and representations to Council opposing Cardno's vision statement for Mt Keira. These objections are an appropriate response to Cardno's speculative bid for tourism investment that would exploit the community's public land and degrade its heritage.

Your Council must oppose commercial tourism proposals on community's public reserve. Public reserves are not for major commercial purposes, as your recently adopted Local Environmental Plan states. Instead commercial tourism operators and investment speculators must be required to

5



buy appropriately zoned private land on which to undertake development.

The proposals for the Summit Park should be compatible with the visitor management of the surrounding Illawarra Escarpment State Conservation Area. For example, any proposal for mountain bikes should be on approved roads, including management roads. It would completely invert planning on the Illawarra Escarpment if Council lobbied the NSW Government for a change in management of the state conservation area to permit damaging commercial tourism development that is also partly on your Councils public reserve.

The future visitor management of the Summit Park should cater primarily for walkers and picnickers who are and will continue to be the primary users of the public reserve. The encouragement of additional adventure-type uses onto this reserve will almost certainly generate



additional visitor conflicts. It is poor management to encourage cyclists if doing so results in greater walker-cyclist and picnic-cyclist conflicts. Further, the illegal construction of bike tracks in Summit Park and the State Conservation Area should lead decision makers to reject any proposal that benefit this interest group. Council must stand up for nature, not for those who construct illegal tracks in public reserves.

For the above reasons the Colong Foundation supports Friends of the Wollongong Botanic Garden and National Parks Association (Illawarra Branch) requests that Mt Keira Summit Park be protected from commercial tourism and any facilities that would have adverse environmental impacts.

The Colong Foundation for Wilderness requests to be informed of your Council's actions in relation to the Mt Keira Summit Park, any changes to this reserve's



management and any development applications in relation to it.

Yours sincerely,
Keith Muir
Director
The Colong Foundation for Wilderness Ltd

^I The dozen development in the vision are

- 1. Zip line
- 2. \$25 million chairlift for bike riders
- 3. 25 kilometres of bike trails in the

Illawarra Escarpment SCA and Summit Park

- 4. A bike park
- 5. A café and function centre



- 6. A treetop adventure park
- 7. Segaway tours
- 8. A heritage mine
- 9. An indigenous village
- 10. Nature bird sanctuary
- 11. Ecolodge
- 12. Bobsled ride









NSW NATIONAL PARKS & WILDLIFE SERVICE

Illawarra Escarpment Mountain Bike Strategy Public Exhibition Report





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Introduction

30 October 2018 to 21 December 2018

Number of submissions



The National Parks and Wildlife Service (NPWS) and Wollongong City Council (Council) prepared the Draft Illawarra Escarpment Mountain Bike Strategy (Strategy) in recognition of the demand for a sustainable approach to mountain bike recreation on the Illawarra escarpment.

The primary emphasis of the Strategy is to deliver safe, sustainable recreation for a broad range of mountain bike riders consistent with the Illawarra Escarpment State Conservation Area (IESCA) Plan of Management. It identifies a potential mountain bike trail network of 82.2 kilometres on the escarpment, notwithstanding the final design of the network, including detailed planning, economic and environmental assessments and management reviews.

This public exhibition report summarises public feedback on the key themes raised in the public exhibition period, and outlines NPWS and Council's joint response to submissions.



Photo Mount Keira, Illawarra Escarpment State Conservation Area. Dan Irwin



Background

The demand for mountain bike riding and the construction of the illegal tracks on the Illawarra Escarpment has rapidly increased over recent years. The Illawarra escarpment presents a complex range of issues such as steep slopes, instability of soils, sensitive rainforest vegetation, Aboriginal cultural heritage values, complex land tenure boundaries and a history of community interest in conservation and recreation use.

In July 2015, in recognition of these issues, the then Minister for Environment endorsed a multi-agency stakeholder working group to develop a mountain bike strategy to identify sustainable mountain bike opportunities across the Illawarra Escarpment. The Working Group was appointed in 2015 and consisted of representation from Wollongong City Council, Destination Wollongong, Illawarra Mountain Bike Alliance, University of Wollongong and National Parks and Wildlife Service.

The Working Group engaged a consultant, Dirt Art who specialises in mountain bike track design and development. In 2018 a Feasibility Study was produced that included a mountain bike network across all land tenure of the Illawarra Escarpment. The report is commercial in confidence and was not released to the public.

The next stage of the project was to produce a Concept Plan that could be shared with the public for feedback. Dirt Art produced the Concept Plan with input from the Working Group. Based on the plans, Wollongong City Council and National Parks and Wildlife Service developed the Draft Illawarra Escarpment Mountain Bike Strategy which included information from the feasibility study and concept plan, environmental assessment and preliminary cultural heritage assessment.



Figure 1 Stages of the project

Consultation process

The Strategy was on public exhibition from 30 October 2018 to 21 December 2018. The original closing date of 10 December 2018 was extended by 10 days due to a high level of public interest.

The Strategy was available on the former Office of Environment and Heritage website and at multiple locations in hard copy.

Submissions

A total of 956 submissions were received.

A broad range of stakeholders provided feedback, including NSW Government, non-government organisations (e.g. Aboriginal stakeholders and environmental groups) and private individuals. The majority of submissions were made via the website. A large proportion of submissions were pro forma responses.

The high volume and varied sources of the submissions confirm a high level of interest in the proposal.



Overview of public exhibition responses

The National Parks and Wildlife Service (NPWS) and Wollongong City Council (Council) reviewed all submissions. The submissions addressed a wide range of issues that have been summarised under six key themes for this report.

- 1. Trail network and scale of proposal
- 2. Infrastructure and services
- 3. Development of the Strategy
- 4. Impact on the community
- 5. Environmental and cultural heritage impacts
- 6. Future management

The summary is not intended to be exhaustive, however, all major comments and issues have been analysed and included.

Trail network and scale of proposal

Submissions from riders broadly supported the proposed network's ratio of beginner, intermediate and advanced trails. Advanced riders requested a higher volume of black trails, particularly in Stage 1, to address demand and deter the development of illegal trails. They also sought further information on whether the Mount Keira Summit Park would form part of the network. The large volume of supportive rider submissions suggests a high demand for mountain bike facilities for riders of all styles and abilities.

The safety, environmental and community benefits of well-designed and built trails was widely acknowledged and supported in feedback, to protect the environment, ensure the safety of riders and support competitive events. Rider feedback also encouraged trail design and standards that would accommodate large competitive events and withstand wet-weather use. Some submissions suggested linking Balgownie with Mount Keira and encouraged planning beyond Stage 3 of construction.

Most rider submissions accepted that some existing trails would be closed for safety or environmental reasons. More information was sought about how track closures and rehabilitation would occur.

Submissions opposing the Strategy objected to the scale of mountain bike tracks proposed. Some consider trails on steep slopes, rainforest, important wildlife habitat, remote areas or near walking tracks as unsustainable or unsuitable. Others suggested that mountain bike trails should be restricted to existing NPWS management trails in the reserve, including fire trails.

Feedback from walkers contend that the planned volume of bike trails far exceeds walking tracks. Some submissions objected to the density of trails at Mount Keira and suggest the scale should be reduced. Concerns were also raised as to whether illegal trail development would continue despite the investment in a formal riding network. Some submissions also suggested that alternative sites outside the state conservation area should be investigated.

Infrastructure and services

Submissions that both supported and opposed the Strategy raised concerns about access and amenities. This feedback highlighted gaps in the infrastructure and services required to support the proposed mountain bike network.



Access was raised as a major issue. Supportive submissions sought further information about public transport links, shuttle uplift services, and cycle lanes to alleviate demand for parking. Riders also requested ongoing use of public roads and fire trails for uplift, and suitable access for spectators. Emergency access must be considered in any proposal. Opposing submissions highlighted tensions in relation to parking, traffic and general congestion. This feedback suggested a lack of detail about how to manage these issues undermined the Strategy.

Submissions additionally flagged the need for amenities such as toilets, litter bins and visitor information at access nodes. Opportunities for camping and the development of a smartphone application, including trails maps and other information, were also suggested.

Development of the Strategy

Submissions that opposed the Strategy raised issues around the consultation process and its consistency with legislation and other NSW Government strategies. These submissions stated the Strategy is a product of mountain bike and commercial interests, with little input from other interest groups such as park users, neighbours, environmental groups and the Aboriginal community.

Some responses perceived the Strategy as inconsistent with the *National Parks and Wildlife Act 1974*, the aims of the Illawarra Escarpment State Conservation Area Plan of Management and Council's Mount Keira Feasibility Study. A few respondents raised concern about a potential conflict of interest on the part of Dirt Art, who were engaged by NPWS and Council to design the mountain bike concept plan and helped to develop the Strategy. Further information was sought on economic and environmental assessments to confirm the feasibility of the Strategy.

Impact on the community

There was significant support for the proposal given the social and economic benefits a mountain bike network would bring to the region. The most commonly cited benefit was the potential regional economic opportunities for tourism and associated businesses, including the creation of local jobs. Many submissions cited international and interstate examples of sustainable mountain bike networks and their positive impact in reviving local economies.

The health and recreation benefits were strongly advocated. A number presented anecdotes of significant personal gains in health and wellbeing due to mountain bike recreation. Supporting young people to engage in physical activity was also seen as a significant benefit, notably in submissions from parents and children who ride as a family activity.

Criticism focused on adverse impacts on, and potential conflict with, other park visitors and neighbours due to the locations and intensity of the proposed development. Respondents contend that the proposal would deter or displace visitors, such as walkers and fauna enthusiasts, and that mountain biking is unsuited to areas used for passive recreation and the appreciation of nature.

Feedback inferred that existing conflict between users would be exacerbated by the Strategy. Many objected to intersections with walking tracks and the proposed proximity of mountain biking and walking tracks. They argued that the final trail network should ensure the separation of walkers and cyclists. Issues such as noise, privacy, security, rider conduct and numbers, property values and enjoyment featured prominently. This feedback suggested a lack of detail about how to manage these issues undermined the Strategy's feasibility.

More consultation was requested to develop a more inclusive plan.



Environmental and cultural heritage impacts

Submissions supporting the Strategy maintained that formal mountain bike trails would produce better environmental outcomes, by deterring the proliferation and use of illegal trails. Some feedback also argued that the impact of mountain biking is low compared to other activities on the escarpment, for example, mining. Involving riders in the development and management of trails, thereby fostering pride and ownership, was seen as a positive way to boost compliance and protection of the environment.

Submissions opposing the Strategy cited the proposal's impact on plants, animals, ecosystems and ecological sustainability of the reserve. This feedback argued the Strategy itself creates an unrealistic expectation that mountain bike use is ecologically sustainable. They argued the Strategy does not account for the long-term impact of the proposed network (during the construction phase and ongoing) on the natural values of the reserve including wildlife and their habitats, vegetation, rainforest, bushfires, weeds, soils and slope stability. A few respondents noted that, in comparison with technical trails, climbing and flow trails have a high environmental impact.

Opposing submissions argued that the proposed trails rewards unauthorised mountain bike developments and the environmental damage caused at the expense of low-impact users. Justification was sought for the nature, scale and intensity of the proposal, given the small size and important natural and cultural values of the reserve. Public exhibition of relevant cultural and environmental assessments was requested.

Submissions that did oppose the Strategy identified potential impact on Aboriginal cultural heritage values. Responses from the Aboriginal community stated that adequate consultation did not occur and that the cultural significance of Mount Keira (Djera) and Mount Kembla (Djembla) was overlooked. A number of respondents, including Aboriginal groups, oppose any mountain biking on Mount Keira. This feedback sought increased compliance action against existing trails. More consultation was requested to ensure the protection of Aboriginal cultural heritage. Submissions suggested that alternative sites outside the state conservation area should be investigated to mitigate environmental and cultural heritage concerns.

Some submissions also noted the existence and importance of mining heritage on the escarpment.

Future management

Submissions on the management of the proposed network sought clarity around governance, resourcing, compliance, delivery timeframes, management and maintenance costs.

Supportive submissions suggested that involving riders and local businesses in trail management would be necessary to manage trails and ensure compliance. Some cited intrastate examples where this approach operates successfully. Opposing submissions argued that self-regulation would not ensure compliance and that active policing and auditing of trails would be required, possibly including fines. Further information was requested about how the network will be managed and the roles of NPWS and Council.

A large proportion of submissions questioned the resourcing available to construct and maintain the tracks. Supportive submissions suggested potential funding sources, including user-pays arrangements, a non-profit partnership between NPWS, Council and users or via club events and competitions. Some submissions feared commercial management of the trail network would have negative outcomes for other users and the environment. Submissions from walkers argued that funding for the Strategy should be contingent on equal resources being allocated to walking tracks and other visitor facilities.



Opposing submissions viewed the Strategy as diverting resources away from other management activities and facilities. Others maintained that the upgrade, closure or rehabilitation of illegal trails should be costed first. The view that management resources need to be guaranteed up-front was expressed in many submissions. Many submissions held that mountain bike trails should not be funded until the NPWS is sufficiently resourced to locally manage its primary functions.

Submissions sought further information on the management of overcrowding, safety, incidents and liability, given the growing demand for mountain bike recreation in the region, high risk ranking of mountain biking and the safety risk to walkers and others.

Some questioned whether cessation of all mountain bike use on the escarpment was considered.

Management response

Trail network and scale of proposal

Delivering sustainable trails and servicing riders of all abilities are key goals of the Strategy. The final design of the network, including the scale, location and ratio of trails, is subject to detailed planning, economic and environmental assessments and management reviews. The aim of staged implementation is to allow potential impacts to be monitored and amended if needed. Capacity for events and the feasibility of all-weather trails will be addressed during the detailed planning and design stage.

NPWS and Council will continue to explore alternative trail locations, providing they meet sustainability, access and land ownership criteria. Existing vehicle access routes and NPWS management trails will also be considered. Cycling on fire trails is already permitted under the IESCA Plan of Management.

NPWS and Council consider that well-designed and built trails will deter continued illegal trail development and use. Trails that do not meet acceptable safety or environmental standards need to be closed noting closure and rehabilitation of trails is subject to funding availability. The identified network aims to avoid sensitive areas and walking tracks.

A walking track network of equal volume is proposed in the Illawarra Escarpment Walking Tracks Master Plan (NPWS 2006). Implementation of the Illawarra Escarpment Mountain Bike Strategy and the Walking Tracks Master plan is subject to funding and must satisfy cultural and environmental assessments.

Infrastructure and services

Council exhibited a Draft Plan of Management for Mount Keira Summit Park concurrently with the Draft Illawarra Escarpment Mountain Bike Strategy. Maintenance and upgrade of parking facilities (including drop off and pick up areas for buses and coaches, taxis and commercial operators), improved or new toilets, a demountable or permanent café or restaurant and food vans or pop-up food services were included items. The community feedback on the exhibition period will be reported back to Council.

Opportunities for improving cycle infrastructure links to train stations and nearby major attractors are being considered as part of Council's review and update of its Bike Plan. Mount Keira Road will continue to be maintained as a public road and is recognised as a popular cycling route. Cycling on fire trails is permitted under the IESCA Plan of Management.



Rider, spectator and emergency access will be provided for in the final network design.

Pending finalisation of the network design, NPWS, Council will develop visitor information and install relevant signage.

Development of the Strategy

The Strategy was developed by NPWS and Council. Input was provided through Governance and Working Groups consisting of NSW Government agencies, tourism bodies, mountain bike groups and landowners. Environmental consultants had also guided the development of the draft Strategy.

NPWS and Council developed a constraints map to inform mountain bike trail alignment (trail routes). The constraints maps drew on data from environmental and other studies on biodiversity, conservation assessments, environmental disturbance, soils and slope stability. The Strategy prioritises alignments that utilise disturbed areas and avoid known constraints. Steep terrain, areas with extreme soil erosion potential, lands prone to landslides, rockfalls or flooding, and areas of high conservation importance were avoided.

The Strategy was also informed by preliminary environmental studies, Council's mountain bike feasibility study and Dirt Art's concept plan. Dirt Art is a company that specialises in mountain bike trail design. Dirt Art was engaged by NPWS in accordance with NSW Government procurement guidelines.

The IESCA Plan of Management was approved in September 2018. It is a statutory document that provides for the development and implementation of a mountain bike strategy, subject to public exhibition of the Strategy and an environmental impact assessment.

The Strategy is consistent with the NSW National Parks and Wildlife Act 1974.

Impact on the community

The aim of staged implementation is to allow the impacts of the proposal, including conflicts with other park users and the community, to be monitored. Mountain bike use will not be formalised where conflicts with other values cannot be managed. Safety of visitors will be managed through physical separation of cycling and walking trails, maps and signposting, and design of trails, exits and intersections.

The final network design will provide for beginner and family trails up to intermediate and advanced trails. Strategies to manage visitor numbers, including parking controls, will be determined during the detailed planning and design stage. NPWS and Council consider that attracting a broad range of riders and involving riders in trail management will deter poor conduct by the minority.

The Strategy aims to minimise impacts on nearby residential areas. NPWS and Council will liaise with nearby residents if projects are developed in nearby areas.

Environmental and cultural heritage impacts

There is existing and growing demand for mountain bike recreation in the Illawarra. This is evidenced by the large number of supportive submissions and the proliferation of illegal trails. Prohibiting mountain bike recreation on the escarpment is not considered by NPWS and Council to be feasible. The primary emphasis of the Strategy is to deliver safe, sustainable recreation on the Illawarra escarpment. NPWS and Council consider that sustainable mountain bike recreation can occur on the escarpment and that sustainably-designed and built trails will provide better environmental outcomes than illegal trails.



The final design of the trail network will be subject to comprehensive environment assessment under Part 5 of the NSW *Environmental Planning and Assessment Act 1979* (also known as a Review of Environmental Factors or REF). This assessment will assess the impact on community, cultural heritage, biodiversity, economic, slope stability and other impacts.

For environmental reasons, some types of trail and the use of machinery might not be acceptable in some parts of the state conservation area.

NPWS and Council acknowledge the cultural significance of Mount Keira (Djera) and Mount Kembla (Djembla) to Aboriginal people. NPWS will continue to explore possible partnerships with the Aboriginal community and alternative trail locations, providing they meet capacity, access and land ownership criteria.

Future management

The governance arrangements and roles of NPWS and Council in managing the trail network have not been determined. NPWS and Council are exploring all options, including ways to involve mountain bike organisations, local businesses and riders in trail management and compliance. Penalties for offences identified within national parks legislation and regulations apply to activities within the state conservation area.

The implementation of the Strategy and timing of the closure and rehabilitation of illegal trails is subject to funding.

NPWS and emergency response organisations manage emergencies and other incidents in accordance with established procedures, including Local Emergency Management Plans and NPWS guidelines.

Next steps

Stakeholder consultation

NPWS will continue to engage with affected stakeholders to finalise the Strategy. Once approved, the Strategy will be implemented in stages to allow the impacts of the proposal to be monitored. Implementation of the final Strategy is subject to available funding.

The Illawarra Escarpment Mountain Bike Governance Group will continue, with membership to include NPWS, Council and Regional NSW.

An Illawarra Escarpment Mountain Bike Advisory Group will also be established. Membership will reflect a broad range of business, risk and technical skills to provide advice on Strategy development and management approaches. Aboriginal stakeholders will be represented on this group. The Advisory Group will report into the Governance Group.

National Parks and Wildlife Service, Council and Regions NSW will invite representatives from Destination Wollongong, Illawarra Local Aboriginal Land Council, Illawarra Mountain Bike Alliance, Illawarra Escarpment Alliance, Illawarra Wingecarribee Alliance Aboriginal Corporation, Destination Sydney Surrounds South, National Parks Association, South 32, WaterNSW, Office of Sport and University of Wollongong.



Assessment process and final Strategy

Before the strategy is finalised and works start, NPWS and Council must have completed:

- A comprehensive and detailed environmental assessment to determine the impact of the proposal when the proposed trail network is finalised. Activities within NPWS reserves are assessed under Part 5 of the NSW Environmental Planning and Assessment Act 1979. The final design of the trail network is subject to this assessment and may be refined or changed to reduce the environmental impacts.
- NPWS and Council need to determine the best operating model, given the trail network goes across both NPWS and Council land. The arrangements must property address risk and maintenance of the trails and facilities.

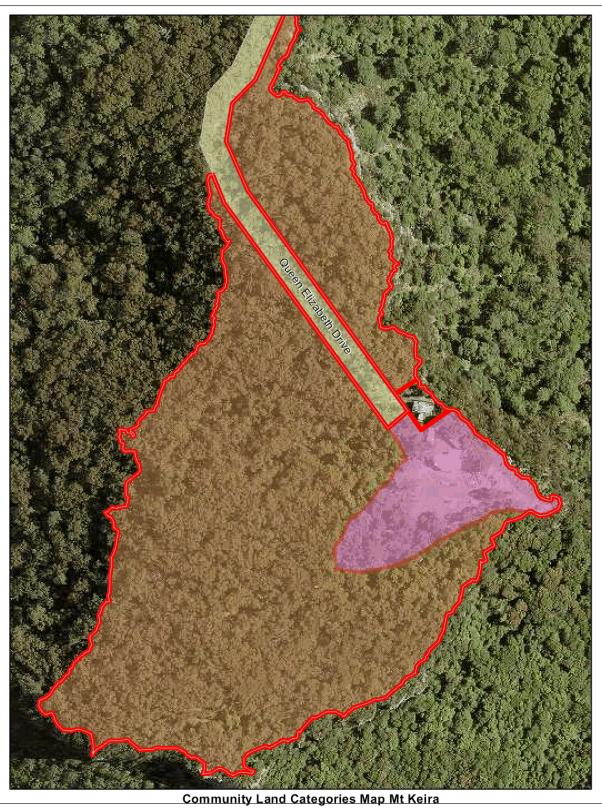
Planning assessments of the final Strategy is subject to available funding.

Work that is undertaken for the project will be accordance with NSW Government Procurement Policy Framework to ensure an equitable process is followed that guarantees the best outcomes for the community.



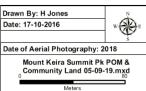
Figure 2 Assessment process















Mt Keira Summit Park PLAN OF MANAGEMENT

December 2019







The Mt Keira Summit Park Plan of Management was prepared by TRC Tourism Pty Ltd for Wollongong City Council.

Acknowledgements

Images used in this Plan are courtesy of Wollongong City Council, Destination Wollongong and TRC Tourism except where otherwise indicated.

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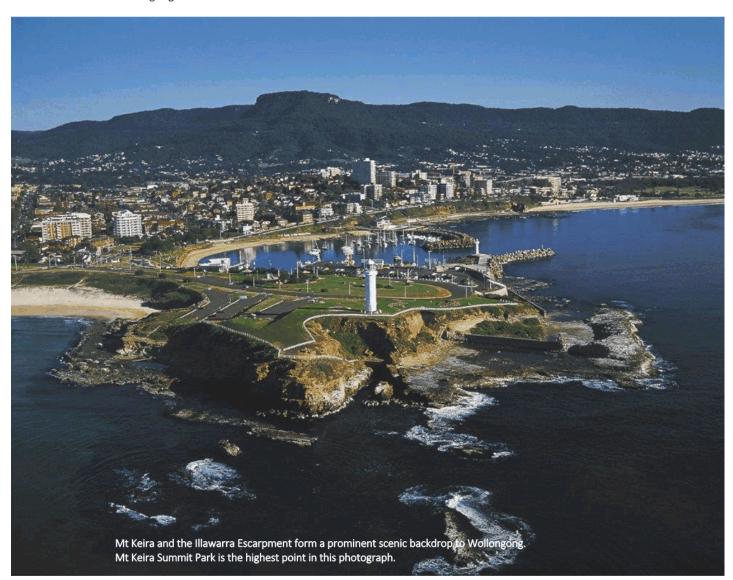
IESCA	Illawarra Escarpment State Conservation Area
IESMP	Illawarra Escarpment Strategic Management Plan 2015
LEP	Wollongong Local Environment Plan
NPWS	National Parks and Wildlife Service
POM	Plan of Management



1 Introduction

1.1 Background

Mt Keira Summit Park (the Summit Park) occupies a 9.4 hectare, relatively flat area of land at the top of Mt Keira about 10 km or a 20 minute drive from the Wollongong CBD. Mt Keira is a prominent scenic landmark which, at 464 metres above sea level, provides a unique visual backdrop to the west of the City of Wollongong. It is part of the Illawarra Escarpment which forms an impressive line of steep slopes and cliffs bordering the Wollongong coastal plain and is a major topographic feature that contributes to the character and amenity of the city and surrounding region.





Mt Keira Summit Park, managed by Wollongong City Council as an annex to the Wollongong Botanic Garden, is Community Land under the *Local Government Act 1993*.

The Park contains visitor infrastructure (including the Victoria Lookout, a car park, kiosk, walking track and picnic facilities) and is accessed by Queen Elizabeth Drive from the Mt Keira Road. The majority of the Park is uncleared natural forest which provides habitat for a range of native animal species. It contributes to the high biodiversity and landscape values of general region and the surrounding Illawarra Escarpment State Conservation Area (IESCA) which is managed by the NSW National Park and Wildlife Service (NPWS).

The Summit Park is a special place for the Wollongong community, featuring unique layers of heritage and history. Its natural and scenic character has been enjoyed by generations of residents and visitors. Mt Keira's summit is important to, and actively used by, the traditional Aboriginal custodians of the Illawarra. The summit of the mountain is linked to Aboriginal creation stories of the mountain and surrounding areas. It also features stories of European settlement and development of the region, its culture and lifestyle and community participation in development of the Park itself.

People visit the Summit Park to enjoy the outstanding scenery and natural environment, to picnic, socialise, showcase the area to visitors and for outdoor activities such as bushwalking and rock climbing on cliffs bordering the Park. A network of walking tracks in the IESCA connect to the Summit Park. The summit is also a destination for road cycling and features in several regional recreational and sporting events.

Recent changes within and adjacent to the Summit Park have affected public use and enjoyment and have had implications for the ongoing management and use of the Park that are addressed in this Plan of Management. Landslips and slope instability have led to the closure of the Five Islands Lookout in the Summit Park and parts of walking tracks in the adjacent IESCA which connected to the Summit Park. Rock climbing has also been limited to an area to the west of the Park. The former restaurant/function centre on the summit has been closed and the building has been removed and replaced by a container housing a kiosk. Upgrades of park facilities and services are being undertaken. In addition, it is envisaged that strong growth in Wollongong's population (across the range of age groups) and a projected increase in visitor numbers to the region will lead to increased demand for recreational use of the Summit Park and improved visitor facilities and opportunities.

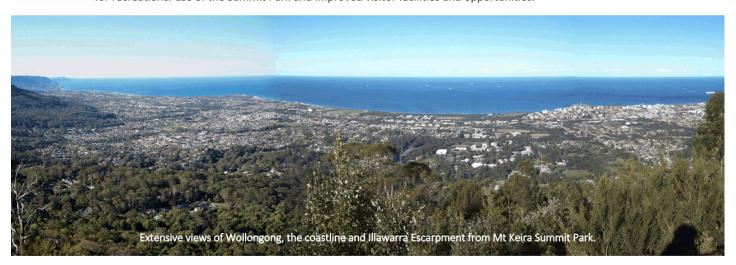




Figure 1: Location of Mt Keira Summit Park





1.2 Purpose of the Plan of Management

This Plan of Management has been developed to guide revitalisation and sustainable management of Mt Keira Summit Park in a way which protects and showcases its special scenic, natural and cultural values; recognises community aspirations for use of the area as an important natural, cultural and recreational asset; and provides quality experiences for its visitors.

The Plan of Management is a statutory document which sets out for the community how Wollongong City Council plans to manage Mt Keira Summit Park into the future. Division 2 of the *Local Government Act 1993* requires the Council to prepare a plan of management for community land and to use and manage the land only in accordance with that plan. The Local Government Act also requires that a plan of management must identify the objectives, performance targets and permissible uses for community land. Table 1 indicates how this Plan of Management incorporates the requirements of the Local Government Act. The relevant sections of the Act are provided in Appendix A.

Table 1: Requirements of Local Government Act relevant to contents of this Plan of Management

Requirements of the Local Government Act 1993	Reference in this Plan of Management
 S. 36(2)(a) – identification of the category of community land. S. 36D(3)(a) – statement that the land is an area of cultural significance. 	Section 2.1.
S. 36(2)(b) – identification of objectives with respect to the land S. 36D(3)(c) – identification of objectives designed to protect the area and incorporating the core objectives under the Act for an area of cultural significance	Section 6.2 sets out management objectives.
S. 36(2)(b) – identification of performance targets with respect to the land S. 36D(3)(c) – identification of performance targets designed to protect the area and incorporating the core objectives under the Act for an area of cultural significance	Performance targets are identified for each action in the Implementation Plan in Table 4, section 6.2.
S. 36(2)(c) – identification of the means by which the council proposes to achieve the plan's objectives and performance targets.	The Implementation Plan in Table 4, section 6.2.
S. 36(2)(d) – identification of the manner in which the council proposes to assess its performance with respect to the plan's objectives and performance targets.	The Implementation Plan in Table 4, section 6.2.
S. 36(3A)(a) – description of the condition and use of the land and any buildings and improvements.	Chapter 3.
S. 36(3A)(b) – specification of the permitted uses and developments of the land and any buildings and improvements, and the scale and intensity any permitted uses and developments.	Section 6.1, Table 3.



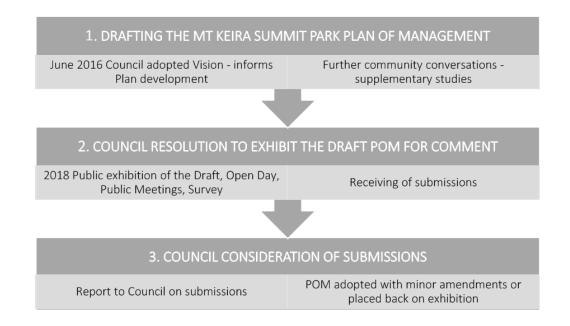
1.3 Making of the Plan of Management

As a first step community and stakeholder input was sought to develop a Vision that would set out the community's aspirations for the protection, use and sustainable management of Mt Keira Summit Park. An important element of this stage of consultation involved discussions with the Aboriginal community to understand their aspirations for this significant place. Between February and April 2016 information on the vision process was provided on the Wollongong City Council website. The views of the broader community, organisations and agencies were obtained through face to face meetings, a community open house forum, a visitor survey, a number of community workshops and circulation of a draft Vision to the community for comment. The Vision for the Summit Park was adopted by Council in June 2016 and has been incorporated into this Plan of Management (see chapter 5).

This Plan of Management was then developed with further input from the community and organisations and agencies with an interest in the Summit Park. Information about the development of the Plan of Management was presented on the Wollongong City Council website and a community workshop was held in September 2016 to identify the key issues to be addressed in the draft Plan. Several background studies were conducted to inform the development of the draft Plan and assess the feasibility of future options for the Summit Park. These included a Preliminary Biodiversity Assessment, a draft site Concept Plan and assessment of options for installation of a permanent power supply.

Before adoption of a plan of management section 38 of the *Local Government Act 1993* requires Council to place a draft plan of management on public exhibition so that the community has an opportunity to consider the proposed management measures and make submissions to Council.

The process followed in developing the Mt Keira Summit Park Plan of Management (POM) is summarised below.





2 Planning Requirements

2.1 Park Area and Land Use Requirements

Land to which this Plan of Management applies

This Plan of Management applies to the area of Community Land (Lot 1 DP875991) identified in accordance with section 26 of the *Local Government Act 1993* as comprising Mt Keira Summit Park (see Figure 2). It does not apply to the adjacent area of Operational Land occupied by a telecommunications tower or to the road reserve for Queen Elizabeth Drive which provides road access to the Summit Park (see Figure 2). The boundaries of the Summit Park land adjoining the IESCA extend to the top of the cliff line. The cliff face and land below the cliffs is within the IESCA.

Figure 2: Land Classifications under the Mt Keira Summit Park Plan of Management



Mt I



Local Government Community Land Categories

Mt Keira Summit Park contains two categories of Community Land which have different management objectives under the *Local Government Act 1993* (see Figure 3).

The majority of the Summit Park is categorised as an Area of Cultural Significance. Under section 36H of the Local Government Act the core objectives for management of an Area of Cultural Significance are to retain and enhance the cultural significance of the area (namely its Aboriginal, aesthetic, archaeological, historical, technical, research or social significance) for past, present or future generations by active conservation (see Appendix A). This may include preservation, protective care and maintenance, restoration and reconstruction of the land (and any related buildings) and adaptive reuse to allow uses compatible with its cultural significance.

An area of the Summit Park is categorised for **General Community Use**. Under section 36I of the Local Government Act the core objectives for management of General Community Use land are to promote, encourage and provide for the use of the land and provide facilities to meet the current and future needs of the local community and the wider public in relation to:

- public recreation and physical, cultural, social and intellectual welfare
- the purposes for which a lease, licence or other estate may be granted.

Previously the General Community Use area was limited to the former restaurant site and was included in Council's Generic Plan of Management for Community Land. By the making of this Plan of Management for Mt Keira Summit Park the General Community Use area will be extended to cover the Park's main visitor infrastructure which is in the vicinity of Victoria Lookout and carpark (see Figure 4). The former restaurant site will be excised from Council's Generic Plan of Management for Community Land. The rest of the Mt Keira Summit Park will have a Plan of Management over it for the first time.



Figure 32: Adopted Community Land Categories under the Mt Keira Summit Park Plan of Management





Local Environment Plan Zoning

The Wollongong Local Environmental Plan 2009 (LEP) is a statutory instrument prepared in accordance with the Environmental Planning and Assessment Act 1979 to set out development objectives and consent requirements for particular areas. Under the LEP most of the undeveloped land in Mt Keira Summit Park is zoned as E2 – Environmental Conservation (see Figure 4). The objectives of the E2 zone under the LEP are to:

- protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values
- prevent development that could destroy, damage or otherwise have an adverse effect on those values
- retain and enhance the visual and scenic qualities of the Illawarra Escarpment
- protect land forming part of the Sydney Catchment Authority's hydrological catchment.

The *Illawarra Escarpment Strategic Management Plan 2015* (see section 2.2 below) sets out desired outcomes for the management of all E2 zoned land in the escarpment as:

- land use which protects and enhances escarpment lands which have special conservation, cultural and historical, aesthetic or scenic qualities
- active management to enhance watercourses and their riparian buffer areas
- active management to conserve areas that contain high biodiversity values
- conservation of natural habitats for native plants and animals within the escarpment lands
- conservation of areas that comprise high visual or cultural amenity such as cliff faces, ridges
- enhancement of environmental and/or ecological corridors
- provision of opportunities for public appreciation of the escarpment environment and its cultural heritage where conservation is not compromised.

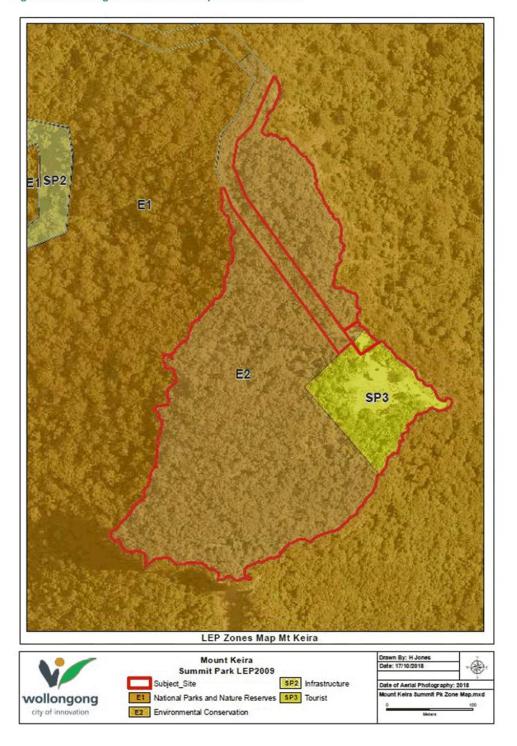
Council's consent is required for the development of environmental facilities, environmental protection works, extensive agriculture and recreation areas in the E2 zone. Other developments are prohibited, including major recreation facilities, business premises, hotel or motel accommodation, industries, retail premises and housing.

The area occupied by the former restaurant, picnic area and Victoria Lookout is within the SP3 Tourist zone under the LEP (see Figure 4). The SP3 zone is intended to provide for a variety of tourist-oriented developments and related uses. Building and business signage is permitted without consent. Uses that are permitted with Council's consent include roads, major recreation facilities, outdoor recreation facilities, visitor accommodation, food and drink premises, kiosks, entertainment facilities, function centres and information and education facilities.

The two zones apply across the LGA and are not specific to Mt Keira. This Plan of Management provides an additional layer of land use control by specific uses that are permissible.



Figure 4: LEP zoning in Mt Keira Summit park and surrounds





2.2 Other Applicable Legislation and Plans

Under section 35 of the *Local Government Act 1993*, community land is required to be used and managed in accordance with a Plan of Management and any law permitting the use of land for a specific purpose. Table 2 sets out the legislation (other than the Local Government Act) which applies, or potentially may apply, to management and use of Mt Keira Summit Park.

Table 2: Main legislation applicable to Mt Keira Summit Park

Legislation	Application to Mt Keira Summit Park
Environmental Planning and Assessment Act 1979 (NSW)	This Act provides environmental planning instruments for development control at the state (State Environmental Planning Policies), regional (Regional Environmental Plans) and local (LEPs) levels. While this Plan of Management determines permitted uses in the Summit Park specific activity or development proposals will require assessments through a development application (DA) process under Part 4 of this Act. Where a proposal is likely to have a significant impact on the environment an environmental impact assessment (EIA) must be conducted under Part 5 of the Act. The DA and EIA (where applicable) processes consider and provide the public with information on the environmental, social, cultural and economic impacts of the proposed activity or development and enable members of the public to comment on the proposal.
National Parks and Wildlife Act 1974 (NSW)	Under Part 6 of this Act it is an offence to knowingly disturb an Aboriginal object or site without a consent permit issued by the Office of Environment and Heritage (OEH). Traditional Aboriginal cultural activities, conservation works and emergency activities are exempt from this provision.
Heritage Act 1977 (NSW)	This Act covers the protection and management of non-Aboriginal heritage. It provides for listing of significant sites on the State Heritage Register or under Local Environmental Plans.
Biodiversity Conservation Act 2016 (NSW)	Commenced in August 2017 (and replacing the previous <i>Threatened Species Conservation Act 1995</i>) this Act provides for the management of biodiversity conservation and native vegetation, including through a Biodiversity Offsets Scheme, declaration of Areas of Outstanding Biodiversity Value and protection of threatened species. It provides for the listing and protection of threatened flora and fauna species and ecological communities and the management of threatening processes (which include some pest animals and pathogens). Any developments within Mt Keira Summit Park will need to demonstrate compliance with this Act.
Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)	This Commonwealth legislation provides for the protection of nationally significant threatened species and cultural heritage. There were no nationally significant matters under this Act within Mt Keira Summit Park at the time of writing this Plan of Management. However, compliance with this Act should be demonstrated in consideration of developments within the Summit Park.
Biosecurity Act 2015 (NSW)	This Act provides for the management of animal and plant pests, diseases and contaminants that threaten the environment, biodiversity, the economy and the community. Regulations, policies and procedures for are being developed. This Act replaces a range of legislation including the <i>Noxious Weeds Act 1993</i> .
Rural Fires Act 1997 (NSW)	Under section 63 of this Act Public authorities have a duty to take steps to prevent the occurrence of bush fires on their land and minimise the danger of the spread of bush fires from that land. Bush Fire Management Committees are constituted for rural fire districts (in this case the Illawarra Bush Fire Management Committee) and required to develop Bush Fire Risk Management Plans.



Several plans and strategies for areas in the region surrounding Mt Keira Summit Park provide guidance and principles relevant to the management of the Summit Park.

Illawarra Escarpment Strategic Management Plan 2015

The *Illawarra Escarpment Strategic Management Plan 2015* (IESMP) was developed by Wollongong City Council in consultation with government agencies, landholders and community groups. The Plan guides the Council in its role of coordinating and influencing management of the multiple tenures of the Illawarra Escarpment (which includes Mt Keira Summit Park) in partnership with relevant government agencies and landholders and through planning controls in the Wollongong LEP. The IESMP vision and guiding principles highlight the importance of protecting and actively managing the natural and cultural values of the escarpment; taking a long term, holistic, cross-tenure approach to management; involvement of all sectors of the community in management; and the application of ecologically sustainable development principles to management of assets.

VISION FOR THE ILLAWARRA ESCARPMENT

The Illawarra Escarpment is an outstanding feature of the Illawarra region providing a natural backdrop to the city as well as encompassing areas of high conservation value and rich cultural heritage. The long term vision for this area is for these values to be preserved and enhanced through public reserve or private stewardship.

from IESMP 2015

In addition to legislative requirements, the IESMP indicates that Wollongong City Council requires planning proposals within the Illawarra Escarpment to address issues related to protection of escarpment values including conservation and protection of vegetation and flora and fauna species; long term enhancement of the escarpment; reports on Aboriginal and non-Indigenous heritage values; a visual impact assessment; a bush fire assessment; a geotechnical assessment in areas of known instability.

Wollongong Community Strategic Plan

Wollongong's 10 year Community Strategic Plan, *Our Wollongong 2028*, adopted by Council in June 2018 sets out strategies to achieve the vision:

From the mountains to the sea, we value and protect our natural environment and we will be leaders in building an educated, creative and connected community.

The Strategic Plan addresses challenges facing the City of Wollongong associated with enhancing the City's environment and character while addressing population growth and change, revitalisation of infrastructure and services, diversification of the economy, and maintenance of community wellbeing.

Strategies relevant to the Mt Keira Summit Park include:

- the protection, management and improvement of the natural environment
- active engagement of the Aboriginal community in management of Indigenous heritage
- provision of a variety of quality public spaces for sport, leisure, recreation and cultural activities
- building Wollongong as a tourism destination.



Illawarra Shoalhaven Regional Plan

The *Illawarra Shoalhaven Regional Plan 2015* provides a strategic policy, planning and decision-making framework for government agencies, local councils and the community in achieving sustainable growth in the Illawarra Shoalhaven region over the next 20 years. In accordance with a planning direction under section 117 of the *Environmental Planning and Assessment Act 1979* all planning proposals and reviews of existing planning controls in the region must be consistent with the requirements of this Regional Plan. Key principles underpinning the Regional Plan relevant to future uses of Mount Keira Summit Park are protection of land with high environmental value and protection of cultural heritage values; sustainable use of land; and building a strong, resilient and diversified economy. Tourism is identified as a priority growth sector.

Bush Fire Risk Management Plan 2015

The cross-tenure *Illawarra Bush Fire Risk Management Plan* prepared in accordance with the *Rural Fires Act 1997* sets out actions, protection zones and guidelines for risk evaluation for management of bushfire risk. Mount Keira Summit Park is classified as having an extreme risk of bushfire and the Plan identifies requirements for hazard reduction around assets on the summit and vegetation maintenance works to reduce hazards in other areas.

The Bush Fire Risk Management Plan indicates that the Illawarra Escarpment in general has experienced wildfires on many occasions generally burning to the east driven by westerly wind and also initiating in the east driven by southerly or easterly winds. The main ignition sources for wildfires are arson (especially in high visitation areas during summer), car dumping, lightning (especially at the top of the escarpment), arcing from high voltage powerlines, and escapes from legal or illegal burns (generally in mid to late spring).

2.3 Relationship with the Illawarra Escarpment State Conservation Area

The Illawarra Escarpment State Conservation Area (IESCA), managed by the NSW National Parks and Wildlife Service (NPWS) consists of six separate parcels of land extending for about 40 kilometres along the escarpment, including the portion at Mount Keira. The area was first gazetted in 1980 as the Illawarra State Recreation Area on land donated by Australian Iron and Steel Pty Ltd (now BHP-Billiton) and has since been extended.

The location of Mt Keira Summit Park surrounded by the IESCA means that there are interconnections between management and use of both parks. Actions in one park may have implications for protection of values, operations and visitor use in the other. Currently, walking tracks in the IESCA link with tracks in Mount Keira Summit Park and access to rock climbing on the Mount Keira cliffs (which are in the IESCA) is obtained through the Summit Park.

The Mount Keira Scout Camp and the Mount Keira Girl Guide Camp in the IESCA (which have traditionally used the tracks on Mount Keira and the Summit Park) are operated under licences from the NPWS which permit recreational activities compatible with the areas' values.

In 2019 a new Plan of Management for the IESCA under the provisions of the *National Parks and Wildlife Act 1974* was adopted by the NPWS. Wollongong City Council and the NPWS are working cooperatively to achieve compatibility between the plans for the two parks and integrated approaches to management and visitor experiences. NPWS is undertaking consultation and planning related to the track network. Mountain biking opportunities across the IESCA and the Illawarra escarpment area are being considered by NPWS, the Council and other stakeholders.



2.4 Geophysical Constraints

The boundaries between Mt Keira Summit Park and the IESCA are formed by steep sandstone cliffs and slopes. Victoria Lookout and Five Islands Lookout are situated at the top of those cliffs in the east and south of the Summit Park respectively. The walking track linking the two lookouts skirts the top of the cliffs. Geotechnical assessments of the cliffs conducted following a major rockslide below Five Islands Lookout identified areas of instability along the cliffs. To mitigate public risk Five Islands Lookout in the Summit Park was closed and in 2012 NPWS closed an area of the IESCA below the cliffs to public access.

The instability of the cliffs has implications for the location of infrastructure and visitor activities in the Summit Park. Actions to address geophysical instability issues are provided in chapter 6 of this Plan.





Rockfall below Five Islands Lookout showing overhanging area of the cliff. Source: Phil Flentje, University of Wollongong



3 Existing Uses and Structures

3.1 Site Infrastructure

The existing infrastructure at Mt Keira Summit Park is shown in Figure 5.

Road access to the Summit Park and Victoria Lookout is provided from the Mt Keira Road by Queen Elizabeth Drive. The gate to the park (located outside the Summit Park at the junction with Mt Keira Road) is currently closed between sunset and sunrise.

The visitor facilities at the Summit Park are concentrated at the end of Queen Elizabeth Drive near the Victoria Lookout. A sealed asphalt carpark provides 23 car spaces, 3 disabled car spaces and 2 bus spaces adjacent to the kiosk and Victoria Lookout. A gravel carpark adjacent to the picnic area has space for 20 to 21 cars. A toilet block is situated at the rear of the carpark.

A short path leads from the carpark to Victoria Lookout. The entrance to the lookout is framed by a sandstone wall that was part of the original mountaintop development.

A stone monument commemorates the donation of land for the Summit Park by E Vickery & Sons in 1925 and Australian Iron & Steel Pty Ltd in 1957 and the construction of Queen Elizabeth Drive and park facilities as an initiative of the Rotary Club of Wollongong and volunteers.

The Victoria Lookout structure, which has been gradually extended since the 1950s, consists of an open paved viewing area connected by a wide walkway and a lower viewing area. Seating and picnic tables are provided and safety fencing is located along the cliff side of the lookout. Binoculars previously located on a pillar in the lower viewing area have been removed due to vandalism. Vegetation plantings and regeneration works near the lookout are being affected by feral goat browsing.



Sealed carpark



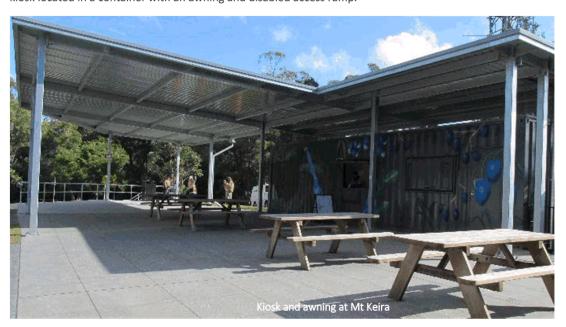
Picnic area and unsealed carpark



Rotary monument



The former restaurant at the summit was closed and the structure was removed in 2015 due to its poor condition. Since December 2016 a food and beverage service has been operating under a Council license in a kiosk located in a container with an awning and disabled access ramp.





A walking track above the cliff line links Victoria Lookout to Five Islands Lookout through an area of attractive natural vegetation. The walking track is fenced on the cliff side to reduce risk to visitors. The visitor experience along the walking track is reduced by the visual impact of some of the fencing and the lack of views along the track due to dense vegetation growth. Five Islands Lookout itself has been closed due to the instability of the cliff edge and no views are possible from the area.

The 'Six Daughters of the West Wind' sculptures at a small clearing behind Five Islands Lookout commemorate the Aboriginal significance of Mt Keira and the associated creation story of the mountain and the five islands visible off the coast. This area also contains a Camellia Tree which was transplanted by Clive Albert Bissell (1911 – 1983) from a home (opposite Mt Keira School of Arts) that once belonged to a Mr MacDonald who had advocated for the road to the lookout.

Five Islands Lookout is also accessible from the carpark on a management trail that was previously part of the road to the summit.

The Summit Park contains a mix of wayfinding, information, safety and interpretation signs of various ages and designs.



'Six Daughters of the West Wind' sculptures commemorating Mt Keira's Aboriginal significance



Access to Five Islands Lookout is fenced off due to cliff instability



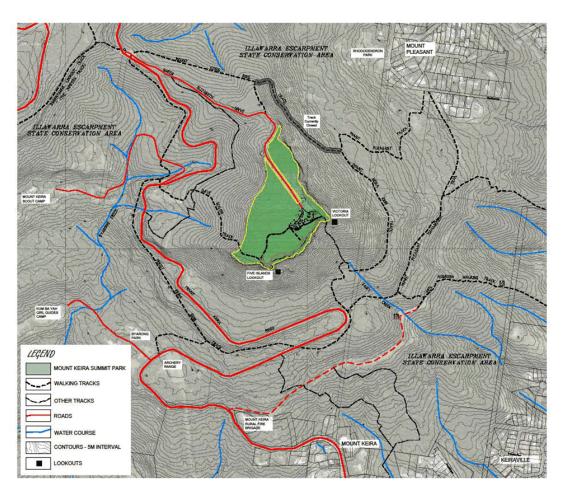
Figure 5: Existing infrastructure at Mt Keira Summit Park





The Summit Park is connected to the IESCA network of walking tracks in the Mt Keira area (see Figure 6). In the west the Dave Walsh Track leads from the track to Five Islands Lookout to the Mt Keira Ring Track which is also accessible from Mt Keira Road. The Summit Park is also connected to the Wollongong suburbs via the Mount Pleasant Track and Ken Ausburn Track which link to the Mt Keira Ring Track and stairs to Queen Elizabeth Drive to the north of the Summit Park. The section of the Ring Track between the Mt Pleasant Track and the stairs has been closed due to slope instability. The NPWS has recently restored this section of the Ring Track.

Figure 6: Tracks connected to Mt Keira Summit Park





3.2 Services

Water supply

Due to its mountain top location there is a limited supply of water available at Mt Keira Summit Park. A water treatment plant fed by rainwater collected from the kiosk awning provides water to the kiosk and hand washing taps in the toilets. Water tanks have been installed for the storage of water for visitor and firefighting use and additional water is transported to the site as needed. A non-potable water system is used for toilet flushing.

Toilets

The toilets are connected to a septic system. Disabled toilet facilities are provided but no longer comply with current standards.

Electricity supply

In the past provision of electricity to the Summit Park and telecommunications tower has been through linkages to a private power supply and then via a generator. In 2019 Wollongong City Council finalised a permanent power supply connection to Mt Pleasant which services both the Communications Tower and Council infrastructure including the



Toilet block at Mt Keira

amenities block, water pumps, barbeques and the temporary kiosk.

Telecommunications

The telecommunications tower site adjacent to the Summit Park hosts facilities for emergency services communications and commercial communication providers. Mobile phone reception is available at the site. The area occupied by the telecommunications tower is classified as Operational Land

CCTV cameras

CCTV cameras have been installed in the Summit Park and will be operated in accordance with the Council's CCTV policy.

3.3 Public Use

Mount Keira Summit Park is a popular destination with the local community and a favoured site to bring visiting friends and relatives. Visitor numbers are estimated at 54,600 visitors a year. The highest level of visitation occurs on weekends. Many visitors spend only a short time in the Summit Park, stopping to see the view from Victoria Lookout or use the site facilities.

Enjoyment of the spectacular views of the coast and escarpment is the central attraction of the site. Visitors also enjoy picnicking, contemplation of nature and the short walks in the Summit Park. Until it was closed the restaurant at the summit was used for dining and functions such as weddings. The Summit Park is also an established destination or stop for local residents and others bushwalking on the connecting IESCA network.



The Park is actively used by the Aboriginal community for cultural purposes. The Aboriginal community was also involved in the development of the sculptures at Five Island Lookout.

Rock climbing and abseiling has been conducted on cliffs on the boundary between the Summit Park and the IESCA. The NPWS permits rock climbing on the west side of Mount Keira Summit Park but has prohibited the activity on the other cliffs adjacent to the Summit Park due to rockfall hazards. It is understood that unauthorised climbing and abseiling occurs in the area. The Mount Keira cliffs are also used by the police and State Emergency Services for rescue training purposes.

Hang gliding was previously conducted from a summit platform which was removed following a fire. Hang gliding is not permitted in IESCA.

Some unauthorised camping is known to occur in the Summit Park. Artefacts such as 'love locks' (which have become popular throughout the world in recent years) are also occasionally left in the Park by visitors. A chain has been provided for love locks in order to encourage visitors not to place love locks on fencing and other infrastructure.

The Mount Keira Road is among the most popular road cycling routes in the Wollongong area. Some cyclists travel to the summit on Queen Elizabeth Drive, which is popular for 'everesting' challenges.

The roads and tracks on and near Mt Keira Summit Park are being increasingly used for competitive or participatory sporting events associated with Wollongong's development as an event destination such as the Mountain to Mountain Challenge (a run or walk between Mt Keira and Mt Kembla). A leg of the International Downhill Federation Skateboarding World Cup was held on the road in 2012 and 2016. A new adventure sport event, the BRAVO Team Challenge, has been held on tracks in the Summit Park and surrounding areas.



A chain has been provided for love locks



4 Values of the Summit Park

The values of Mt Keira Summit Park are the features the community considers to be significant and wishes to protect and enhance for the appreciation and enjoyment of the community, visitors and future generations.

Aboriginal cultural heritage

The Illawarra Escarpment (including Mt Keira) was once extensively used by Aboriginal people who occupied and actively managed the landscape of the region for more than 25,000 years prior to European settlement through traditional burning and other sustainable land management practices. The region's Aboriginal people continue to feel a deep responsibility to preserve the spirit and stories of their ancestors and culture embedded throughout the landscape today.

Mt Keira and its summit is important to the Aboriginal community who use the mountain for cultural purposes including teaching and story telling to groups of children and young people. The mountain is associated with numerous storylines and the summit was used for ceremonies and includes a significant women's site. The creation story of Mount Keira and Five Islands off the coast is commemorated by the sculpture at Five Islands Lookout

The Mt Keira Creation Story

The west wind Oolaboolawoo lived on top of Merrigong (Illawarra Range) and had six daughters, Mimosa, Wilga, Lilli Pilli, Wattle, Clematis and Geera. Mimosa would scratch and fight when the girls were playing and to punish her, the west wind blew her and the rock she sat on out to sea. She landed away from the land and became an island, which none of her sisters could swim to. Mimosa's fate should have been a lesson to her sisters, who were also cast out to sea by their father.

Because Oolaboolawoo was always busy out west, the last sister Geera sat lonely on the escarpment looking out at her sisters, the Five Islands, eventually allowing the animals and trees to grow on her. She turned to stone and became the mountain known as Mt Keira (Geera).

Plaque at the sculptures near Five Islands Lookout

Note: Council has recently been advised that the name Geera also has the alternate spelling of Djeera

The Illawarra Regional Aboriginal Heritage Study (conducted for the NPWS in 2004) attributes Mount Keira with exceptional to high local historic and social significance to Aboriginal people.

There are a range of Aboriginal heritage sites of cultural and archaeological significance scattered throughout the Illawarra Escarpment. These sites are managed and protected under the NSW *National Parks and Wildlife Act 1974* in consultation with traditional custodial groups. Archaeological sites on the Illawarra escarpment include rock shelters, grinding grooves, open campsites, scarred trees, engravings and middens. While currently there are no known archaeological sites in the Summit Park there is potential for more sites to be discovered in the future.



Historic heritage

The summit of Mt Keira has been valued and used as a recreation destination from the early days of European settlement of the Wollongong area and building of Mt Keira Road in 1835 and 1836. The summit of Mt Keira could be accessed from the Mt Keira Road and there are records of 19th century visitors expressing their appreciation of the beauty and scenery of the mountain. These records include appreciation of the beauty and scenery of Mt Keira expressed by Sir Roger Therry (a NSW Supreme Court Judge) and letters by Rachel Henning (who lived on a farm near Wollongong from 1872 to 1896) recording horseback expeditions to Mount Keira to enjoy the views from 'Victoria Rock'.

The traveller is repaid at the end of this toilsome journey on reaching the top of Mount Keera (sic). There a view suddenly bursts upon the sight of unsurpassed magnificence. Before him is spread the Pacific Ocean in all its expansive grandeur.

... if the visitor should arrive at the top of the mountain in time to see a sunset there, he will behold a golden halo shedding a mild lustre over the numberless tiny islets of the lake, and the graceful group of the five islands scattered close to and decorating the Illawarra shore. The whole assemblage of the most attractive objects in Nature are here combined in one view — ocean and lake, mountain and forest scenery — the perfumed acacia, the majestic cedar, the tall fern, and the tangled vine interlacing the trees. As far as the eye can reach this scene of diversified beauty extends until it closes in a soft mist where sky and water seem to meet and mingle, and become blent (sic) together in the distant horizon.

Sir Roger Therry (1863), Reminiscences of Thirty Years' Residence in New South Wales and Victoria

Mt Keira Summit Park also demonstrates a tradition of voluntary community efforts to open the area for community enjoyment. A lookout and associated coach road was first established on the summit in 1908 on land owned by Ebenezer Vickery the owner of the Mt Keira coal mine. A new lookout was opened in 1917 and there was some community lobbying for resumption of land on the summit for a public park. In 1925 Messers Vickery and Sons gifted an area on the summit to the Municipality of North Illawarra. By that time the lookout on Mt Keira was a relatively well-known destination for visitors to the Illawarra area and for scouting activities.

The Rotary Club of Wollongong has played a significant role in the development and management of Mt Keira Summit Park since the 1950s. The Rotary Club adopted the construction of the road to the summit as a community service project commemorating the 50th anniversary of Rotary International. The Club generated support from the Wollongong community and businesses for equipment and voluntary labour to build the road in 1954-55. Volunteers also constructed Victoria Lookout, Five Islands Lookout and the connecting walking trail. The Rotary Club and volunteers maintain an ongoing connection to the Summit Park through volunteer maintenance activities.

Landscape

Mount Keira is one of the most prominent features rising from the Illawarra Escarpment. The Summit Park contributes to the protection of the dramatic scenic values of the Illawarra Escarpment as viewed from the coast and as a viewpoint on the escarpment.

An assessment of escarpment visual precincts conducted by HLA-Envirosciences in 2007 and incorporated into the Illawarra Escarpment Strategic Management Plan categorises the visual value of Mount Keira as high and indicates that its scenic integrity had high dependence on the quality of vegetation and management of the visual impacts of built features.



Natural significance

The Illawarra Escarpment as a whole is a biodiversity hotspot which has high diversity and numerous significant plant and animal species and ecological communities. Mt Keira is located in an ecological transition zone where many northern and southern vegetation communities overlap. There are high levels of vegetation connectivity and landscape contiguity between the Summit Park and the wider Illawarra Escarpment area. The Park is in the central part of the Escarpment Moist Forests Corridor identified in the Illawarra Biodiversity Strategy as important for biodiversity conservation, protection and improvement of habitat connections through the landscape, and provision of dispersal corridors for fauna. In this context the area of native vegetation in the Summit Park is important for retaining the high biodiversity and conservation connectivity of the Illawarra Escarpment.

Outside the area cleared for infrastructure, the Summit Park is covered by the Escarpment Edge Silver-top Ash Forest vegetation community. That community is a moderately tall forest dominated Silver-top Ash (*Eucalyptus sieberi*), Sydney Peppermint (*Eucalyptus piperita*) and Turpentine (*Syncarpia glomulifera*) with an open mid storey, shrubby understorey and shrubby/sedgey groundlayer. Rainforest species occur in natural drainage lines and areas affected by runoff. A preliminary biodiversity assessment of the Summit Park in 2017 identified 90 locally indigenous plant species. No threatened plant species or endangered ecological communities listed under NSW or Commonwealth biodiversity legislation were found in this preliminary survey. However, due to the presence of suitable habitat, it is possible that some threatened plant species occurring in the surrounding area may also occur within the Summit Park. One regionally rare species, Bangalow Palm (*Archontophoenix cunninghamiana*) has been found in the Park.

The area is rich in birdlife and Superb Lyrebird (*Menura novaehollandiae*) are frequently heard and seen in the area. Anecdotally mammals such as wallabies, Bush Tailed Possum, Long Nosed Bandicoot, Yellow-footed Antechinus and Bush Rat have been observed in the area. A White-bellied Sea-Eagle (*Haliaeetus leucogaster*), which is listed as Vulnerable under NSW legislation, and a regionally rare Peregrine Falcon (*Falco peregrinus*) were observed in flying near the Summit Park during the 2017 preliminary biodiversity assessment. Due to its variety of fauna habitat it is possible that the Summit Park supports a range of common and threatened species not yet recorded within the Park boundaries. The 2017 preliminary biodiversity assessment indicated the Park's fauna habitat resources as:

- broad areas of vegetation suitable for foraging, nesting, roosting and sheltering for birds, reptiles, amphibians, arboreal and terrestrial mammals and bats, and also suitable for species with large home ranges such as owls and quolls
- hollow bearing trees suitable for nesting, roosting and sheltering habitat for birds, arboreal mammals and microbats
- hilltop areas providing potential mating habitat for invertebrates such as butterflies, moths and dragonflies
- shrubby mid storey and dense understory layers suitable for foraging, nesting, roosting and sheltering
 habitat for small and medium-sized birds, reptiles, arboreal and terrestrial mammals and arboreal
 frogs
- intermittent creeks and soaks suitable for roosting habitat for large forest owls; foraging habitat for small and medium-sized birds, reptiles and amphibians; and amphibian breeding habitat



- fallen tree trunks, woody debris and deep leaf litter providing sheltering habitat for small terrestrial mammals, amphibians and reptiles
- · access road and paths suitable for foraging and flyways for microbats
- · termite mounds which provide suitable breeding habitat for goanna and foraging habitat for echidna
- tree stags and the radio tower provide nesting, roosting and sheltering habitat for birds, arboreal mammals and microbats and perches for predatory birds.

The Summit Park has some occurrences of exotic species including some areas of potentially invasive weed species such as African Lovegrass (*Eragrostis curvula*). The main pest animals known to frequent the area are goat and deer.

Potential threats to the condition and integrity for the Summit Park's biodiversity include:

- · clearing of native vegetation
- · the spread of weeds and pathogens
- pest animals disturbing soil, vegetation and habitat and possibly preying on native animals
- · disturbance to animal sheltering or nesting due to noise, vibration and light
- removal of dead wood and trees and loss of hollow-bearing trees.

The environmental condition and integrity of vegetation and soils in the Summit Park are also important for protecting the quality of water flowing from the summit of Mount Keira and protecting against surface erosion. Streams flow from the Summit Park into Byarong Creek, which flows through Wollongong.

Social significance

Mt Keira Summit Park is valued by the local community as an important asset that encapsulates the special qualities of living in Wollongong. Strong community associations with the Summit Park are shown in the donation of land for development of the Park, development of the road and lookouts by the Rotary Club of Wollongong and ongoing public concern for retaining the facilities and public access on the summit.

As part of the Illawarra escarpment the Summit Park contributes to local communities' sense of place and amenity. A heritage study conducted for the Wollongong City Council in 2007 indicated that the escarpment was highly valued as an iconic feature of the Illawarra region.

Improvements in the quality of public infrastructure and the natural and cultural environment of the Summit Park will demonstrate the respect that the local community has for Mt Keira as a symbol of Wollongong.

Recreation and tourism

The Summit Park is an important and accessible recreation asset for Wollongong providing enjoyment of the views of the city, coastline and escarpment and appreciation of the region's natural and cultural values. The connecting Illawarra Escarpment Walking Trail means that the Summit Park and surrounding area provides opportunities for bushwalking and nature appreciation on the city's doorstep. The population of Wollongong is forecast to increase to over 250,000 people by 2036. With these population increases the advantages to the community of having an accessible escarpment park close to the city will become increasingly evident.



The Summit Park is already established as a place where Wollongong residents bring their visiting friends and relatives to appreciate the views of the region. With the diversification of Wollongong's economy including measures to increase tourism (such as events and cruise ship visits), there is strong potential to include Mt Keira in the city's visitor destinations.

Part of the Illawarra Escarpment

Mt Keira Summit Park is significant as part of the Illawarra Escarpment which is an important natural, cultural, scenic and recreation asset for the Wollongong community and the region. The Summit Park is included in the Illawarra Escarpment Landscape Conservation Area which is listed as having local heritage significance under the Wollongong Local Environment Plan. The local heritage status of the Summit Park (as part of the escarpment) must be taken into account in the assessment and approval of future developments in the Park under the Environmental Planning and Assessment Act 1979.



5 Vision

The Vision for Mt Keira Summit Park describes how the community and Council aim to revitalise and showcase the Summit Park's exceptional assemblage of Aboriginal culture, natural values, historic heritage and outstanding scenery.

VISION

A trip to Mt Keira Summit Park will change the way people see and experience Wollongong. It will be a place to enjoy the beautiful views of the city, mountains and the sea and to appreciate the cultural and environmental landscape of the Illawarra Escarpment through a range of exceptional visitor experiences

The following Planning Principles will be applied in achieving the Vision.

Planning Principles for Mt Keira Summit Park

INTEGRATE

Ensure visitor infrastructure and services are integrated and connected with the surrounding Illawarra Escarpment State Conservation Area so that visitors are offered outstanding, high quality visitor experiences

APPRECIATE

Present information and experiences in a way that will enhance appreciation and understanding of the cultural and natural values of Mt Keira and the Illawarra Escarpment

EXPERIENCE

Provide exceptional cultural and nature based experiences that support tourism to the region and that are integrated with the Illawarra Escarpment State Conservation Area

CONSERVE

Contribute to the protection and conservation of the Escarpment's natural, cultural and scenic values

> **SUSTAINABLE** Visitor experiences will be

and environmental benefits to the community

economically viable and financially sustainable and demonstrate social

RESPECT

Respect the wishes of the Aboriginal people to safeguard and present their culture through a variety of means they consider most appropriate

INVOLVE

The Aboriginal community, tourism industry, local community and NPWS will be involved in decision making



6 Achieving the Vision

This section of the Plan of Management sets out the key elements that will be used by Council to achieve the Vision for Mt Keira Summit Park.

- Section 6.1 indicates the types of uses and developments that are permissible within the Summit Park, consistent with the Vision and the protection of Park values. It provides for the management of existing uses and developments and provides a guide for decisions on future uses and developments.
- Section 6.2 indicates management objectives and actions which Council will use to address management issues and achieve the Vision.

6.1 Permissible Uses and Developments

Table 3 sets out the uses and development permissible within the Summit Park. As required by section 36(3A)(b) of the *Local Government Act 1993* the scale and intensity of each permissible use and development is described.

To protect the natural and cultural values of the Summit Park and provide for a range of sustainable visitor uses different types and levels of use will be provided in the two Community Land categories General Community Use and Area of Cultural Significance areas (see Figure 3).

- A. In general higher intensity uses and major infrastructure and facilities will be located within the General Community Use area
- B. Uses and developments within the Area of Cultural Significance will be compatible with the purpose of that land category and the protection, management, restoration and public appreciation of its cultural and natural values.

Specific infrastructure and facility developments in the Summit Park will be subject to:

- community consultation; appropriate investigation of biodiversity, cultural and social impacts; relevant development applications and environmental assessment processes; and the provisions of other applicable plans, the Local Environment Plan and State Environmental Planning Policies
- financial feasibility assessment.

Provision is made for other agencies, commercial businesses, education institutions, not-for-profit organisations and other groups potentially to offer products or participate in management of the Summit Park. This Plan of Management permits Council to enter into casual, short, medium or long term leases or licenses up to a maximum of 30 years for any permitted use or development under the Mt Keira Summit Park Plan of Management in accordance with the *Local Government Act 1993*.



Table 3: Permissible Uses and Developments in Mt Keira Summit Park

Permissible Uses and Developments	Description	Scale and Intensity
Protection and enhancement of the Summit Park's values	Management, maintenance and upgrades of infrastructure, services and natural and cultural attributes.	Activities and upgrades will: be compatible with the Council-adopted Park Vision and Planning Principles and facilitate protection of the Summit Park's values provide a high level of protection, conservation and management fitting to the area's significance to the community.
2. Improvements to scenic viewing infrastructure	Victoria Lookout Maintenance and upgrading of Victoria Lookout as a major lookout in the Summit Park.	Any upgrades of Victoria Lookout must be on the current footprint and must be designed to be compatible with the Lookout's significance to the community, the Park Vision and Planning Principles and the Summit Park's values.
	Five Islands Lookout Reinstatement of Five Islands Lookout as a major lookout in the general proximity of the current (closed) lookout may occur subject to investigation of geological stability and feasibility assessment.	Reinstatement of Five Islands Lookout must be compatible with the Park Vision, Planning Principles and values. There must be minimal impact of lookout infrastructure on the natural visual landscape as viewed from other places in and outside of the Summit Park.
	Other infrastructure Additional minor lookouts and associated access trails in suitable, safe locations.	Any additional small lookouts must be compatible with the Park Vision, Planning Principles and values. There must be minimal impact of lookout infrastructure on natural and cultural values and the natural visual landscape as viewed from other places in and outside of the Summit Park.
3. Improved walking tracks and trails A small number of high quality trails compatible with the Vision and the	Cliff Top Walk This trail currently connects Victoria Lookout, Five Islands Lookout and the Dave Walsh Track in the IESCA. This trail's future alignment, design and scenic viewing opportunities will be reviewed to improve the quality of the visitor experience and interpretation.	The trail may be realigned and upgraded to All Accessibility standard compatible with the Park Vision, Planning Principles and values.
protection and enhancement of Park values.	Trail from carpark to Five Islands Lookout This trail, currently on a fire trail, may be realigned and improved to link with the Cliff Top Walk to provide a Summit Park circuit track.	The trail may be realigned and upgraded to All Accessibility standard compatible with the Park Vision, Planning Principles and values.
	New trails and trail sections New trails/trail sections may be developed to provide links to trails in the IESCA. This may	New trails and trail sections should be of a design standard suitable for the proposed type and level of visitor use.



Permissible Uses and Developments		Description	Scale and Intensity
		include a new trail linking the Mt Keira Ring Track (in the IESCA) with the summit area in the vicinity of Queen Elizabeth Drive. New trails/trail sections may be developed to provide access to new lookouts and other visitor infrastructure. New trails/trail sections may be developed to provide beginner mountain bike opportunities as part of a broader Escarpment Mountain Bike Strategy.	Trail types and alignments must be compatible the Park Vision, Planning Principles and values.
		Trail facilities Improved and new trail facilities, including signage, interpretation, shelter and seating.	Trail facilities must be of a type, design and scale that is compatible with the Park Vision, Planning Principles and values and the type and level of use of the relevant trails.
4.	Sustainable access infrastructure	Parking Maintenance and upgrading of parking facilities in the Summit Park may be carried out on the General Community use land. Drop off and pick up areas for buses, coaches, taxis and commercial operators may be provided on the General Community use land.	Upgrading of parking facilities must be compatible with the Park Vision, Planning Principles and values (including its natural setting) and the safety of Park visitors.
		Other access Other infrastructure to support sustainable transport to the Summit Park may be developed subject to feasibility and environmental assessments and the relevant planning approvals.	Development of facilities to support sustainable transport to the Park must be compatible with the Park Vision, Planning Principles and values (including its natural setting) and the safety of Park visitors.
5.	Picnic facilities	Upgrading of the picnic area and associated facilities may be carried out.	Any upgrading of the picnic area must be at a standard compatible with the Park Vision, Planning Principles and values, including its natural setting.
6.	Public toilets	Upgrading or development of new toilet facilities may be carried out on the General Community use land.	The toilet facilities should be at a standard compatible with the Park Vision, Planning Principles and values and the level of visitation.
7.	Food and beverage infrastructure and services	Café/restaurant A demountable or permanent structure may be erected within the General Community Use area for operation of a café/restaurant approved by Council and including facilities for dining, take away food and small functions. The design of the structure should be appropriate to the natural character of the Summit Park, minimise impacts on the scenic	The size, capacity and design of the structure should be compatible with the Park Vision, Planning Principles and values (including its natural setting) and include provision for sustainable water and energy use.



Permissible Uses and Developments	Description	Scale and Intensity
	landscape and other Park values and include provision for sustainable water and energy use.	
	Food vans/pop-up food services Council-approved food vans and other temporary food services may be provided in the General Community Use area.	Temporary food services should be located and managed in a way that minimises impacts on the environment, Park values and visitor access to the Summit Park.
8. Other visitor facilities and activities	Spaces and facilities for education, interpretation and visitor enjoyment, recreation and appreciation of natural and cultural values may be provided in the Summit Park.	Facilities must be compatible with the Park Vision, Planning Principles and values and facilitate protection of the Summit Park's values. The facility must be at a scale that is compatible with the scenic, and natural and cultural values of the Summit Park and its development and use must not detract from the enjoyment of the Summit Park by other visitors.
9. Improved wayfinding and interpretation	Signage may be provided for wayfinding, public safety, to identify visitor facilities and for interpretation.	Signage must be of a consistent, high quality design that is compatible with the Park Vision, Planning Principles and values, the Park's natural character its significance to the community. Temporary signage may be provided to warn of hazards and events.
10. Art, sculpture and commemorative plaques	Temporary or permanent art and sculpture and commemorative plaques may be installed in the Summit Park. The installation of 'love locks' by the public is permissible in the Summit Park in places designated for this purpose by Council. The 'Six Daughters of the West Wind' sculpture at Five Islands Lookout will be protected in recognition of its significance to the Aboriginal community and its depiction of Aboriginal ancestral stories. If necessary, the sculptures may be relocated in consultation with the Aboriginal custodians.	Temporary or permanent art and sculpture and commemorative plaques must be compatible with the Park Vision, Planning Principles and values.
11. Public day recreation activities	Scenic viewing	Scenic viewing may occur in association with lookouts and other infrastructure, compatible with the Park Vision, Planning Principles and values.
	Nature viewing	Enjoying nature and activities such as bird watching may occur throughout the Park, compatible with Park Vision, Planning Principles and values.



Permissible Uses and Developments	Description	Scale and Intensity
	Picnicking	Small group picnicking will be permitted in designated picnic areas, compatible with the Park Vision, Planning Principles and values.
	Walking and Running	Walking and running may occur on designated trails within the Park and connecting to the IESCA, compatible with the Park Vision, Planning Principles and values.
	Cycling	Cycling may occur on Queen Elizabeth Drive and the roads and parking area in the Park. • No off-trail cycling may occur in the Park.
	Rock climbing and abseiling Areas used for rock climbing are on the boundary of the Summit Park and the IESCA.	Access will be permitted through the Summit Park to areas where climbing is permitted by NPWS in the IESCA, subject to compatibility with the Park Vision, Planning Principles and values.
12. Aboriginal cultural activities	The relevant Aboriginal people will continue to use the Summit Park for cultural activities such as ceremonies, teaching young people and caring for country.	The relevant Aboriginal people will be consulted on management of cultural activities and significant places to meet their aspirations for the area.
13. Education and learning	Education and learning activities may be conducted in the Summit Park by organisations including schools, environmental education and outdoor education providers, youth groups, tertiary and research institutions, community organisations and the Aboriginal community.	Education and learning activities must be compatible with the Park Vision, Planning Principles and values and must not adversely impact on use of the area by other Park users.
14. Group tours and activities	Tour groups Commercial and non-commercial group tours (such as coach tours) may visit the Summit Park.	Initially there will be no limit set on casual group tour visits. Over time, depending on the level of visitation and impacts, group visitation may need to be managed.
	Commercial products and activities focused on Mt Keira Summit Park Council approval will be required for commercial guided products and activities (such as interpretation, guided walks, fitness training) that occur wholly or to a significant extent within the Summit Park.	Approved Mt Keira Summit Park commercial products must be compatible with the Park Vision, Planning Principles and values and must not adversely impact on use of the area by other Park users. There will be consultation and collaboration with NPWS on approval of products and activities that cross between the Summit Park and the IESCA.
15. Events and functions	Council-approved events, functions and sporting events may be conducted in the Summit Park. There will be consultation and collaboration with NPWS on approval of events that cross between the Summit Park and the IESCA.	The events, functions or sporting events must be of a scale and type that is compatible with the Park Vision, Planning Principles and values, and must not adversely impact on the use of the area by other Park users.



Permissible Uses and Developments	Description	Scale and Intensity
		Social functions and exhibitions must be conducted with the General Community Use area. Most functions must be conducted during Park opening hours. A small number of night time functions associated with any future café/restaurant may be permitted.
16. Site services	Areas in Mt Keira Summit Park may be used in relation to the provision of services such as electricity, water supply and stormwater services subject to consent from Council and other relevant consent authorities. Access may be provided to the telecommunications tower.	Site services should be necessary for visitor use of the Park and/or the protection of the Park's environment and values. The services should be of a scale and type compatible with Park Vision, Planning Principles and values and minimise impacts on the environment.
17. Flora and fauna management	The biodiversity of the Summit Park will be managed in accordance with a Vegetation Management Plan and the relevant legislation.	Flora and fauna will be managed to protect natural values, the quality of the environment and visitor enjoyment with the aim of maintaining and enhancing the Park's natural vegetation, biodiversity and habitats. Management may include pruning, planting and weed control. Pruning of trees may be carried out to maintain viewing corridors from the Summit Park. Fauna management may include measures to protect and provide for native species and their habitat and measures to control introduced species and their impacts.

6.2 Prohibited Uses and Development

While only uses and development indicated in Table 3 in section 6.1 are permitted in Mt Keira Summit Park, for clarification the following prohibited activities are indicated below.

- Overnight camping will not be permitted due to the small size of the Park and the need to protect its significance to the community.
- Access for hang gliding will not be permitted in the Summit Park. Hang gliding is not permitted over the surrounding areas of the IESCA.

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6.3 Management Strategies

Section 36(3) of the *Local Government Act 1993* requires plans of management for Community Land to include objectives for management; performance targets; means by which the council proposes to achieve the objectives and performance targets; and the manner in which the council proposes to assess its performance.

The following management objectives will guide achievement of the Vision for Mt Keira Summit Park.

- 1. Provide a diversity of exceptional visitor experiences that are distinctive to Wollongong, showcase the Escarpment's environmental and cultural values and define its identity and sense of place while supporting tourism to the region
- 2. Foster deeper understanding, appreciation and enjoyment of the Escarpment's environmental and cultural values through tourism, recreation and education opportunities.
- 3. Preserve and enhance the significant natural and cultural heritage of the area.
- 4. Ensure that the future uses of the park are environmentally, socially and economically sustainable.
- 5. Ensure that infrastructure is designed and developed in accordance with ecologically sustainable principles.
- 6. Encourage the Aboriginal community, the tourism industry, NPWS and other stakeholders to invest in experiences and infrastructure that are compatible and integrated with experiences available within the Illawarra Escarpment State Conservation Area.

The Implementation Plan in Table 4 sets out:

- Council Actions the means by which Council proposes to achieve the objectives
- Partners & Consultation other agencies, organisations, groups and the community who will be involved in the actions as partners or through consultation by Council
- Performance Targets for each action
- Manner of Assessment the way Council will assess implementation of the actions and achievement
 of the performance targets.



The following manners of assessment (see last column of Table 4) will be used, depending on the type of action involved.

- A. Annual reporting of resourced actions implemented and reporting to Council on progress as per adopted Delivery Plans. This will include to actions that involve studies, plans and arrangements.
- B. Reporting of capital projects as per adopted Capital program. This will apply to actions that involve capital investment, such as in Park infrastructure
- C. Reporting on feedback from the Aboriginal community at meetings and discussions on park matters affecting them. There will be discussions with Council's Aboriginal Reference Group to seek their guidance on developing an appropriate Aboriginal consultation plan/strategy for the Aboriginal community.

Council will take an adaptive management approach by periodically assessing the effectiveness of actions in the Plan of Management and adapting management approaches where necessary to address new evidence and changed circumstances. The effectiveness of this Plan of Management will be reviewed every 5 years and, where necessary, amendments to the Plan will be made in accordance with the requirements of the *Local Government Act 1993*.



Table 4: Implementation Plan for Mt Keira Summit Park Plan of Management

No.	Council Actions	Partners & Consultation	Performance Targets	Manner of Assessment
1	Progress the joint naming of the summit park as "Djeera Mt Keira Summit Park" through community consultation	Consultation with: Aboriginal Reference Group ILALC NPWS Wollongong Community User groups	Joint naming	A
2	Develop a landscape masterplan for the Summit Park General Community Use Area covering infrastructure development and Park uses.	Consultation with:Wollongong communityUser groupsAboriginal communityNPWS	Landscape masterplan completed.	A
3	Continue cooperation between Council and NPWS officers to consider and guide implementation of cooperative and integrated approaches to Summit Park and IESCA planning and management including: trail development and use visitor signage and interpretation provision of visitor infrastructure and facilities provision of improved, interconnected visitor experiences across the two parks.	NPWS	Achievement of integrated management and visitor experiences.	A
4	Continue cooperation between Council and community groups to guide implementation of cooperative and integrated approaches to Summit Park and IESCA planning and management including: trail development and use visitor signage and interpretation provision of visitor infrastructure and facilities provision of improved, interconnected visitor experiences across the two parks.	 ILALC Rotary Other user groups 	Achievement of integrated management and visitor experiences.	A
5	Develop and implement a Design Guide for signage and interpretation in the Summit Park.	Consultation with: Aboriginal community Wollongong community	Signage and interpretation design that reflects the Summit Park's	A



No.	Council Actions	Partners & Consultation	Performance Targets	Manner of Assessment
		• NPWS	natural and cultural values of the Summit Park and the Escarpment and its Aboriginal and historic stories.	
6	Partner with NPWS to develop an integrated approach to management and signage at Summit Park/IESCA boundaries and the intersection of Mt Keira Road and Queen Elizabeth Drive.	NPWS ILALC	Improved and consistent signage and management at Park entry points.	A
7	Upgrade the Mt Keira Summit Park gateway structures at Queen Elizabeth Drive.	Consultation with:NPWSAboriginal communityWollongong community and stakeholders	Improved sense of arrival at the Summit Park.	В
8	Improve information and wayfinding signage within the Summit Park in line with the Design Guide and the needs of visitors.	Consultation with:Aboriginal communityWollongong community and stakeholders	Visitors have improved information and wayfinding.	A Results of periodic visitor surveys.
9	Prepare and implement an Interpretation Plan for Mt Keira Summit Park that includes: themes and storylines that express the Summit Park's significance and values linkages to the Illawarra Escarpment improved links to Wollongong Botanic Garden a range of delivery methods to encourage visitor interest and appreciation - including digital media and apps, tours, art and sculpture, exhibitions and events.	Consultation with: NPWS Destination Wollongong Aboriginal community Wollongong community and stakeholders	Visitors are offered interpretation that improves their enjoyment and appreciation of the Summit Park.	A Results of periodic visitor surveys.
10	Continue to consult with the Aboriginal community on protection and management of the Aboriginal cultural heritage of the Summit Park.	Aboriginal community ILALC	The Aboriginal community is involved in protection and management of their cultural heritage.	С
11	Facilitate use of the Summit Park for Aboriginal cultural purposes .	Aboriginal community	The Aboriginal community is easily able to utilise the	С



No.	Council Actions	Partners & Consultation	Performance Targets	Manner of Assessment
			Summit Park for cultural purposes.	
12	Facilitate consideration of proposals from the Aboriginal community, tourism and recreation operators and education providers and community groups for development of visitor products in the Summit Park.	As relevant: Aboriginal community Tourism operators Private sector Community groups NPWS	Sustainable products that enhance visitor enjoyment and appreciation of the Summit Park.	A Results of periodic visitor surveys.
13	Encourage volunteers and community service groups to participate in Summit Park maintenance and management and development of visitor activities.	Community groups Volunteers	Community groups and volunteers are effectively involved in the Park.	A
14	Prepare a Vegetation Management Plan for the Summit Park that includes measures for biodiversity and habitat protection, revegetation, landscaping, weed and pest control and monitoring of vegetation condition.	Consultation with NPWS & ILALC	Park biodiversity is protected and maintained sustainably.	A Monitoring of biodiversity and vegetation condition.
15	Control the impacts of pest animals in the Summit Park.	Consultation with NPWS & ILALC	Reduction in pest animal impacts on the Park environment.	A Monitoring of biodiversity and vegetation condition and pest animal impacts.
16	Develop and implement Construction Environmental Management Plans (CEMPs) to ensure there is adequate control of runoff and erosion and protection of vegetation, biodiversity and habitat, and natural and cultural heritage during construction activities in the Summit Park.	Construction companies	CEMPs are in place for all construction activities.	В
17	Manage litter and vandalism in a timely manner.		The park infrastructure and environs is well-kept in a condition commensurate with its significant values.	A Visual monitoring by staff.



No.	Council Actions	Partners & Consultation	Performance Targets	Manner of Assessment
18	Continue to monitor visitor numbers at Mt Keira Summit Park.		Up-to-date information on visitor numbers.	A Outcomes of visitor numbers monitoring.
19	Conduct periodic visitor surveys at Mt Keira Summit Park to provide information on visitor demographics, activities and satisfaction.		Up-to-date information on visitors and their satisfaction with experiences in the Summit Park.	A Visitor survey results.



APPENDIX A - RELEVANT LOCAL GOVERNMENT ACT PROVISIONS

This appendix provides extracts from the *Local Government Act 1993* that are relevant to the preparation, contents and adoption of this Plan of Management for Mt Keira Summit Park.

Requirements for Plans of Management for Community Land

35 What governs the use and management of community land?

Community land is required to be used and managed in accordance with the following:

- the plan of management applying to the land
- any law permitting the use of the land for a specified purpose or otherwise regulating the use of the land
- · this Division.

36 Preparation of draft plans of management for community land

- (1) A council must prepare a draft plan of management for community land.
- (2) A draft plan of management may apply to one or more areas of community land, except as provided by this Division.
- (3) A plan of management for community land must identify the following:
 - (a) the category of the land,
 - (b) the objectives and performance targets of the plan with respect to the land,
 - (c) the means by which the council proposes to achieve the plan's objectives and performance targets,
 - (d) the manner in which the council proposes to assess its performance with respect to the plan's objectives and performance targets,

and may require the prior approval of the council to the carrying out of any specified activity on the

- (3A) A plan of management that applies to just one area of community land:
 - (a) must include a description of:
 - (i) the condition of the land, and of any buildings or other improvements on the land, as at the date of adoption of the plan of management, and
 - (ii) the use of the land and any such buildings or improvements as at that date, and
 - (b) must:
 - (i) specify the purposes for which the land, and any such buildings or improvements, will be permitted to be used, and $\frac{1}{2}$
 - (ii) specify the purposes for which any further development of the land will be permitted, whether under lease or licence or otherwise, and
 - (iii) describe the scale and intensity of any such permitted use or development.
- (4) For the purposes of this section, land is to be categorised as one or more of the following:
 - (a) a natural area,
 - (b) a sportsground,
 - (c) a park,



- (d an area of cultural significance,
- (e) general community use.

Plans of Management for Areas of Cultural Significance

36D Community land comprising area of cultural significance

- (1) This section applies to community land that is the subject of a resolution by the council that declares that, because of the presence on the land of any item that the council considers to be of Aboriginal, historical or cultural significance, the land is an area of cultural significance for the purposes of this Part.
- (2) A plan of management adopted in respect of an area of land, all or part of which is land to which this section applies, is to apply to that land only, and not to other areas.
- (3) A plan of management to be adopted for an area of community land, all or part of which consists of land to which this section applies:
 - (a) must state that the land, or the relevant part, is an area of cultural significance, and
 - (b) must, in complying with section 36 (3) (a), categorise the land, or the relevant part, as an area of cultural significance, and
 - (c) must, in complying with section 36 (3) (b), (c) and (d), identify objectives, performance targets and other matters that:
 - (i) are designed to protect the area, and
 - (ii) take account of the existence of the features of the site identified by the council's resolution, and
 - (iii) incorporate the core objectives prescribed under section 36 in respect of community land categorised as an area of cultural significance, and
 - (d) must:
 - (i) when public notice is given of it under section 38, be sent (or a copy must be sent) by the council to the Chief Executive of the Office of Environment and Heritage, and
 - (ii) incorporate any matter specified by the Chief Executive of the Office of Environment and Heritage in relation to the land, or the relevant part.
- (4) If, after the adoption of a plan of management applying to just one area of community land, all or part of that area becomes the subject of a resolution of the kind described in subsection (1):
 - (a) the plan of management is taken to be amended, as from the date the declaration took effect, to categorise the land or the relevant part as an area of cultural significance, and
 - (b) the council must amend the plan of management (and in doing so, the provisions of subsection
 - (3) (a), (c) and (d) apply to the amendment of the plan of management in the same way as they apply to the adoption of a plan of management), and
 - (c) until the plan of management has been amended as required by paragraph (b):
 - (i) the use of the land must not be varied, except to the extent necessary to protect any item identified in the council's resolution or in order to give effect to the core objectives



prescribed under section 36 in respect of community land categorised as an area of cultural significance, or to terminate the use, and

- (ii) no lease, licence or other estate may be granted in respect of the land.
- (5) If, after the adoption of a plan of management applying to several areas of community land, all or part of one of those areas becomes the subject of a resolution of the kind described in subsection (1):
 - (a) the plan of management ceases, as from the date the declaration took effect, to apply to that area, and
 - (b) a plan of management must be prepared and adopted by the council for that area, and
 - (c) the plan of management so prepared and adopted must comply with subsection (3).

36DA Location of places and items of Aboriginal significance may be kept confidential

- (1) This section applies to draft and adopted plans of management for areas of community land, all or part of which consist of land to which section 36D applies.
- (2) A council may resolve (at the request of any Aboriginal person traditionally associated with the land concerned or on the council's own initiative) to keep confidential such parts of a draft or adopted plan of management to which this section applies as would disclose the nature and location of a place or an item of Aboriginal significance.
- (3) Despite any other provision of this Act (including sections 38, 39 and 43) or any other law, councillors and council employees are not to disclose that part of a draft or adopted plan of management that is the subject of a resolution of confidentiality under subsection (2), except with the consent of the council.
- (4) A draft or adopted plan of management that is the subject of a resolution of confidentiality under subsection (2) must contain a note stating that the whole of the plan is affected by the resolution or identifying the parts that are so affected.
- (5) A council proposing to prepare a draft plan of management to which this section applies must (in accordance with the regulations) consult with the appropriate Aboriginal communities regarding public access to, and use of, information concerning any places or items of Aboriginal significance on the land concerned.

Core Objectives for Community Land

36H Core objectives for management of community land categorised as an area of cultural significance

- (1) The core objectives for management of community land categorised as an area of cultural significance are to retain and enhance the cultural significance of the area (namely its Aboriginal, aesthetic, archaeological, historical, technical or research or social significance) for past, present or future generations by the active use of conservation methods.
- (2) Those conservation methods may include any or all of the following methods:
 - (a) the continuous protective care and maintenance of the physical material of the land or of the context and setting of the area of cultural significance,
 - (b) the restoration of the land, that is, the returning of the existing physical material of the land to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material,



- (c) the reconstruction of the land, that is, the returning of the land as nearly as possible to a known earlier state.
- (d) the adaptive reuse of the land, that is, the enhancement or reinforcement of the cultural significance of the land by the introduction of sympathetic alterations or additions to allow compatible uses (that is, uses that involve no changes to the cultural significance of the physical material of the area, or uses that involve changes that are substantially reversible or changes that require a minimum impact),
- (e) the preservation of the land, that is, the maintenance of the physical material of the land in its existing state and the retardation of deterioration of the land.
- (3) A reference in subsection (2) to land includes a reference to any buildings erected on the land.

36I Core objectives for management of community land categorised as general community use

The core objectives for management of community land categorised as general community use are to promote, encourage and provide for the use of the land, and to provide facilities on the land, to meet the current and future needs of the local community and of the wider public:

- (a) in relation to public recreation and the physical, cultural, social and intellectual welfare or development of individual members of the public, and
- (b) in relation to purposes for which a lease, licence or other estate may be granted in respect of the land (other than the provision of public utilities and works associated with or ancillary to public utilities).

Process for adoption of a Plan of Management

38 Public notice of draft plans of management

- (1) A council must give public notice of a draft plan of management.
- (2) The period of public exhibition of the draft plan must be not less than 28 days.
- (3) The public notice must also specify a period of not less than 42 days after the date on which the draft plan is placed on public exhibition during which submissions may be made to the council.
- (4) The council must, in accordance with its notice, publicly exhibit the draft plan together with any other matter which it considers appropriate or necessary to better enable the draft plan and its implications to be understood.

40 Adoption of plans of management

- (1) After considering all submissions received by it concerning the draft plan of management, the council may decide to amend the draft plan or to adopt it without amendment as the plan of management for the community land concerned.
- (2) If the council decides to amend the draft plan it must either:
 - (a) publicly exhibit the amended draft plan in accordance with the provisions of this Division relating to the public exhibition of draft plans, or
 - (b) if it is of the opinion that the amendments are not substantial, adopt the amended draft plan without public exhibition as the plan of management for the community land concerned.



- (2A) If a council adopts an amended plan without public exhibition of the amended draft plan, it must give public notice of that adoption, and of the terms of the amended plan of management, as soon as practicable after the adoption.
- (3) The council may not, however, proceed to adopt the plan until any public hearing required under section 40A has been held in accordance with section 40A.

40A Public hearing in relation to proposed plans of management

- (1) The council must hold a public hearing in respect of a proposed plan of management (including a plan of management that amends another plan of management) if the proposed plan would have the effect of categorising, or altering the categorisation of, community land under section 36 (4).
- (2) However, a public hearing is not required if the proposed plan would merely have the effect of altering the categorisation of the land under section 36 (5).
- (3) A council must hold a further public hearing in respect of the proposed plan of management if:
 - (a) the council decides to amend the proposed plan after a public hearing has been held in accordance with this section, and
 - (b) the amendment of the plan would have the effect of altering the categorisation of community land under section 36 (4) from the categorisation of that land in the proposed plan that was considered at the previous public hearing.

41 Amendment of plans of management

A council may amend a plan of management adopted under this Division by means only of a plan of management so adopted.

42 Revocation and cessation of plans of management

- (1) A plan of management for community land may be revoked by a plan of management adopted under this Division by the council.
- (2) A plan of management ceases to apply to land if:
 - (a) the land is reclassified as operational land, or
 - (b) in the case of land that is not owned by the council—the land ceases to be controlled by the council.

43 Public availability of plans of management

A plan of management must be available for public inspection at, and purchase from, the office of the council during ordinary office hours.



APPENDIX B - REFERENCES

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File: PR-175.30.030 Doc: IC19/728

ITEM 6

PROPOSED NAMING OF BRIDGE FOWLERS ROAD TO FAIRWATER DRIVE PROJECT

The Fowlers Road to Fairwater Drive Link is anticipated to open early to mid-2020. It will provide a vital connection for the suburbs of West Dapto to Dapto Town Centre, the Princes Highway and the M1, forming a key part of the West Dapto Access Strategy. The link includes two bridges: the main bridge extending from Fowlers Road over the Marshall Street deviation, the South Coast Rail Line and Mullet Creek; and a small bridge over the flood plain.

Due to the amount of interest in the naming of the bridge it was considered a good opportunity to foster community involvement and input, allowing the community to have a say in respect of the proposed name.

This report outlines the naming process and the outcome of the community engagement and seeks Council's endorsement of the name "Karrara".

RECOMMENDATION

Council endorse the name for the main bridge extending from Fowlers Road over the Marshall Street deviation, South Coast Rail Line and Mullet Creek as part of the Fowlers Road to Fairwater Drive Project as "Karrara Bridge".

REPORT AUTHORISATIONS

Report of: Lucielle Power, Manager Property + Recreation (Acting)

Authorised by: Sue Savage, Director Community Services - Creative + Innovative City (Acting)

ATTACHMENTS

- 1 Community Engagement Report Help Us Name Dapto's New Bridge Fowlers Road to Fairwater Drive Link
- 2 Review of Short-Listed Bridge Names Report

BACKGROUND

Council received a request from the community that the new main bridge extending from Fowlers Road over Marshall Street deviation, the South Coast Rail Line and Mullet Creek as part of the Fowlers Road to Fairwater Drive Link Project be named by the community. The main bridge is currently under construction and is anticipated to open early to mid-2020.

There is currently no policy governing the naming of bridges in the Wollongong Local Government Area (LGA). However, it has been determined that to be considered, bridge names should comply with Council's Road Naming Policy and will be required to comply with the NSW Geographical Names Board (GNB) Guidelines (NSW Road Naming Policy). Although the GNB does not name bridges, it encourages all bridge naming to follow its guidelines.

The name of bridges has no formal legislative basis. However, the same procedure for road naming applies to bridges and other road infrastructure:

- Local councils initiate the naming of bridges on local, regional and state roads (other than freeways).
 RMS will not object with naming proposals provided that:
 - The name has wide community support
 - An Aboriginal name has the support of local Aboriginal groups
 - Consideration has been given to national and state commemorative initiatives involving the naming of new or key road infrastructure
 - o The name is consistent with GNB place name criteria
 - The design of the name plague accords with RMS requirements.



Council adopted a new Road Naming Policy in 2018 which requires each proposed road name adopted by Council to be approved by a working group of the Lord Mayor and Ward Councillors prior to community consultation. On 1 May 2019, the West Dapto Review Committee was deemed to be the working group for the bridge naming project. It determined that the community would be invited to submit bridge names for the working group's consideration. It was determined that the bridge would be named by seeking name submissions from the community based on specific criteria.

Consultation was sought from the community for a suggested name for the main bridge. The submission period was open to the public for 28 days, closing on 9 September 2019.

Council's Community Engagement Team conducted extensive community engagement which included an on-site media opportunity with Gareth Ward, MP and the Lord Mayor, a media release, social media posts including a short promotional video, a notice in Council's Community Update section of The Advertiser, and emails to key stakeholders. A project page on Council's Engagement HQ website provided an online survey, frequently asked questions (FAQs) and links to relevant policies and guidelines. Hard copies of the FAQs, feedback forms and promotional posters were made available at Dapto Library, the Customer Service Centre and to key stakeholders. Presentations were made at the Aboriginal Reference Group and at Neighbourhood Forum 8 (NF8). The proposal was also promoted inadvertently by various media channels including The Illawarra Mercury newspaper and its associated social media channels.

The criteria adopted for the bridge naming followed Council's Road Naming Policy and GNB guidelines and names were encouraged to include relevant local, cultural, historical and natural influences in the region and were judged on the following criteria:

- The name should not already exist in the LGA or neighbouring LGAs
- Local Aboriginal significance
- Gender consider female names
- Characteristics of the bridge
- Commemorate a person
- Be appropriate to relevant local cultural or historical influences in the region
- Be appropriate to relevant local natural influences in the region
- Be easy to read, spell and pronounce
- Not be offensive or likely to cause offense
- Not be a company or business name.

If naming after a person, they need to have been deceased for a period of at least two years and consent of the family members of the person being commemorated must also be obtained.

Following the consultation period, 125 submissions were received suggesting a total of 148 names. Some names were suggested more than once. Further detail is provided in the Community Engagement Report (refer Attachment 1) and the Review of Short-Listed Bridge Names Report (refer Attachment 2).

Naming suggestions were evaluated based on the above criteria and verification of appropriate names was undertaken.

In summary:

- 125 submissions suggesting 148 names
- Names that did not meet the criteria or were inappropriate or offensive in nature were removed from consideration
- 69 names or grouping of very similar names met the naming criteria



- Short listed suggestions were then reviewed in accordance with GNB guidelines and against predetermined criteria
- Of the 69 names that met the criteria/guidelines: 12 suggestions were indigenous, and a
 presentation was made to the Aboriginal Reference Group on 28 August 2019. Indigenous names
 were also sent for review/approval by the local Aboriginal groups/stakeholders
- Non-indigenous historical or commemorative names were forwarded to Local Studies and further information/verification was obtained in respect of these suggestions
- Further names were removed that did not pass the cultural or historical check and these are detailed in the Short-Listed Bridge Names Report.

At the completion of this process, the following two names were presented to the working group for consideration:

- "Karrara" the traditional Aboriginal name for Upper Mullet Creek put forward by the local high school and eight other respondents due to its local Aboriginal significance and meaning. This submission was supported by the Illawarra Local Aboriginal Land Council (ILALC), the Illawarra Aboriginal Corporation (IAC) and the Coomaditchie United Aboriginal Corporation. It was recommended by ILALC that a linguist proficient in Aboriginal languages be consulted to confirm pronunciation.
- "Lyndall Bailey" was suggested as a commemorative name due to her outstanding community service to the Dapto community. The family of the late Lyndall Bailey has been consulted and is honoured that her name had been considered.

The working group after being guided through the process that had been undertaken and presented with the names for consideration, unanimously supported the name "Karrara".

PROPOSAL

On 16 October 2019 at the West Dapto Review Committee, the "working group" endorsed the name "Karrara", the traditional Aboriginal name for Upper Mullet Creek. This Aboriginal name was put forward by nine separate community submissions including the local high school and was supported by the Illawarra Local Aboriginal Land Council (ILALC), the Illawarra Aboriginal Corporate (IAC) and the Coomaditchie United Aboriginal Corporation, as the name to put forward as the bridge name.

On 26 November 2019, EMC endorsed the proposed bridge name "Karrara" to proceed to Council for consideration as the chosen bridge name. Following Council resolution and endorsement of the name "Karrara Bridge", Council will then notify NSW GNB to update the NSW mapping database and Geographical Names Register with the assigned bridge name and the official declaration of the bridge name "Karrara" will be made at its opening in 2020.

CONSULTATION AND COMMUNICATION

The Community Engagement Report outlines the community strategy, stakeholder engagement and submissions.

Consultation was sought from the community for a suggested name for the bridge. The submission period was open to the public for 28 days, closing on 9 September 2019.

Communication methods for the engagement included an on-site media opportunity with Gareth Ward, MP and the Lord Mayor, a media release, social media posts including a short promotional video, a notice in Council's Community Update section of The Advertiser, and emails to key stakeholders. A project page on Council's Engagement HQ website provided an online survey, frequently asked questions (FAQs) and links to relevant policies and guidelines. Hard copies of the FAQs, feedback forms and promotional posters were made available at Dapto Library, the Customer Service Centre and to key stakeholders. Presentations were made at the Aboriginal Reference Group and at NF8.



Key stakeholders that may have an interest in the bridge naming proposal were contacted via email and asked to distribute this proposal through their networks:

- NF8
- Dapto Chamber of Commerce
- Dapto Rotary
- Illawarra Aboriginal Corporation
- Illawarra Local Aboriginal Land Council
- Illawarra Historical Society
- Ribbonwood Centre /Dapto Library
- Horsley Community Centre
- Dapto High School
- Kanahooka High School
- Dapto Public School
- Hayes Park Public School
- Koonawarra Public School
- Lakelands Public School
- St Johns Primary School
- Mount Brown Public School.

Short Listed names were forwarded to local Aboriginal groups for cultural verification and approval and to Local Studies.

It was recommended by ILALC that a linguist proficient in Aboriginal languages be consulted to confirm pronunciation. Statutory Property in consultation with the Aboriginal Engagement Officer has contacted two linguists to seek if they are able to verify pronunciation.

Initial consultation with RMS in relation to the bridge naming has also been conducted and awaiting concurrence.

The NSW GNB has also been consulted and recommended Council notify them and notifiable authorities to update their spatial records accordingly.

It is anticipated that verification of pronunciation and consultation with RMS and NSW GNB will be finalised within a period of approximately three months.

Significant consultation in respect of the project itself has also been undertaken separately to the bridge naming consultation.

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 core business activities as detailed in the Property Services Service Plan 2019–20 "Manage Council's property portfolio including purchase, sale, leasing, easements and other encumbrances on Council lands".



FINANCIAL IMPLICATIONS

If the proposed bridge name "Karrara" is resolved by Council as the chosen bridge name, Council would then install bridge name signage and the name plaque at this bridge location. This will be funded from the capital works program as part of the project.

CONCLUSION

Following community engagement, Council approve the proposed bridge name "Karrara" as the chosen bridge name. Subsequent to Council's endorsement, Council will notify NSW GNB to update the NSW mapping database and Geographical Names Register with the assigned bridge name. The official declaration of the bridge name "Karrara" will be made at its opening in 2020.

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Item 6 - Attachment 1 - Community Engagement Report - Help Us Name

Dapto's New Bridge - Fowlers Road to Fairwater Drive Link

HELP US NAME DAPTO'S NEW BRIDGE: FOWLERS TO FAIRWATER

ENGAGEMENT REPORT

September 2019



Dapto's New Bridge - Fowlers Road to Fairwater Drive Link



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Dapto's New Bridge - Fowlers Road to Fairwater Drive Link



Executive Summary

The Fowlers Road to Fairwater Drive Link due to open in 2020 will provide a vital connection for the suburbs of West Dapto to Dapto Town Centre, the Princes Highway and the M1, forming a key part of the West Dapto Access Strategy. On 1 May 2019 a working group consisting of the Lord Mayor and Ward 3 Councillors was established to oversee the road



naming process as required by Council's Road Naming Policy 2018. The link includes two bridges: a main bridge extending from Fowlers Road over the Marshall Street deviation, the South Coast Rail Line and Mullet Creek; and a small bridge over the flood plain. Council received a request from the community that the new main bridge be named by the community. This approach was supported by the working group. The community was invited to suggest appropriate bridge names for the working group's consideration from Friday 9 August to Friday 9 September 2019.

Communication methods for the engagement included an on-site media opportunity with Gareth Ward, MP and the Lord Mayor, a media release, social media posts including a short promotional video, a notice in Council's Community Update section of The Advertiser, and emails to key stakeholders. A project page on Council's Engagement HQ website provided an online survey, frequently asked questions (FAQs) and links to relevant policies and guidelines. Hard copies of the FAQs, feedback forms and promotional posters were made available at Dapto Library, the Customer Service Centre and to key stakeholders. Presentations were made at the Aboriginal Reference Group and at Neighbourhood Forum 8 (NF8).

We received 125 submissions suggesting 148 names. Some names were suggested more than once. Some people made multiple suggestions. 100 submissions were received via the online survey, 11 via email, ten via social media posts, two via phone call and two via letter.

69 names or groupings of very similar names ostensibly meet the naming criteria. An initial cull of suggestions removed names that were offensive, did not meet the guidelines for commemorating a person or were humorous suggestions. Culturally inappropriate Aboriginal names were also excluded upon consultation with an Aboriginal Engagement Officer. Property Services will review the remaining 69 names and provide a list to the working group for their consideration. Naming themes

Dapto's New Bridge - Fowlers Road to Fairwater Drive Link



included commemorating locally significant people - both Aboriginal and non-Aboriginal (Brown, Barton, Cecil, Fairley's, Fred Moore, Charlie Hooka, Timberry, William Beach), references to local history (Smelters, Pit Pony Pass, Saw Mill, Canary, Hudson, Horsley Homestead), local geography (West, Westlink, West Horsley, Eastwest, Avon View, West Dapto, Escarpment, Mountain View), existing road names (Daisy Bank, Cleveland, Fowlers), natural influences (Mullet Creek, Waterbridge, Free Flow), bridge characteristics (Longbridge, Highview, Dapto Skybridge) and Aboriginal names (Baragula, Bunji, Dabpeto, Djinda, Elouera, Karrara).

Background

The Fowlers Road to Fairwater Drive Link is a highly anticipated east/west link that the community has been talking about for almost 30 years. It will provide a vital connection for the suburbs of West Dapto to Dapto Town Centre, the Princes Highway and the M1, forming a key part of the West Dapto Access Strategy. It is due to open in 2020. The link includes a new road extending from Fowlers Road and Princes Highway intersection in Dapto to Cleveland Road in Horsley. This section of road includes a main bridge than travels over Marshall Street, the South Coast Rail Line and Mullet Creek.

Council received a request from the community that the new main bridge be named by the community. This approach was supported by the West Dapto Review Committee.

Bridge Naming Process

There is currently no policy governing the naming of bridges in the Wollongong LGA. However, it has been established that in order to be considered, bridge names should comply with Council's Road Naming Policy and will be required to comply with the Geographical Names Board (GNB) Guidelines (NSW Road Naming Policy). Council adopted a new Road Naming Policy in 2018 which requires each proposed road name adopted by Council to be approved by a working group of the Lord Mayor and ward councillors prior to community consultation. On 1 May 2019 the West Dapto Review Committee was deemed to be the working group for this project. They determined that the community would be invited to submit bridge names for the working group's consideration.

Naming Criteria

Council's Road Naming Policy states that in addition to observing the relevant policies that govern road names, "road names are encouraged to include relevant local, cultural, historical and natural



influences in the region. When proposing the names of people, gender equity is a relevant consideration." Therefore suggested names will be judged on the following criteria:

- The name should not already exist in the Wollongong Local Government Area (LGA) or neighbouring LGAs
- Local Aboriginal significance
- Gender consider female names
- Characteristics of the bridge
- Commemorate a person
- Be appropriate to relevant local cultural or historical influences in the region
- Be appropriate to relevant local natural influences in the region
- Be easy to read, spell and pronounce
- Not be offensive or likely to cause offense
- Not be a company or business name

If naming after a person, they need to have been deceased for a period of at least two years. Consent of the family members of the person being commemorated must also be obtained.

Stakeholders

Stakeholders identified prior to the commencement of the engagement period included:

General Community	Dapto High School
Neighbourhood Forum 8	Kanahooka High School
Dapto Rotary	St Johns Primary School
Illawarra Aboriginal Corporation	Dapto Public School
Illawarra Local Aboriginal Land Council	Hayes Park Public School
Dapto Seniors	Koonawarra Public School
Aboriginal Reference Group	Lakelands Public School
Horsley Community Centre/CareWays	State and Federal funding bodies
Ribbonwood Centre	Mount Brown Public School
Dapto Chamber of Commerce	Illawarra Aboriginal Medical Service (Dapto Branch)
Big Fat Smile	Coomaditchie United Aboriginal Corporation



Methodology

The following section outlines the various activities undertaken during the engagement period from 9 August to 9 September 2019.

Table 1: Details of Communication and Engagement Methods

Dapto's New Bridge - Fowlers Road to Fairwater Drive Link

Methods	Details of Methods	
Communication Methods		
Media Op	An on-site media opportunity was held on 9 August 2019 announcing the bridge naming engagement - attended by the Lord Mayor, State MP Gareth Ward, Project Team and Dapto High School Principal and students.	
Media release	A media release was made available for media outlets on 9 August 2019.	
WCC Website	An article was published on 9 August 2019 at: Home/My Community/News and Alerts/News/Help name West Dapto's big bridge	
Email to key stakeholders	An email was sent to key stakeholders identified through an analysis process including local schools, Neighbourhood Forum 8, community groups and indigenous organisations on 9 August 2019.	
Info packs	Frequently Asked Questions (FAQs) and Feedback Forms were developed.	
Promotional Poster	A poster was distributed promoting the bridge naming opportunity.	
Social Media	Information about the engagement was promoted through Council's Facebook and Twitter accounts on 9 August 2019 and 3 September 2019.	
Promotional Video	The media team produced a video and posted to Council's Facebook account on 3 September 2019 with a link to the EHQ site for people to submit names.	
Presentation Council officers presented at the Aboriginal Reference Group meeting on 28 August 2019 and handed out hard copy FAQs and Feedback Forms for attendees to distribute through their networks. A council officer attended the NF8 meeting of 12 June 2019 and raised the bridge naming engagement as an upcoming opportunity.		
Engagement HQ Website	An online survey tool was used to capture bridge name suggestions. FAQs and related policy and guideline documents were also made available here.	
Hard Copy FAQ / Feedback Form	Hard copy FAQs and Feedback Forms were made available at Dapto library and the Customer Service Centre.	



Item 6 - Attachment 1 - Community Engagement Report - Help Us Name Dapto's New Bridge - Fowlers Road to Fairwater Drive Link

Results

This section of the report provides details on the total submissions received and methods of submission (Table 2), summary of online EHQ participation (Table 3) and bridge name suggestions that meet the criteria (Table 4).

Submissions

A total of 125 submissions were received: 100 via the EHQ webpage, 11 emails, ten Facebook posts, two phone calls and two letters.

Table 2: Total submissions

Method of submission	Participation
Online survey - EHQ	100
Engagement email	11
Social media/Facebook	10
Phone call	2
Letter	2
Total submissions	125

Online Engagement Results - Engagement HQ

A total of 100 submissions were received online. Table 3 presents the usage statistics for the project page on Council's website.

Table 3: Summary of online participation

Measure and Explanation	Usage
Visitors – Total number of visits to the project page	545
Contributors – Total number of online survey submissions	100

Bridge Name Suggestions

We received 148 suggestions. Some names were suggested more than once. Some people made multiple suggestions. 69 names or groupings of very similar names ostensibly meet the naming criteria. An initial cull of suggestions removed names that were offensive, did not meet the guidelines for commemorating a person or were humorous suggestions. Culturally inappropriate Aboriginal names were also excluded upon consultation with an Aboriginal Engagement Officer. Property Services will review the remaining 69 names and provide a list to the working group for their consideration. Naming themes included commemorating locally significant people - both Aboriginal and non-Aboriginal (Brown, Barton, Cecil, Fairley's, Fred Moore, Charlie Hooka, Timberry, William Beach), references to local history

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(Smelters, Pit Pony Pass, Saw Mill, Canary, Hudson, Horsley Homestead), local geography (West, Westlink, West Horsley, Eastwest, Avon View, West Dapto, Escarpment, Mountain View), existing road names (Daisy Bank, Cleveland, Fowlers), natural influences (Mullet Creek, Waterbridge, Free Flow), bridge characteristics (Longbridge, Highview, Dapto Skybridge) and Aboriginal names (Baragula, Bunji, Dabpeto, Djinda, Elouera, Karrara).

Item 6 - Attachment 1 - Community Engagement Report - Help Us Name

Table 4: Bridge name suggestions which meet criteria

Dapto's New Bridge - Fowlers Road to Fairwater Drive Link

	Suggestion	Criteria	Number of	
	Suggestion	Cinena	Submisions	
1	Avon View Bridge Unique, Local natural influences, Easy to read, spell and pronounce		1	
2	Baragula	Unique, Local Aboriginal significance, Local history/culture, Local natural influences, Bridge characteristics, Easy to read, spell and pronounce	1	
3	Barton Bridge or King Barton Bridge	Commemorative person, Easy to read, spell and pronounce, Local history/culture	1	
4	Blackbridge	Local history/culture	1	
5	Bong Bong Bridge or Bong Bridge	Local history/culture	1	
6	Brooks Bridge	Local history/culture, Commemorative person.	1	
7	Brown Bridge or Brown's Bridge	Local history/culture, Local natural influences, Commemorative person	2	
8	Brunero Bridge	Local history/culture, Commemorative person	1	
9	Bunji Bridge	Local Aboriginal significance	1	
10	Canaries Crossing or Canary Bridge	Unique – Not already in LGA, Local history/culture , Local natural influences, Easy to read, spell and pronounce	2	
11	Cecil Moylan Memorial Bridge or Cecil Way	Unique, Local Aboriginal significance, Local history/culture, Commemorative person, Easy to read, spell and pronounce	2	
12	Cedric Carter Bridge	Unique – Not already in LGA, Local history/culture, Commemorative person	1	
13	Clarke Bridge	Local history/culture, Commemorative person, Easy to read, spell and pronounce	1	
14	Cleveland Bridge	Local Aboriginal significance, Local history/culture, Easy to read, spell and pronounce	2	
15	Cooee Bridge	Local history/culture	1	
16	Dairy Bridge	Local history/culture	1	
17	Daisy Bank Bridge	Local history/culture	6	
18	Dabpeto	Local Aboriginal significance	1	
19	Dapaz Bridge, Daptoid Bridge or Otpad Bridge	Local history/culture	3	
20	Dapto Community Bridge or Dapto Connection	Unique – Not already in LGA, Bridge characteristics, Easy to read, spell and pronounce	2	
21	Dapto Sky Bridge or The Illawarra Sky Bridge	Unique – Not already in LGA, Local natural influences, Bridge characteristics, Easy to read, spell and pronounce	1	
22	Dawler Way or Dawler St	Unique – Not already in LGA, Local natural influences, Easy to read, spell and pronounce	1	
23	Djinda	Local Aboriginal significance	1	
24	Eastwest Connect	Local natural influences	1	
25	Elouera	Local Aboriginal significance	1	
26	Escarpment Bridge	Local natural influences, Bridge characteristics	2	
27	Exmouth Bridge	Local history/culture	1	
28	Fair Fowlers	Easy to read, spell and pronounce	1 3	
29	Fairley's Bridge or JG Fairley Overpass			
30	Fairwater Bridge	Bridge characteristics, Easy to read, spell and pronounce	2	
31	Farmbridge or Farmlands Bridge	Local history/culture , Local natural influences	2	
32	Fowlers Overpass or Fowlers Link Bridge	Easy to read, spell and pronounce	2	
33	Fred Moore Bridge or Fred Bridge	Unique – Not already in LGA, Local Aboriginal significance, Commemorative person, Local history/culture, Easy to read, spell and pronounce	7	
34	Free flow	Local natural influences, Bridge characteristics	1	
35	George Brown bridge	Local history/culture, Commemorative person, If proposing a name after a	1	

Item 6 - Attachment 1 - Community Engagement Report - Help Us Name

Dapto's New Bridge - Fowlers Road to Fairwater Drive Link



		person, they need to have been deceased for a period of at least two years and the family's consent received.	
36	Highview bridge	Local natural influences, Bridge characteristics	1
37	Horsley Homestead Bridge	Local history/culture	1
38	Hudson Bridge or Norman Baxter Clark Bridge or Lockheed Hudson Bridge	Local history/culture	4
39	Huntley Bridge	Local history/culture	1
40	lbz Dib	Commemorative person	1
41	Karrara Bridge	Unique – Not already in LGA, Local Aboriginal significance, Local history/culture , Easy to read, spell and pronounce	9
42	Kenneth Fleming Bridge	Local history/culture, Commemorative person	1
43	King Barton Bridge	Local history/culture, Commemorative person	1
44	King Charlie Hooka Bridge OR; Charlie Hooka Bridge OR; Hooka Bridge.	Local Aboriginal significance, Local history/culture, Commemorative person, Easy to read, spell and pronounce	1
45	King George Bridge	Local history/culture	1
46	Link Bridge, Linx Bridge, Linkup bridge, New Link Bridge or Dapto Linx Bridge	Bridge characteristics	5
47	Longbridge	Bridge characteristics	1
48	Lyndall Bailey Bridge	Local history/culture, Commemorative person, Female	1
49	Macquarie Bridge	Local history/culture	1
50	Miro Bridge	Local Aboriginal significance	1
51	Mountain View Bridge or Mountain Range Bridge	Unique – Not already in LGA, Easy to read, spell and pronounce, Local natural influences	2
52	Mullet Creek Bridge	Unique – Not already in LGA, Local natural influences	1
53	Pasture	Local history/culture, Local natural influences	1
54	Penrose Bridge	Local history/culture	1
55	Peter Keys Bridge	Local history/culture, Commemorative person	1
56	Phoenix Bridge or Phoenix Flyover	Local history/culture	2
57	Pit Pony Pass	Local history/culture	1
58	Rainbow Bridge	Local history/culture	1
59	Saw Mill Bridge	Local history/culture	1
60	Smelters Bridge	Local history/culture	1
61	Southlands bridge	Local natural influences	1
62	Stephen Evans Bridge	Unique – Not already in LGA, Local history/culture, Commemorative person	1
63	Tap-toe Bridge	Local Aboriginal significance	1
64	Ted Goodwin Bridge	Unique – Not already in LGA, Local history/culture , Easy to read, spell and pronounce	1
65	Timberry Bridge	Local Aboriginal significance, Commemorative person, Easy to read, spell and pronounce	1
66	Waterbridge	Local natural influences	1
67	West Bridge, West Dapto Bridge, West Horsley Bridge, West Link Bridge or West Link Bridge Dapto	Bridge characteristics	6
68	Weston Bridge	Unique – Not already in LGA, Local history/culture , Easy to read, spell and pronounce	2
69	William Beach Bridge or William Beach Overpass, Bill Beach or Willian 'Bill' Beach Bridge	Unique – Not already in LGA, Local history/culture, Commemorative person, If proposing a name after a person, they need to have been deceased for a period of at least two years and the family's consent received., Easy to read, spell and pronounce	6



REVIEW OF SHORT LISTED BRIDGE NAMES REPORT

Name	Significance	Reason removed from selection process
Barton Bridge/King Barton	King Barton was born in Ireland.He came to Australia in approximately 1841. He was the Private Secretary of Sir Charles Fitzroy who was the Governor of NSW from 1846 to 1855. He lived at Cleveland House on Cleveland Road Dapto. The Barton's assisted his neighbours by repairing the road that ran from Dapto Post Office out to Cleveland House in 1861. King Barton died in 1869 and his wife Sarah died in 1898 and are buried at the Berkeley Pioneer Cemetery (source Local Studies)	Contributions to the community consisted of repairing the road between the Post Office and his residence and wasn't considered significant
Baragula Bridge	Aboriginal word for flood tide DHARAWAL language Aboriginal Dictionary AOL :Les Bursill OAM	No comments received from the Local Indigenous groups regarding this name. ILALC and IAC provided support for the Aboriginal word "Karrara"
Bunji Bridge	'Bunji' meaning friend/mate that is commonly used amongst the Indigenous community	No comments received from the Local Indigenous groups regarding this name. ILALC and IAC provided support for the Aboriginal word "Karrara"
Djinda	Djinda which is the Aboriginal word for Star and again the bridge is elevated like the stars	No comments received from the Local Indigenous groups regarding this name. ILALC and IAC provided support for the Aboriginal word "Karrara" Also similar name to the Djindi Bridge within the Shellharbour Municipality opened in 2017 in Calderwood Valley (source Lend Lease/Shellharbour City Council)
Fairley's Bridge/Overpass	Prominent family in Dapto who ran the general store. During the depression J.G Fairley supported the whole community by giving them credit for food	Originally a Dapto business owner he expanded his business to Port Kembla after selling his interest in Wongawilli Mine. J.G Fairley Pty Ltd's name is commemorated on the building in the main street where the Medical Centre is in Dapto. (source Local Studies)



Name	Significance	Reason removed from selection process
Hudson Bridge	The Lockheed Hudson which crashed into Bong Pass on 4 November, 1942. The aircraft 16-173 from 32 Squadron operating out of Camden crashed whilst on a submarine search and destroy mission. The pilot Sgt Norman Baxter, and crew members Sgt Joseph Hall Iredell, Flight Sgt Bernard James Hubbard, and Sgt Geoffrey Alfred Rich all perished in the accident. As the Bridge points to the area of the escarpment where the aircraft was found, I feel that it is significant to the history of the area and a great way to commemorate our servicemen who perished in this tragedy	Geographical Names Board Of NSW Place Naming Policy states that names to "commemorate victims of, or mark the location of, accidents or tragedies" should not be used. (source GNB Place Naming Policy)
Miro Bridge	Miro Bridge which was the Aboriginal Name of the South West spear thrower and this bridge is south west and up high like a spear	No comments received from the Local Indigenous groups regarding this name. ILALC and IAC provided support for the Aboriginal word "Karrara" Local studies did not provide any information to this submission. An independent search of the web found reference to a Aboriginal WW11 soldier (movie named Miro) who had been misappropriated from his land, people and his service to the war was treated with contempt. No reference was found to confirm that this story was based on true events. A search of Aboriginal meaning of spear thrower appears to originate from the Aboriginal language "Nyungar" of south-western Australia
Mullet Creek Bridge	Mullet Creek is well known to Dapto locals and Wollongong folk alike. Historically, Mullet Creek flooded in 1986. It was a 1 in 300 year food event. This bridge will provide safe access across Mullet Creek	The Princes Highway crosses Mullet Creek which there is already signage in place
The Dapto/Illawarra Sky Bridge	Like the Sea Cliff Bridge, it is simple, memorable, unbiased and iconic to the area with its famous views of the escarpment	Not gender or culturally specific. The naming appears similar to the Illawarra Fly Treetop Walk



Name	Significance	Reason removed from selection process
The Stephen Evans Bridge	Stephen Evans was the first person in the Dapto area to fight for a bridge over the railway line and Mullet Creek for the new suburb of West Dapto/ Horsley in the 1980's; 1990's and 2000's. As President of Dapto Neighborhood Centre (Careways Community) that the new residents of Horsley and West Dapto were stranded on the west side of the Creek after every major flood event He was the long term President of Careways Community through all the 90's into the 2000's and fought against Wollongong City Council on its Property Committee to get a modern Community Centre	Local studies were unable to find any reference to Stephen Evans. There is no reference to an obituary therefore it would appear that he is still living and therefore this submission would not comply with our Naming criteria. Names that commemorate a person should be deceased for at least 2 years
Timberry Bridge	The Timbery Family descended from Queen Emma, Dooka and Timberys before them. The first Five Islands Chief to appear in European records. The Old Chief named "Old Timberry" ruled the tribe and claimed Berkeley. They roamed through the district and were at war with neighbouring tribes at Kiama and Shoalhaven	Could be offensive to other Aboriginal groups in the Illawarra. Cultural checking was confirmed and was deemed inappropriate
William Beach	William Beach was a Dapto identify and world rowing ("sculling") champion in the early 1900s. He used to train in Mullet Creek further towards the lake	Although multiple submissions were received this submission is already commemorated at multiple locations within and outside of the LGA ie IRT Gardens, Kanahooka, Bill Beach Park therefore it was not considered unique to the area



Short Listed Bridge Names for Nomination

Name	Significance
Karrara	The Aboriginal Name "Karrara was put forward as the local indigenous word known for Upper Mullet Creek. Dapto High School proposed 'Karrara'. Their research included information from an 1831 publication that refers to Indigenous residents using this name for that part of Mullet Creek. The School initiated contact with the CEO of the Illawarra Local Aboriginal Land Council and received warm support. The Coomaditchie United Aboriginal Corporation also provided support for this name. It was suggested by the High School that WCC recognise and celebrate the Indigenous language more widely. A further submission highlighted Kararra as the name that the local traditional local owners knew as upper Mullet Creek. The submission also emphasised a belief it would be fitting to acknowledge the local indigenous caretakers of the land and that it would continue to build an understanding of language and culture and commitment to reconciliation. Out of the 148 submissions 9 submissions were received for the Bridge Name "Karrara".
Lyndall Bailey	Lyndall's service to the Dapto Community commenced in the late 1980's when attending a community meeting to discuss the West Dapto development and one of the issues discussed was flood-free access to Horsley. Lyndall believed that she had something to offer by being involved in the West Dapto Community Association that was being formed. She was elected President and held that position for approximately ten years. In that role she was involved in several projects including: West Dapto Neighbourhood Centre Working with Council officers and other members of the community on the design and building of the Centre. Management of Centre, including employment of staff, development of community services provided at the Centre and use of the Centre by the community. Flood-free access to West Dapto / Horsley As a participant of the working group in the future planning of Kembla Grange and West Dapto she said that being involved in planning issues from the ground level had been a dream of residents for about 14 years. "It's great to finally be in on the ground level and not just being the watchdog at the end," (Source Illawarra Mercury, Wollongong dated 4 July 2001 Residents get a say in Planning).



☐ Met with Council Officers to discuss possible solutions considering associated health and safety of residents.
□ Worked with Council Officers on early designs for the Fowlers Road Bridge.
Saving Fig trees in Lockheed Hudson Park in Timms Place
The Developer, LandCom, had never been to the site and did not know that the fig trees existed. Lyndall convinced them to visit the site and to consider including the trees in a park.
Saving the woodland area adjacent to Selwyn Grove
Development was likely to see the woodland destroyed. It is home to rare native orchids, Lyndall worked with Council officers to ensure that one of the consent conditions was that the woodland be preserved.
Environmental Monitoring associated with the emplacement of Coal Wash in Wongawilli
Regular review of environmental monitoring reports and data to ensure that consent conditions were being met.
Development Applications
□ Consultation with Council officers in relation to Development Applications
Reviewing things such as road widths (suitability for emergency vehicles, garbage trucks etc), block sizes etc
Lyndall also worked for Dapto Anglican Church for 27 years serving the church community as office administrator, and in later years as the Community Liaison Officer, developing links between the church and the broader Dapto Community. (Source Jim Bailey).



File: PR-005.01.235 Doc: IC19/116

ITEM 7

ACQUISITION OF LAND FOR ROAD PURPOSES - LANE 52 THIRROUL

The land known as Lane 52 at Thirroul ['the Land'] is part of a residual parcel of land from an early subdivision. Whilst there was some confusion surrounding the status and ownership of the Land, the local community have known and used the Land as a public road since its existence.

The Land is legally identified as part Volume 1923 Folio 23 being Lot 3 DP 166257 standing in the name of Mr Edward Hewitt as registered proprietor and owner. As Council understands it, Mr Hewitt is deceased thus ownership of the Land remains in his Estate.

The purpose of this report is to obtain the approval of Council to compulsory acquire the land to ultimately enable it to be gazetted for dedication as a public road.

RECOMMENDATION

- 1 Council authorise the acquisition of part Volume 1923 Folio 23 being Lot 3 DP 166257 known as Lane 52 Thirroul for road purposes.
- 2 Pursuant to section 186 of the Local Government Act 1993, Council make application to the Minister for Local Government for the compulsory acquisition of part Volume 1923 Folio 23 being Lot 3 DP 166257.
- 3 Compensation be paid to the land owner at an amount determined by the Valuer General in accordance with the provisions of the Land Acquisition (Just Terms Compensation) Act 1991.
- 4 Council be responsible for the land owner's reasonable costs, if any, associated with Council's acquisition, including legal costs as required under the provisions of the Land Acquisition (Just Terms Compensation) Act 1991.
- 5 Council grant authority for the use of the Common Seal of Council on all documents relevant to this matter, should it be required to give effect to this resolution.
- 6 The General Manager be authorised to execute any transactional document required to finalise the compulsory acquisition and to give effect to this resolution.
- 7 Following acquisition of the land, Council dedicate the land as public road in accordance with section 10 of the Roads Act 1993 by publication of a notice in the NSW Government Gazette.
- 8 Upon Gazettal of the acquisition notice all rates and charges are discharged and the rates in the amount of \$22,747.51 are abandoned.

REPORT AUTHORISATIONS

Report of: Lucielle Power, Manager Property + Recreation (Acting)

Authorised by: Sue Savage, Director Community Services - Creative + Innovative City (Acting)

ATTACHMENTS

1 Cadastral and Aerial Maps

BACKGROUND

The Land is part of a residual parcel of land from an early subdivision in Thirroul. Whilst there was some confusion surrounding the status and ownership of the Land, the local community have known and used the Land as a public road since its existence. Council, on the other hand, has recorded the Land as privately owned and rateable.

Rates have been levied historically and interest and other charges have accrued over time equating to the total current outstanding amount of \$22,747.51.



The existence of these outstanding rates triggered an initial review and decision to list the land for sale for unpaid rates in or around 2010. That decision, however, was ultimately reversed to allow further investigation regarding legal title and Council's strategic objective generally with respect to the Land.

Legal title

The Land is legally identified as part Volume 1923 Folio 23 being Lot 3 DP 166257 standing in the name of Mr Edward Hewitt as registered proprietor and owner. As Council understands it, Mr Hewitt is deceased thus ownership of the Land remains in his Estate.

The existence and validity of this title, together with Department of Industry – Lands' advice that the Land is not formally recorded nor dedicated as a road, confirms its private ownership status. It also confirms that Council can acquire it should it seek to do so.

Another difficulty that arose during investigation into the title surrounded a road dedication notation.

Ordinarily, Council could rely upon section 16 of the *Roads Act 1993* ('Roads Act') to simply dedicate the Land via gazettal without acquiring it due to the existence of a road dedication notation. Whilst title to the Land includes a relevant road dedication notation – confirming the Land was set aside for the purposes of road – that notation was recorded on a Plan of Subdivision registered after 25 February 1920, being a date that falls approximately six weeks after the cut-off date required to rely on Council's powers under section 16.

Given Council cannot rely upon section 16 of the Roads Act, it must first acquire the Land either through section 713 of the *Local Government Act 1993* for unpaid rates, or alternatively, through the compulsory acquisition process, should it seek to formalise the road dedication.

Strategic objective

As Council seeks certainty to ensure the Land remains what is generally understood as a public road available to the community and to provide the community with ongoing public access to adjacent lands, Council has determined that it should not exercise its power of sale under section 713 of the *Local Government Act 1993* for unpaid rates but rather to compulsory acquire the Land in accordance with the provisions of the *Land Acquisition (Just Terms Compensation) Act 1991* ('Just Terms Act') and to subsequently dedicate that Land as a public road pursuant to section 10 of the Roads Act.

This position is consistent with internal consultation as set out below. It ensures certainty as to the acquisition and subsequent road dedication and will also discharge the outstanding rates accrued to date.

Road dedication

In similar circumstances where parcels of land set aside for the purposes of road (as in this case), Council would ordinarily rely on its rights under section 16 of the Roads Act entitling Council to simply dedicate the land as road via Gazette without the need of acquisition.

For clarity, section 16 of the Roads Act provides a valid mechanism for Council to simply dedicate a parcel of land as a public road where that land is set aside for the purposes of a road left in a subdivision of land effected before 1 January 1907 (the date of commencement of the *Local Government Act 1906*) or in a plan of subdivision that was registered by the Registrar-General before 1 January 1920 (the date of commencement of the *Local Government Act 1919*).

The difficulty here, as raised briefly above, is that the road dedication notation to the Land is recorded on a plan of subdivision registered on 25 February 1920, being a date that falls approximately six weeks after the cut-off date required in section 16 of the Roads Act.

In other words, Council cannot rely upon its section 16 Roads Act rights and must first acquire the Land to subsequently dedicate it as public road pursuant to section 10 of the Roads Act.

Effect of acquisition

Upon publication in the Gazette of the acquisition notice formalising the compulsory acquisition, the Land will immediately be vested in Council and freed and discharged from all interests, restrictions,



dedications, reservations, rights, charges and rates in, over or in connection with the Land pursuant to section 20 of the Just Terms Act.

In other words, Council will receive clear title to the Land as the existing outstanding Council rates in respect of the Land will be freed by virtue of section 20. Given this, following acquisition of the Land, it is recommended Council update its records, including outstanding rates and charges in respect of the Land (by waiver or otherwise) to reflect the discharging of rates.

Land details and just compensation

The Land area is approximately 1,322m² (subject to survey) and is currently zoned R2 Low Density Residential.

A formal valuation has been obtained from a registered valuer assessing just compensation payable by Council to the land owner in the sum of \$30,000.00 exclusive of GST, if any. That amount was determined by Council's valuer pursuant to the Just Terms Act provisions.

Although it is Council's understanding that the Land is valued at approximately \$30,000.00, the exact amount of compensation payable to the land owner will ultimately be determined by the Valuer General.

This amount is also conditional upon whether the Valuer General accepts Council's request to reduce the compensation amount by the sum equivalent to the unpaid rates. If that determination is made, and presuming the valuation remains at approximately \$30,000, the overall net cost to Council to acquire the Land may be reduced to approximately \$7,000.

If it is the case that the land owner does not make a claim for compensation under the Just Terms Act – as anticipated here given the deceased ownership nature – Council may be required to hold the compensation amount in trust to be dealt with in accordance with section 51 of the Just Terms Act. Should this scenario eventuate, Council will comply with its statutory obligations under that section.

PROPOSAL

It is proposed that Council approve the compulsory acquisition of the Land and subsequently dedicate it as a public road.

CONSULTATION AND COMMUNICATION

Relevant internal consultation has been held with appropriate divisions of Council and the proposal to compulsorily acquire the land for public benefit and subsequently dedicate the land as public road is supported. Comments from the relevant Council officers are set out below:

Council Officer	Comment
Senior Landscape Engineer Architect	'It doesn't form a logical open space parcel it looks like a lane functionally at least, so itshould be a WCC lane'.
Land Use Planning Manager	'should be acquired for a pedestrian/cycle route (as well as a watercourse under the railway)'.
Parks and Open Space Manager	'would not support this parcel for Open Space acquisition'.
Coordinator Heritage	"no real heritage opinion to add, except to note that the owner of the land "Hewitt" is the namesake of the creek "Hewitt's Creek" and was an early landholder in these parts Further research into the old title history might answer this."
City Wide Development Manager	'It is and has been used historically for pedestrian and cyclist access under the rail line. There was talk of whether it could be converted to Open Space but that hasn't been supported through other divisions'.



Council Officer	Comment
Urban Release Manager (Acting)	'the land should be acquired to allow for active transport (walking, cycling). Connections across the railway line are a valuable asset and we should be trying to maximise the use of these for network connectivity/permeability where possiblethe subject lane allows for connections with areas to the westwould allow for convenient access tobus services for residents east of the railway line'.
Manager Infrastructure Strategy and Planning	'the existing pavement will only be maintained to existing low standard and not be improved. The route will support pedestrian and active transport connectivity however there are currently no plans for formal footpaths or cycleways along this route'

PLANNING AND POLICY IMPACT

The acquisition is in accordance with Council's policy "Land and Easement Acquisition and Disposal" Wollongong 2028 Community Goal and Objective.

This report contributes to the Wollongong 2028 Objective "Our natural environment, waterways and terrestrial areas are protected, managed and improved" under the Community Goal "We value and protect the environment".

It specifically delivers on core business activities as detailed in the Property Services Service Plan 2019-20 "sale and purchase of land on behalf of Council".

FINANCIAL IMPLICATIONS

A valuation report has been obtained from a registered valuer, assessing the likely compensation amount payable to be the sum of \$30,000 exclusive of GST. Despite this, if Council resolves to compulsorily acquire the Land, the final compensation amount will be determined by the Valuer General pursuant to the Just Terms Act and may or may not be reduced by the unpaid rates amount.

Whilst Council will make appropriate recommendations to the Valuer General to consider the unpaid rates amount in its determination for compensation, that determination is ultimately at the sole discretion of the Valuer General.

Funds have been allocated for this acquisition from Project 127658 Lane 52 (Lot 3 DP 166257).

CONCLUSION

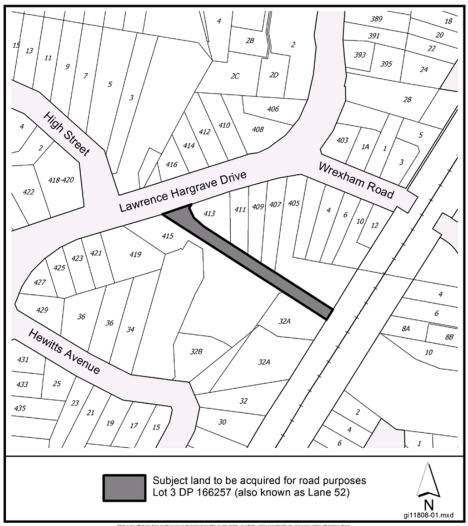
As Council cannot rely upon its section 16 Roads Act rights, it should formalise the dedication via compulsory acquisition if it seeks certainty to ensure the parcel of Land remains a road.

Upon gazettal of the acquisition notice, Council should then proceed to dedicate the Land as road under section 10 of the Roads Act. Such dedication will provide the community with ongoing public access as an active transport (pedestrian/cycle) route connection under the railway line.

The gazettal of the acquisition notice will discharge all outstanding rates and charges by virtue of section 20 of the Just Terms Act and the rates in the amount of \$22,747.51 will subsequently be abandoned.

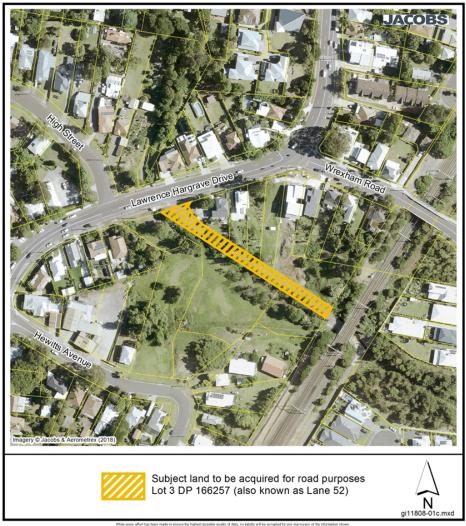
It is therefore recommended Council approve an application for the compulsory acquisition of the land known as Lane 52 at Thirroul, and upon acquisition, it be dedicated as public road pursuant to section 10 of the Roads Act.





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File: PR-005.04.55.054 Doc: IC19/518

ITEM 8

REQUEST TO WAIVE PART FEES - MARKET RENT REVIEW - LICENCE AGREEMENT WITH EASTERN SUBURBS LEAGUES CLUB LIMITED, BERKELEY

This report requests Council's approval to waive part fees payable to Council by Eastern Suburbs Leagues Club Limited. The Club is the licensee in respect of the playing fields, bowling greens, tennis courts and car park forming part of the premises known as "Berkeley Sports and Social Club", Wilkinson Street, Berkeley.

A market review was undertaken in accordance with the licence. The previous Council resolution provided for a discount to the rental payable under the licence however did not make provision for the discount to be applied to consecutive terms. This report seeks endorsement of an increase to the rental in line with Consumer Price Index [CPI] (as calculated in accordance with the licence) instead of the scheduled market rental review. The rental will be re-determined at the time of the next market rental review under the licence.

RECOMMENDATION

- 1 Council waive the market rent review under the licence agreement and adopt an increase to the rental reflecting Consumer Price Index (as calculated in accordance with the licence agreement) only.
- 2 It is noted that rental will be re-determined at the next market rent review required to occur under the licence agreement being 1 May 2024.

REPORT AUTHORISATIONS

Report of: Lucielle Power, Manager Property + Recreation (Acting)

Authorised by: Sue Savage, Director Community Services - Creative + Innovative City (Acting)

ATTACHMENTS

There are no attachments for this report.

BACKGROUND

Council is the owner of land adjoining Berkeley Sports and Social Club, comprising playing fields, bowling greens, tennis courts and car park. The licensee of the Council land is Eastern Suburbs Leagues Club Limited ('the Club'). The Club owns the Berkeley Sports and Social Club premises adjoining the Council land.

Prior to entering into negotiations in respect of the licence agreement in 2014, Council obtained an initial rental assessment valuation in 2013 from a registered valuer. This rental assessment value determined that a realistic market rental for the Council property would be \$94,000 per annum plus GST. Subsequently a licence agreement was negotiated with the Club, with a lesser initial rental of \$38,870.80 plus GST payable in the first year (being a reduction of approximately 60% from the assessed value). It was determined at the time and noted Council's resolution of 14 July 2014 that the reduction recognised the significant social and community benefit that the Club provides as well as taking into consideration the ongoing maintenance costs of the bowling greens, tennis courts and playing fields.

The current licence agreement between Council and the Club has 15 years remaining of a 20 year term, having commenced on 1 May 2014 (and due to expire 30 April 2034).

Council obtained a revised market valuation to determine the rent payable in accordance with the market rent review to be undertaken every five years. The valuation determined the market rent to be \$171,500 per annum plus GST. As the current rent being paid by the Club is \$41,943.46 plus GST this represents a significant increase to the rent.



On 15 May 2019, Council wrote to the Club to inform it of the revised market rental amount based on the valuation. On 24 May 2019 the Club responded noting it does not agree on the reviewed rental amount.

Further information has been sought from the Club in respect of the ongoing use and maintenance of the sporting field, bowling greens and tennis courts to further inform the decision. According to the Club, it spends approximately \$150,000 per annum on the maintenance and upkeep of the sports field, bowling greens and tennis courts. The Club pays power and water usage charges in addition to these maintenance costs which are billed directly to the Club. The Club also confirmed that it pays a further \$150,000 per annum in sponsorship directly to sporting teams, which, as confirmed by the Club is not reinvested back into the Club in a significant way through post-match patronage.

The Club revenue from the hire/sublease of the soccer field, bowling greens and tennis courts does not exceed \$10,000 per annum, the biggest limitation being that one soccer field is not a large enough area to rent out for multiple teams to play on for weekends/evenings. The Club has confirmed that at the current running costs, being \$150,000 plus sponsorship of teams at \$150,000 and rent at the current rate (being \$41,943.46 plus GST as at the date of this report) and approximately \$10,000 per annum in subleasing/licencing revenue, the Club does not receive a commercial return from the operation.

Internal consultation has been undertaken to substantiate the maintenance costs and confirmation has been received noting that the costs appear to be within a reasonable range based on Council's maintenance of comparative sites. This is especially the case when applying a contingency to allow for any renovation or improvements to the fields, courts or greens.

PROPOSAL

In accordance with the licence agreement, rent is to be reviewed as follows:

- 1 Annually on each anniversary of the commencement date during the term in accordance with clause 4.3 (CPI review date).
- 2 Every five years from the commencement date during the term in accordance with clause 4.4 (market rent review).

On each anniversary of the commencement date, rent is increased by CPI, as noted above. The current rent is \$41,943.46 plus GST.

On 1 May 2019 the market rent review was due, being the fifth anniversary of the commencement date. "Market Rent" is defined by the Australian Property Institute and in the International Valuation Standards Glossary as "the estimated amount for which an asset should rent, at the date of valuation, between a willing lessor and a willing lessee in an arm's length transaction wherein the parties had each acted knowledgably, prudently and without compulsion".

In accordance with the terms of the licence agreement, where the method of the market review is clearly defined, a formal valuation report was obtained by Council for the market rent review. The valuation received assessed rental at \$171,500 per annum plus GST. When the report was received the registered valuer verified that the valuation had been carried out only on the licensed area (owned by Council) and not the Club proper (owned by the Club). The market rent review letter was then issued to the Club. The Club subsequently challenged the review. As the initial resolution for the application of any discount was silent as to whether any discount would apply over the whole term of the licence (including subsequent market reviews) or whether the rent would be reviewed back to market rent in the fifth year, it has been deemed appropriate for this matter to be reconsidered and determined appropriately as to whether the discount will continue.

Procedures for the market rent review were followed by Council officers in accordance with the terms of the licence agreement. The challenge by the Club of the reviewed licence fee leaves Council with the option to take either of the following actions:

• Agree with the Club to jointly appoint an independent qualified valuer to determine the licence fee (in accordance with Clause 4.4 of the licence agreement), noting that the appointed valuer's determination is final and binding. This option means that, if the determination results in a value



similar to that valuation already obtained, the licence fee will be, say, \$171,500 plus GST per annum,

or

 Revise the licence fee as already assessed by formal valuation for the market rent review and offer the Club a discounted licence fee.

In view of the significant increase of the licence fee arising from the market rent review and the Club's challenge of the review, this matter was further revised internally. Consideration has been given to the following factors:

- The need of Council to achieve a commercial return on the licence of the premises, for and on behalf of the community.
- The organisational and financial status of the Club, noting that the Club is a not-for-profit organisation that reinvests profits back into future developments, including improving existing sites.
- The maintenance and repair obligations that the Club must meet at its own cost and expense in respect of the licensed area, as against the potential maintenance costs that would be incurred by Council to maintain those assets. These have been noted to be approximately \$150,000 per annum.
- The cooperative working relationship between Council and the Club pursuant to the long-term licence agreement.
- The Club voluntarily assists various organisations and charities within this local government area.
- Recognising the significant local sporting, social and community benefits realised with the Club premises operating in Berkeley.

Balancing these factors, it would be reasonable for Council to continue with the starting rent as was initially applied when the licence agreement was originally negotiated and apply an increase in line with CPI rather than the current scheduled market rental review. This report recommends that Council consider a waiver of part of the revised licence fees by way of proposed discount, as follows:

Current rental	\$41,943.46 per annum + GST
Proposed rent review discount in line with CPI as recommended by this report	\$42,642.52 per annum + GST

In accordance with the licence agreement, there will be a CPI increase to this amount each year and, as recommended, there will be the opportunity to re-determine the rental at the next market rent review in 2024.

CONSULTATION AND COMMUNICATION

- Registered valuer
- Licensee representative
- Property and Recreation Division
- Open Space and Environmental Services Division.

Consultation has also been undertaken with the Club's Head of Finance regarding the maintenance costs incurred by the Club and community contribution.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 goal "Participation in recreational and lifestyle activities is increased.



It specifically delivers on core business activities as detailed in the Service Plan 2019-20 "Provide statutory services to appropriately manage and maintain our public spaces'.

FINANCIAL IMPLICATIONS

This report proposes a waiver of approximately \$128,857.48 per annum from the rent as determined by the recent market rent review valuation or \$60,257.48 from the previously discounted rental amount. The current rent will increase by \$699.06, being by way of CPI review. CPI increases will continue to occur annually until the next market rental review in five years time, at which point Council's position will be revisited.

It is noted that based on the estimated maintenance figures, should the Club no longer maintain the grounds, bowling greens and tennis courts, this may result in an additional financial implication to Council, being approximately \$150,000 per annum.

CONCLUSION

While the market rent review was carried out in accordance with the terms of the licence agreement, the challenge by the Club of the reviewed licence fee has triggered the opportunity for Council to revise the fee and to consider the best way forward considering a number of factors, mainly the contribution of the Club to the community and maintenance obligations the Club undertakes.



File: PJ-2964 Doc: IC19/724

ITEM 9 DRAFT HEWITTS CREEK FLOOD STUDY (2019)

The Draft Hewitts Creek Flood Study (2019) was on public exhibition from 9 September 2019 through to 8 October 2019 and has now been finalised. It is recommended Council adopt the Hewitts Creek Flood Study (2019) which will inform land use planning and planning certificates.

The study improves the accuracy and reliability of flood levels and flood behaviour in the Hewitts Creek Catchment. This catchment covers the suburbs of Bulli and Thirroul, and incorporates a number of tributaries including Hewitts, Slacky, Tramway, Woodlands and Thomas Gibson Creeks.

The reports and flood models for the Hewitts Creek Flood Study (2019) will be placed on the NSW Flood data portal so that they can be publicly accessed. This will lead to a greater understanding of flood behaviour and risk and wiser decision making.

RECOMMENDATION

- 1 The Hewitts Creek Flood Study (2019) be adopted.
- 2 The Hewitts Creek Floodplain Risk Management Study & Plan progress under the current grant agreement.
- 3 Persons who made submissions be thanked and advised of Council's decision

REPORT AUTHORISATIONS

Report of: Mike Dowd, Manager Infrastructure Strategy + Planning

Authorised by: Andrew Carfield, Director Infrastructure + Works - Connectivity Assets + Liveable City

ATTACHMENTS

- 1 Hewitts Creek Flood Study (2019) Executive Sumamry
- 2 Community Engagement Report Hewitts Creek Flood Study (2019)
- 3 Key themes and Council's responses Hewitts Creek Flood Study (2019)

BACKGROUND

The NSW Government's Floodplain Development Manual provides a framework to ensure the sustainable use of floodplain environments and incorporates the NSW Flood Prone Policy. Under the Policy, the management of flood liable land remains the responsibility of Local Government with State Government subsidising flood mitigation works to alleviate existing problems and providing specialist technical advice to assist Councils in performing their floodplain management responsibilities.

The Policy provides for technical and financial support by the State Government through five stages:

- 1 Flood Study Determines the nature and extent of flooding.
- 2 Floodplain Risk Management Study Evaluates risks and management options for the floodplain in respect of both existing and proposed development.
- 3 Floodplain Risk Management Plan Involves formal adoption by Council of a plan of management for the floodplain.
- 4 Implementation of the Plan voluntary house purchase, flood readiness and response plans, construction of flood mitigation works to protect existing development and use of planning controls (LEP, DCP) to ensure new development is compatible with the flood hazard.
- 5 Review reviews are recommended on average every 5 years and are also generally recommended after significant flood events, policy changes, or land use changes and where impediments to floodplain management plan implementation exist that warrant a review.



Hewitts Creek Flood Study

In 2017, WMAwater was commissioned by Wollongong City Council (WCC) to review the Hewitts Creek Floodplain Risk Management Study and Plan (2002). The first stage of this project was to undertake the review of the Hewitts Creek Flood Study (2015) to take into consideration Council's updated Conduit Blockage Policy (2016). The review incorporates recent data from land surveying, drainage network, more detailed modelling techniques, the updated blockage factors, and additional development within the catchment.

The results show that across most of the floodplain, the revised 1% AEP flood levels are typically reduced in comparison to those derived from the 2015 Flood Study. The inclusion of the drainage network into the flood modelling has reduced flooding and, in some cases, completely removed shallow overland flow. The changes in flood behaviour as a result of the Revised Blockage Policy are generally reductions in flood levels by up to 0.3m over a broad area upstream of the majority of drainage structures, with isolated locations of higher reductions. In some locations the flood levels increase, mainly due to a combination of model changes in the local area including changes to structures and model terrain.

PROPOSAL

The Hewitts Creek Flood Study (2019) be adopted. Then after adoption, undertake the following actions:

- Update the flood planning levels Planning + Environment
- Update of the relevant Section 10.7 planning certificate Planning + Environment
- Provide flood level information advice in accordance with the new study results Infrastructure + Works

CONSULTATION AND COMMUNICATION

On 28 May 2019, the draft Flood Study was presented to the Northern Floodplain Risk Management Committee who recommended public exhibition of the draft report.

The draft Flood Study report went on public exhibition between 9 September 2019 to 8 October 2019. A community drop-in session at the Bulli Senior Citizens Centre on 18 September 2019 from 4pm – 6pm was attended by 27 community members.

A letter to over 1,900 residents and property owners in flood affected areas (all properties within the extent of the probable maximum flood) was mailed out to advise of the public exhibition process and seek feedback on the document.

Notice of the public exhibition was published in the local newspaper on 18 September 2019. Hard copies of the draft Flood Study report, Frequently Asked Questions and Feedback Forms were placed at the Thirroul Library and PDFs were available through Council's "Have Your Say" page. 89 people viewed the Website's project page. 70 people downloaded the documents from the Website. There were a total of 15 submissions throughout the exhibition period.

Comments from the submissions and at drop in sessions related to the following key themes:

- Australian Rainfall and Runoff guidelines
- Flood modelling
- Blockage
- Mapping
- Rainfall intensity
- Report presentation
- Overland flooding
- Flood mitigation
- Flood risk management process
- Perceived causes of flooding



- Maintenance
- · Impact on individual properties; and
- Insurance.

Persons who made a submission were thanked and advised of this matter being reported to Council for adoption.

A Community Engagement report is provided in attachment 2.

Attachment 3 provides responses to all key themes raised during the consultation.

The comments provided can be addressed through on-going education on floodplain management or considered as part of the review of the floodplain risk management study and plan for the catchment. They did not result in changes to the draft results that were presented to the Northern Floodplain Risk Management Committee and publicly exhibited. However, the draft final report includes more detailed technical documentation on the methodology adopted by the consultant.

The committee has been advised of the outcomes of the public exhibition and has not raised any objection to Council adopting the final report.

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 2018-2021	Operational Plan 2019-20
Strategy	3 Year Action	Operational Plan Actions
1.1.3 The potential impacts of Natural Disasters, such as those related to flood and landslips are managed and risks are reduced to protect life, property and the environment	1.1.3.2 Establish effective urban stormwater and floodplain management programs	Develop and implement Floodplain risk Management Plans

FINANCIAL IMPLICATIONS

The Draft Hewitts Creek Flood Study (2019) has cost \$57,610 excl. GST. This study attracted 2/3 grant funding under the NSW State Government Flood Management Program. The next stage involves the review of the Floodplain Risk Management Study and Plan (2002) which is also funded under the same grant agreement.

CONCLUSION

The Draft Hewitts Creek Flood Study (2019) was prepared with the cooperation, assistance and support of many stakeholders, including community members and State government representatives.

The study improves the accuracy and reliability of flood levels and flood behaviour in the Hewitts Creek Catchment. The reports and flood models for the Hewitts Creek Flood Study (2019) will be placed on the NSW Flood data portal so that they can be publicly accessed. This will lead to a greater understanding of flood behaviour and risk and wiser decision making.







HEWITTS CREEK FLOODPLAIN RISK MANAGEMENT STUDY AND PLAN

ADDENDUM TO REVIEW OF HEWITTS CREEK FLOOD STUDY (2015) VOLUME 1 OF 2









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HEWITTS CREEK FLOODPLAIN RISK MANAGEMENT STUDY AND PLAN

ADDENDUM TO REVIEW OF HEWITTS CREEK FLOOD STUDY (2015) FINAL

NOVEMBER 2019

Project Hewitts Creek Floodplain Risk Management Study and Plan			Project Number 117028		
Client Wollongong City Council			Client's Representative		
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Authors Erin Askew			Prepared by		
			TO BE SIGNED FOR FINAL REPORT		
Date			Verified by		
14 November 2019			TO BE SIGNED FOR	FINAL REPORT	
Revision	Description		Distribution	Date	
4	Final Flood Study Addendum	WC	С	NOV 19	
3	Revised Flood Study Addendum	WC	C – Public Exhibition	SEP 19	
2	Flood Study Addendum	WC	С	JUN 19	
1	Stage 1 Progress Report	WC	С	FEB 19	



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LIST OF ACRONYMS

AEP Annual Exceedance Probability ARI Average Recurrence Interval ALS Airborne Laser Scanning Australian Rainfall and Runoff ARR

BOM Bureau of Meteorology

DECC Department of Environment and Climate Change (now DPIE)

DNR Department of Natural Resources (now DPIE) Department of Planning, Industry and Environment DPIE

DRM Direct Rainfall Method Digital Terrain Model DTM

GIS Geographic Information System **GPS** Global Positioning System

IFD Intensity, Frequency and Duration (Rainfall)

LiDAR Light Detection and Ranging **LFC** Layered Flow Constriction

mAHD meters above Australian Height Datum

OEH Office of Environment and Heritage (now DPIE)

PMF Probable Maximum Flood

SRMT Shuttle Radar Mission Topography

SCIMS Survey Control Information Management System

one-dimensional (1D) and two-dimensional (2D) flood and tide **TUFLOW**

simulation software (hydraulic model)

WBNM Watershed Bounded Network Model (hydrologic model)





EXECUTIVE SUMMARY

Introduction

The study area is located within the Wollongong City Council Local Government Area (LGA) and incorporates Slacky, Tramway, Woodlands, Hewitts and Thomas Gibson Creeks. The combined catchment is approximately 7.5km² and incorporates the northern Wollongong suburbs of Bulli and Thirroul. The catchment extends from the Illawarra Escarpment in the west, discharging into the Thirroul and Sandon Point Beaches in the east.

The flood behaviour in the catchment is influenced by catchment runoff, in addition to the interaction with ocean conditions, particularly in the lower catchment. Significant flooding was experienced in August 1998 when vast areas of the Illawarra region were impacted. Within the Hewitts Creek catchment both public and private property were damaged in that event. Anecdotal and surveyed flood levels exist for the 1998 event in addition to the 1988, 1991 and 2013 events.

In order to understand and allow for the management of flooding in the Hewitts Creek catchment, Wollongong City Council prepared the Hewitts Creek (incorporating Slacky, Tramway, Woodlands, Hewitts and Thomas Gibson Creeks) Flood Study and Floodplain Risk Management Study and Plan in 2002. More recently, preparing the Review of Hewitts Creek Flood Study in 2015, which provided updated flood information for the catchment.

Following the completion of the 2015 Flood Study Review, Council developed a revised Conduit Blockage Policy in 2016. The 2015 Flood Study Review was based on Council's previous Conduit Blockage Policy (2002) as documented in Council's 2009 Development Control Plan.

This report provides an addendum to the 2015 Flood Study Review and outlines the revised design flood behaviour considering Council's Revised blockage policy, in addition to catchment changes since 2015 and recommendations coming out of review of the models.

This document was placed on Public Exhibition for a period of four weeks (9 September to 8 October 2019). During the consultation period Council sent letters to 1,900 residents and property owners in the catchment area inviting them to learn more about the study. An information session was held for community members to discuss the study and ask questions. Copies of the draft report, a Frequently Asked Questions sheet and Feedback form were available at Thirroul Library and on the project webpage. Submissions could be made during the information session, via the Feedback form, via Council's website and through the Customer Service Centre. A total of 15 submissions were received. These submissions have been considered in the finalisation of this report.

Flood Models

The Review of Hewitts Creek Flood Study (2015) aimed to determine design flood behaviour in the study area. To achieve this, a Watershed Bounded Network Model (WBNM) hydrologic model and a 1D/2D TUFLOW hydraulic model were established. The models have been reviewed as part of the current study to ensure they have been developed using best practice approaches and to determine the suitability for use in the Floodplain Risk Management Study.





Both the WBNM hydrologic model and TUFLOW hydraulic model established as part of the Flood Study Review (2015) were generally considered appropriate. Some minor updates were required to ensure the models produce an improved representation of design flood behaviour. These updates included updating the terrain information to a more recent dataset, refinement of the models in the new development areas, improved representation at a number of hydraulic structures, and inclusion of the drainage network. These updated models formed the basis for assessment of a range of scenarios including Council's Revised Conduit Blockage Policy (2016).

Modelled Scenarios and Results

The primary objective of this Flood Study Addendum was to update the design flood behaviour to existing floodplain conditions, considering recent developments and floodplain changes, and to take into account Council's Revised Blockage Policy. In order to understand the relevant changes to flood behaviour as a result of each of these updates a series of scenarios have been assessed and compared where relevant. The scenarios are outlined in Table ES1 below.

Table ES1 - Modelled Scenarios

Scenario	Aim	Blockage	Catchment	Topographic Dataset
ID		Policy	Conditions	
0	Re-establish the conditions presented in	2002	2015	2013 LiDAR and field
	the Flood Study Review (2015) considering			survey
	the model review (Section 3).			
1	Understand the influence of the 2016	2016	2015	2013 LiDAR and field
	Revised Blockage Policy (Section 2.6.2).			survey
2	Understand the influence of catchment	2016	2018	2013 LiDAR, field survey
	changes since 2015.			and recent catchment
				changes/developments

The 2015 Flood Study Review was undertaken in accordance with the methodologies outlined in Australian Rainfall and Runoff 1987 (ARR 1987), which were applicable at the time of the study. In late 2016, a first release of a revised Australian Rainfall and Runoff guideline became available, a later revision was subsequently released in mid 2019. The design flood behaviour produced as part of this Flood Study Addendum has been developed using the methodologies described in ARR 1987. The revised guidelines will be considered as part of the Floodplain Risk Management Study stage.

The updated hydrologic and hydraulic models were used to simulate flood behaviour under each scenario for a range of design events and relevant flood mapping produced.

Scenario ID 2 reflects 2018 catchment conditions and Council's Revised Conduit Blockage Policy and therefore represents the current revised design flood behaviour for the Hewitts Creek catchment. Flood mapping (peak flood level, depth, velocity and hydraulic hazard (1% AEP only)) for Scenario ID 2 for the 5 year ARI, 1% AEP and probable maximum flood (PMF) events is reproduced in Figures ES1 to ES7. Mapping presented in Figures ES1 to ES7 has adopted the "risk management" blockage scenario.





Comparison was made between the scenarios to understand the influence of the various factors on design flood behaviour. The following provides a brief summary.

- Scenario ID 0 (Re-established Base Case) This scenario was compared to the results from the Flood Study Review (2015). Across a large proportion of the study area the flood level results in the 1% AEP remain within +/- 0.1m of those presented in the Flood Study Review (2015). The inclusion of the drainage network through the catchment has reduced flooding and, in some cases, completely removed shallow overland flow. Other localised variation in flood levels occur as a result of the changes to the model terrain (LiDAR) and hydraulic structures. The magnitude of these changes is generally between 0.1m and 0.5m. Additional flood information is available in the upper sections of Hewitts Creek due to the extension of the hydraulic model.
- Scenario ID 1 (Revised Conduit Blockage Policy) This scenario was compared to Scenario ID 0. The changes in flood behaviour as a result of the Revised Conduit Blockage Policy are generally limited to upstream of some structures where flood levels are reduced by between 0.1m and 1.0m, with a maximum reduction of 1.9m. The flood level reduction generally extends between 300m and 600m upstream. There are also small patches of associated reduction in flood extent. There is limited change in flood levels downstream of structures.
- Scenario ID 2 (Current Catchment Conditions) This scenario was compared to Scenario ID 1. Changes to flood behaviour as a result of developments within the catchment are minor, localised and generally contained within the development site. There are no impacts on the broader flood behaviour.
- Scenario ID 2 (Current Catchment Conditions) This scenario was also compared to the results from the Flood Study Review (2015). Across a large proportion of the study area the flood level results in the 1% AEP are reduced from those presented in the Flood Study Review (2015). The inclusion of the drainage network through the catchment has reduced flooding and, in some cases, completely removed shallow overland flow. In addition, the application of the Revised Conduit Blockage Policy has reduced flood levels upstream of some structures (up to 1.9m). Other localised variation in flood levels occur as a result of the changes to the model terrain and hydraulic structures. Additional flood information is available in the upper sections of Hewitts Creek due to the extension of the hydraulic model.

Updated design flood behaviour for current Hewitts Creek catchment conditions has been defined for the 5 year ARI, 10%, 5%, 2%, 1%, 0.5%, 0.2% AEP and PMF events.

Hydraulic hazard for the 1% AEP event is shown on Figure ES7. Hazard classifications H5 and H6, those areas considered unsafe for buildings, are generally contained to the creek lines and immediately adjacent riparian areas, in addition to localised areas where street flow may become hazardous. Some areas of the catchment are subject to hazard classification H4 which is considered unsafe for people and vehicles. The hydraulic hazard across most developed areas of the catchment is category H3 or less. While category H3 has the potential to be unsafe for children and the elderly and pose a potential mobilisation hazard for vehicles, the flood behaviour across most of the remaining study area is unlikely to pose a significant threat to people.



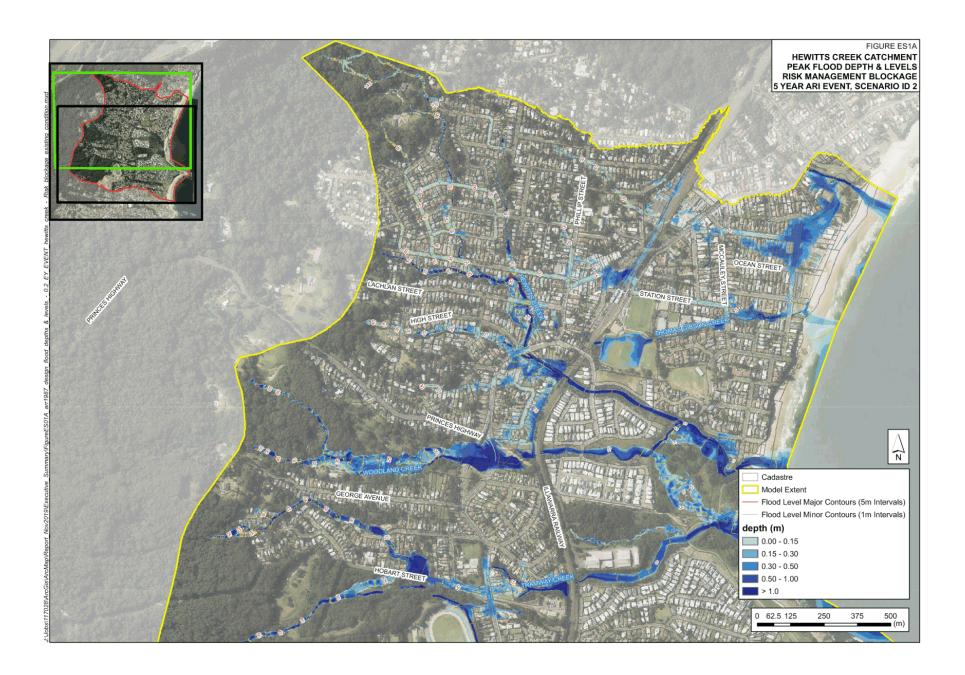


Climate Change

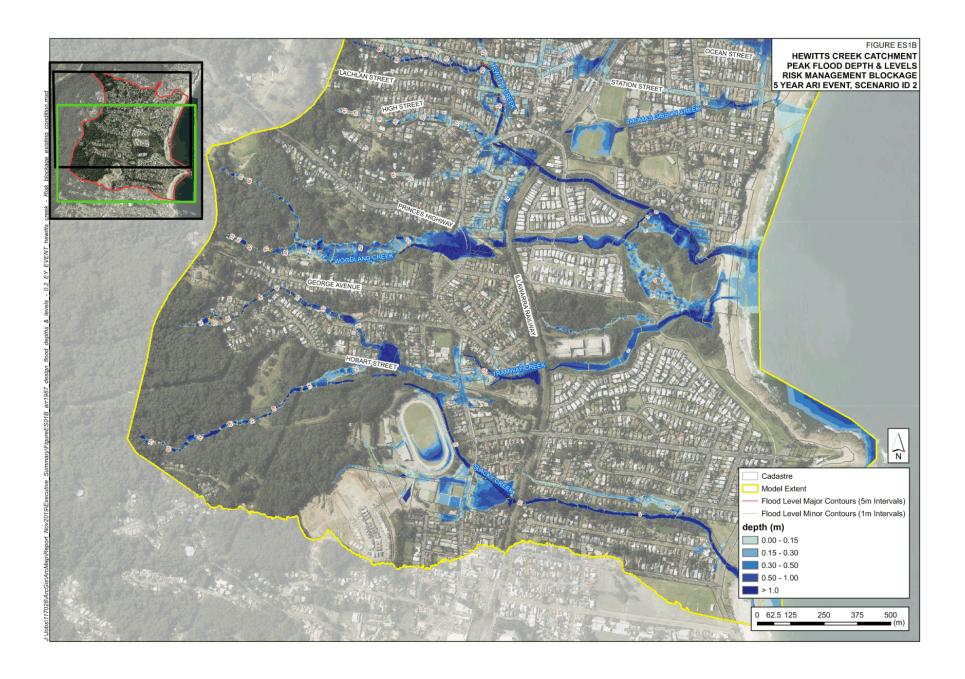
Climate change is expected to have adverse impacts upon sea levels and rainfall intensities into the future and as such a range of scenarios have been assessed in order to understand the sensitivity of the catchments' flood behaviour to these influences. Potential increases to rainfall intensity and sea level due to climate change and a combination of both have been considered as part of the current Flood Study Addendum for the 1% AEP event. All climate change scenarios were based on Scenario ID 2. Rainfall increases of 20% and sea level rise increases of 0.4m and 0.9m were assessed.

Increases in rainfall intensity have been shown to increase flood levels along waterways by between 0.1m and 0.3m. Larger increases of between 0.5m and 1.0m are shown to occur upstream of hydraulic structures. Increases in sea level are shown to result in increased flood levels however are limited to the downstream areas of the Hewitts Creek catchment.

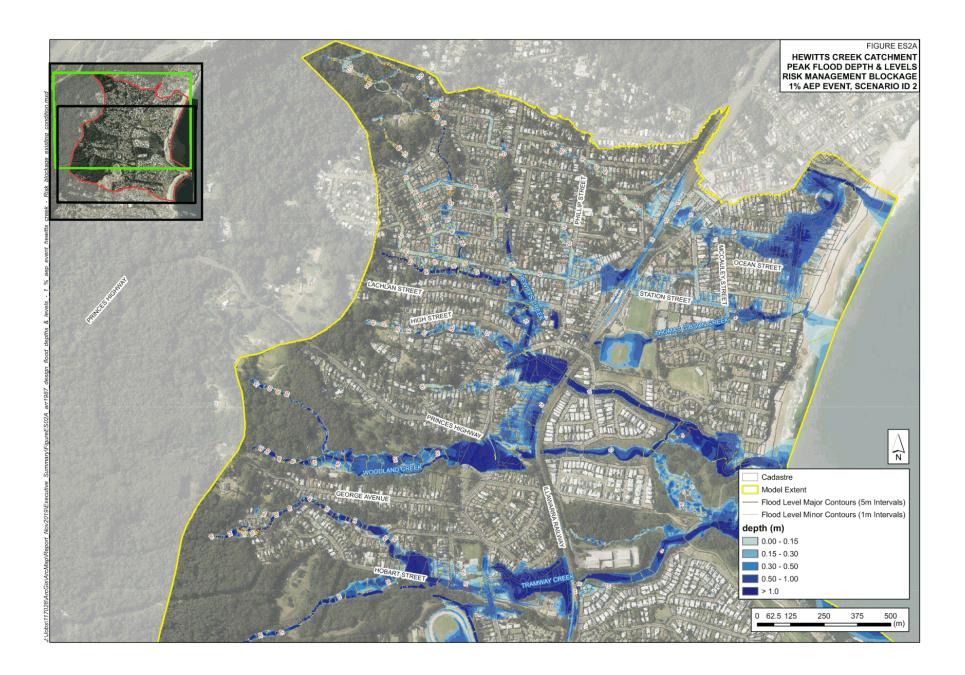




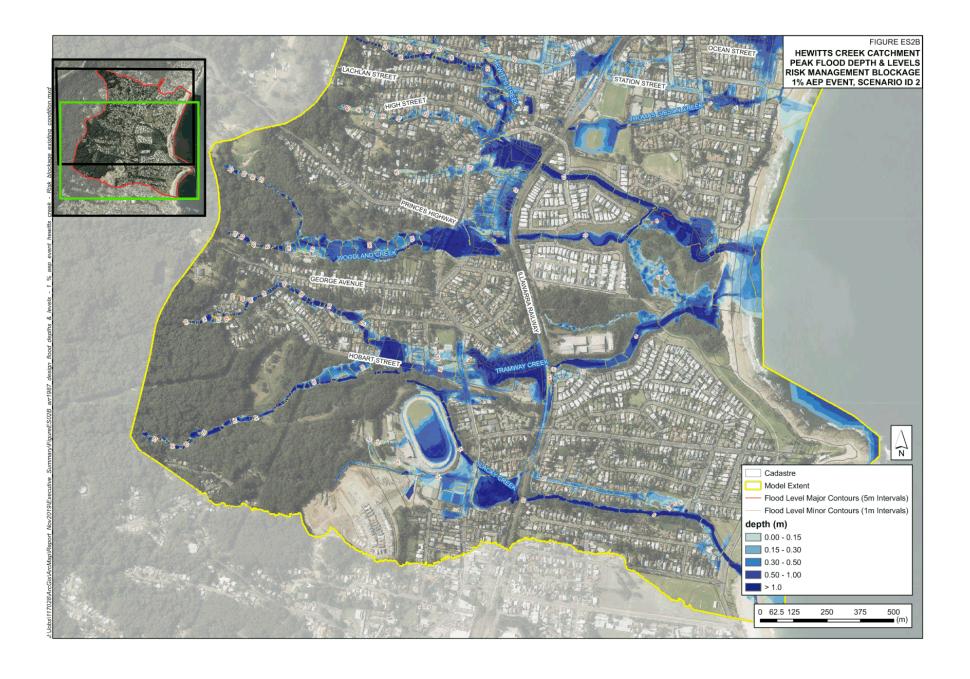


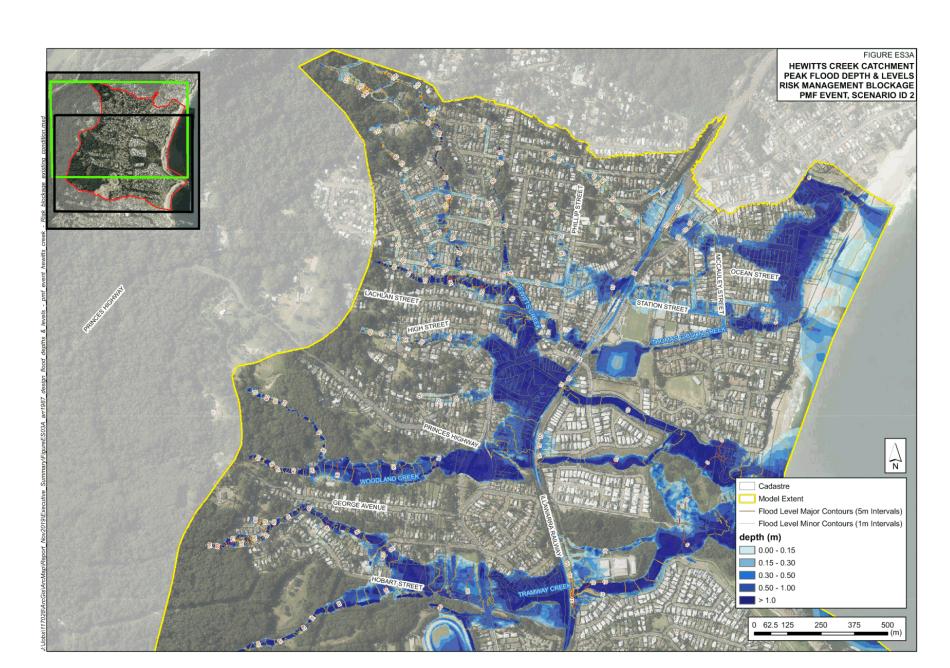




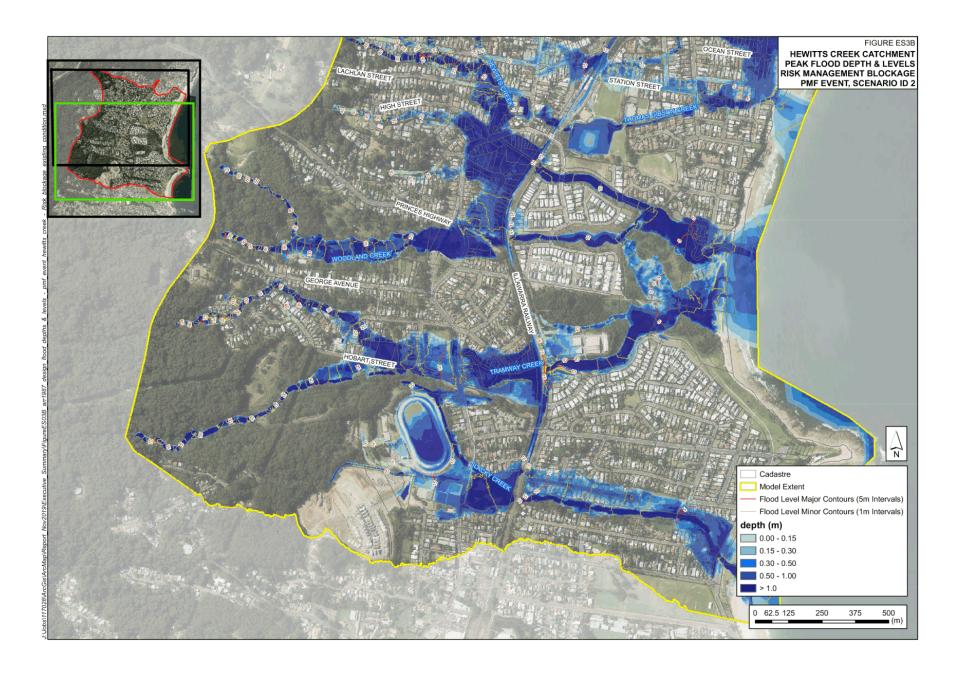




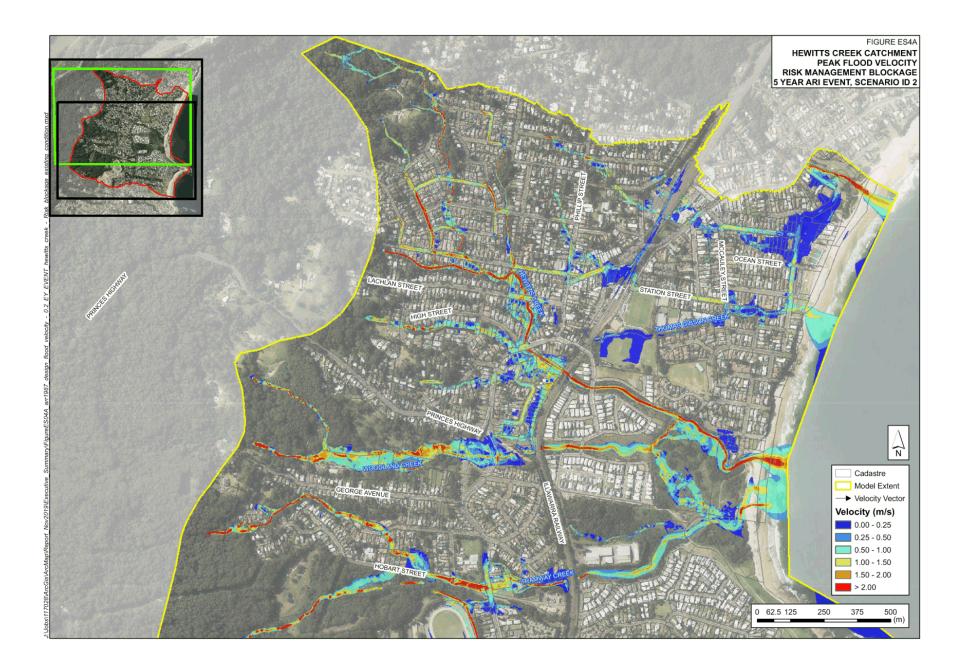


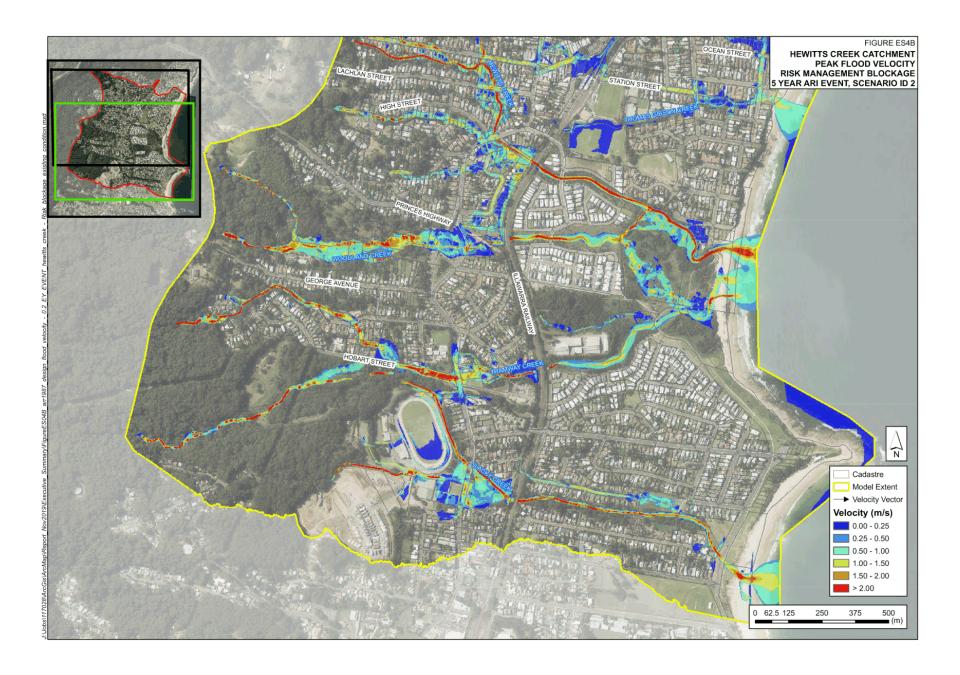






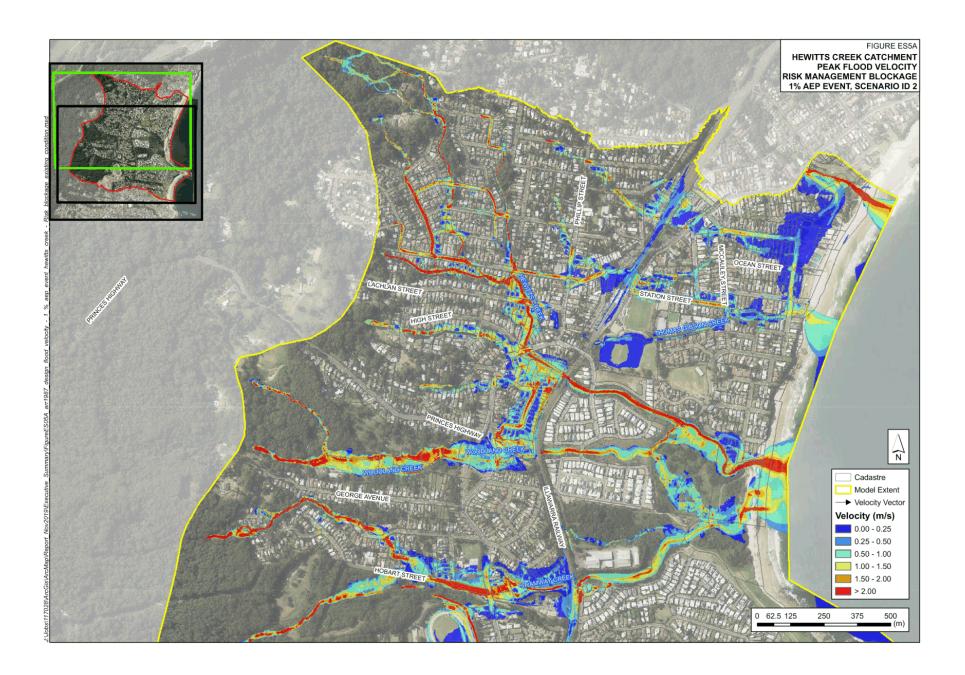


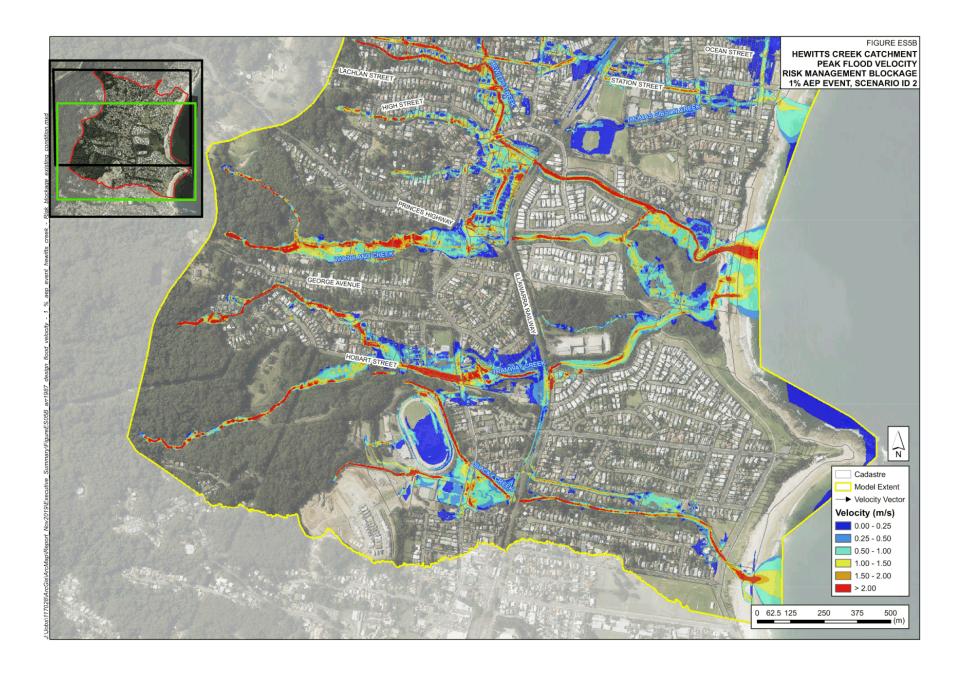




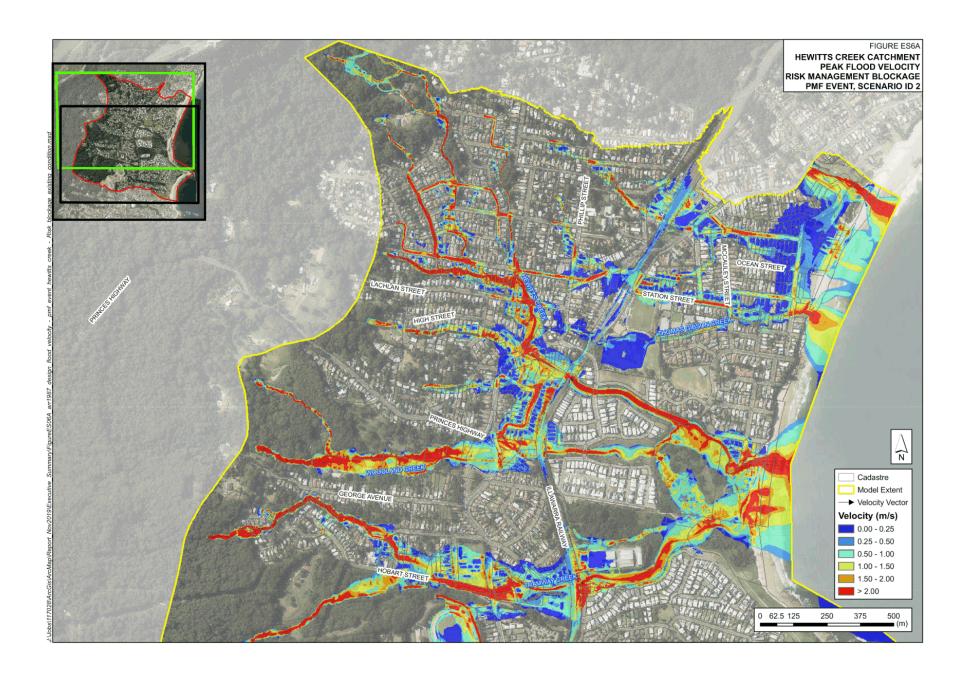


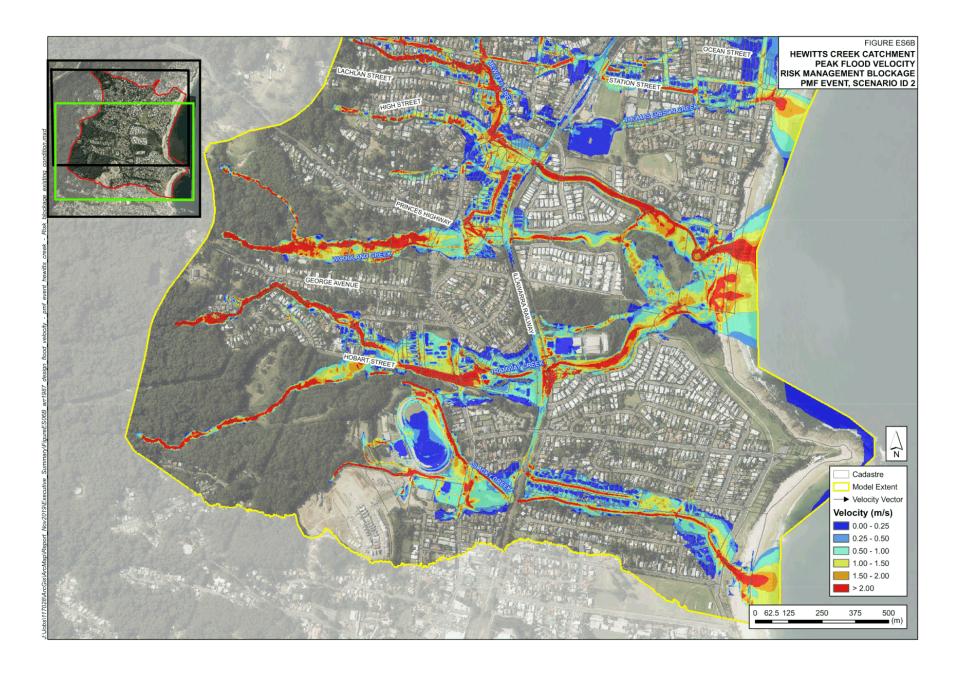




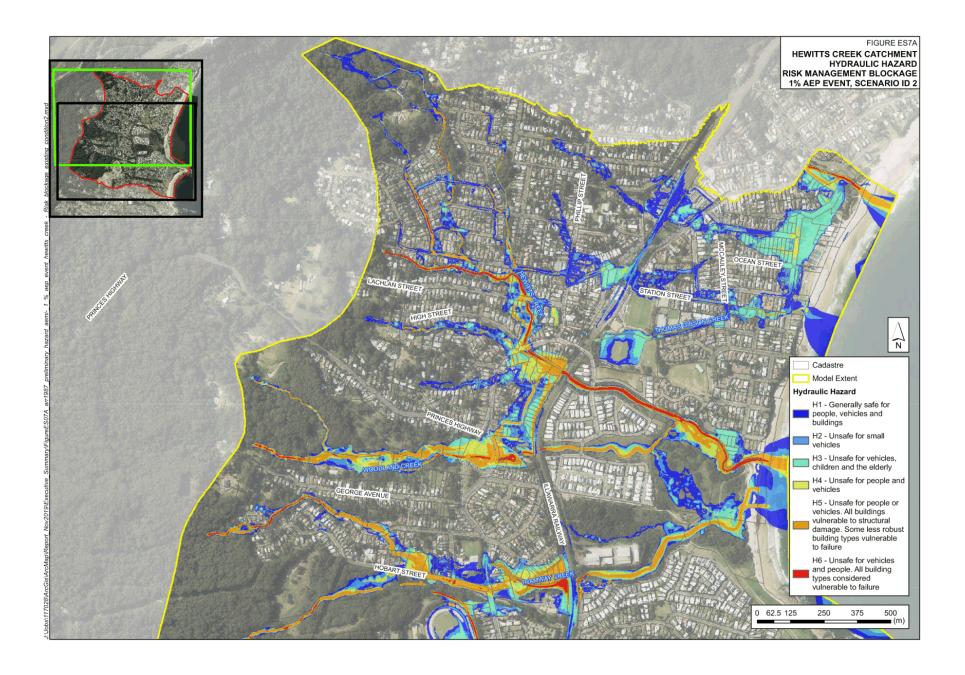




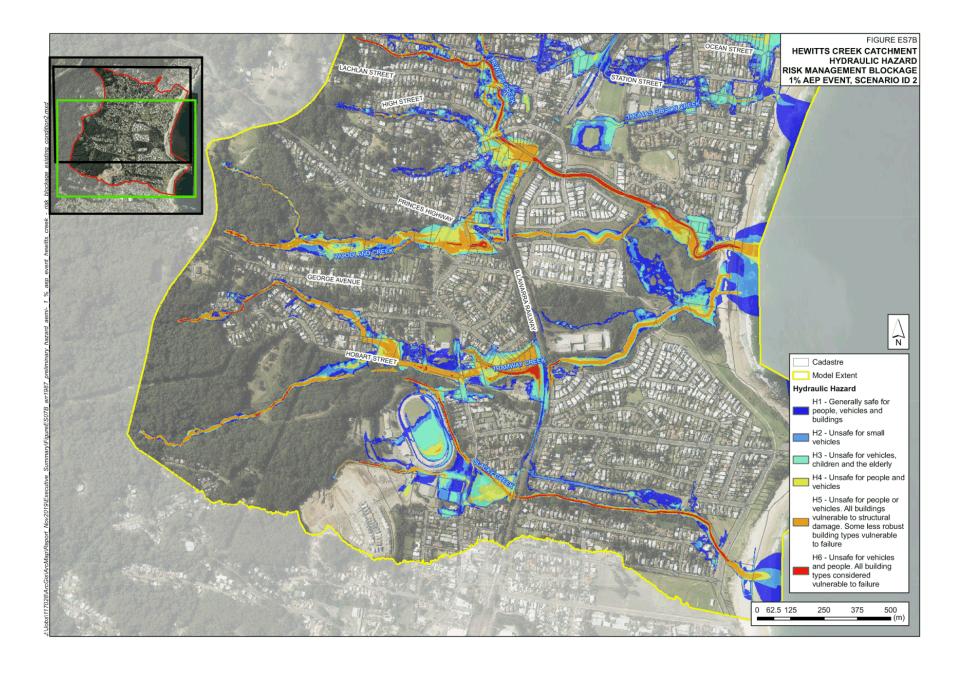














Study (2019)



HEWITTS CREEK FLOOD STUDY

ENGAGEMENT REPORT

OCTOBER 2019 Z19/230540





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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 issues. While it's not possible to include all the details of feedback we received, feedback that was relevant to the project has been provided to technical experts for review and consideration.



Executive Summary

Council is responsible for planning and managing flood prone lands in our area and has updated the Hewitts Creek Flood Study as part of this commitment. A report on the draft Flood Study was prepared with information on how it was updated and what the results are. The updated Study explains the way flooding happens in the Hewitts Creek catchment. The study will form a basis for the ongoing management of flood risk in the catchment.

Council's engagement team worked collaboratively with a technical consultant to share the draft Study with the community and key stakeholders. During the public exhibition period, 9 September to 8 October 2019, Council sent letters to more than 1,900 residents and property owners in the catchment area inviting them to learn more about the Study. Emails with this information were sent to community, education, Register of Interest (flood), business, government and emergency services' stakeholders. The information was also available at Council's Customer Service Centre. Copies of the draft report, a Frequently Asked Questions sheet and Feedback Form were made available at Thirroul Library, and at the information session at Bulli Senior Citizens Centre on 18 September 2019. They were also included on the project webpage. A notice of the exhibition was published in the Advertiser on 18 September 2019. The community was invited to provide feedback via Council's website, Customer Service Centre and at the community information session.

The drop-in information session was attended by 27 community members and there were 15 submissions.

Feedback directly relating to the draft Study focused on whether use of the 1987 Australian Rainfall and Runoff guidelines was appropriate. Concerns were expressed about the accuracy of the flood modelling and how the Blockage Policy was applied. There was a suggestion on how to simplify the use of risk management blockage factors. Clarification regarding hazard mapping was requested. There was a view that the percentage increase in rainfall intensity expected for the worst-case greenhouse gas concentration scenario was overly conservative. It was requested that the percentage increases in rainfall intensity be applied to the most upto-date rainfall data for Wollongong. A way of improving the presentation of tables in the report was put forward, with corrections sought to the population of some. It was requested that the resolution of the figures be improved and that the latest cadastre be used. There was a concern that the Study does not take into consideration recent land clearing and alleged vegetation vandalism near Turnbull Gully, at the Armagh Parade development site. It was viewed that these land changes would also change flow conditions in Turnbull Gully and the nature of flooding at the Deborah Ave culvert.

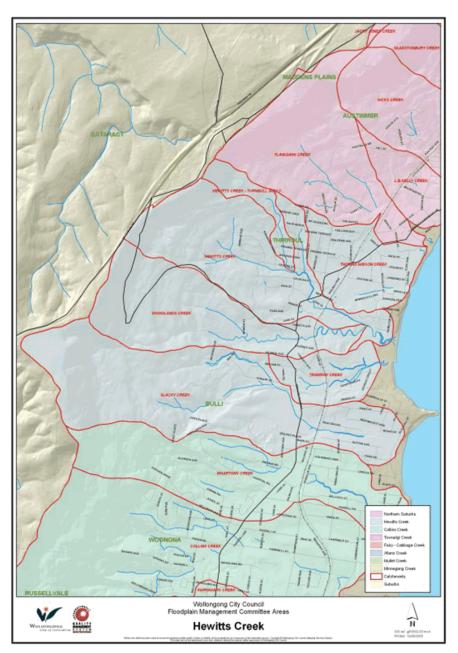
Other feedback themes related to suggestions for flood mitigation, frustration over the ongoing flood risk management process and perceived lack of action, comments on the perceived causes of flooding, and requests for creek and culvert maintenance. Some sought flood level information for their individual properties, or to understand what the Study findings mean in relation to their property. There was a view that Council influences how flood data is used for setting insurance premiums.



Background

Wollongong City Council is committed to finding solutions to reduce the social and economic damages of flooding. In 2016, Council updated its Blockage Policy and resolved to review and update its flood studies. The Hewitts Creek Flood Study is one of 10 studies to undergo review. This catchment covers an area of around eight square kilometres in Thirroul and Bulli.

Figure 1 Hewitts Creek catchment map





A Flood Study, Floodplain Risk Management Study and Floodplain Risk Management Plan for this catchment were completed in 2002. These studies were jointly funded by Council and the NSW Government. The Hewitts Creek Flood Study was reviewed in 2015, also with funding from Council and the NSW Government. These studies identified the risk within the Hewitts Creek catchment and the steps that can be taken to manage this risk now and into the future.

As part of updating the Study, Council's revised Blockage Policy was considered, which helps us work out how blocked stormwater structures might affect flooding. We have improved information, such as recent data from land and waterway surveying, and taken into account development that has occurred since the previous Flood Study (2015). We included an extended network of drainage pits and pipes and used more improved and detailed modelling techniques. We also extended the mapping to capture additional flood-prone areas and waterways that were not previously mapped. Data was collected and used to update the computer models used to simulate the flooding in the catchment, and to update flood maps which provide a visual illustration of the flood risk in the catchment.

At the Northern Floodplain Risk Management Committee meeting on 28 May 2019, the public exhibition of the draft Hewitts Creek Flood Study was unanimously supported. The outcomes of the exhibition and resulting amendments to the Study will be reported to the Northern Floodplain Risk Management Committee and Council in view of adopting it in late 2019.

The study is based on the latest available knowledge and information, and provides an improved understanding of the potential impacts of floods on the local community. It will form a basis for the ongoing management of flood risk in the Hewitts Creek catchment.



Methods

Our Stakeholders



Our Methods

Table 1: Details of Communication and Engagement Methods

	Table 1: Details of Communication and Engagement Methods		
Methods	Details of Methods		
Communication Methods			
Presentation	Information about the proposal was presented at the Floodplain Risk Management Committee (Northern) meeting on 28 May 2019		
The Advertiser	Details of the public exhibition, information sessions and Engagement HQ webpage were included in Council's Community Update pages on 18 September 2019		
Email to key stakeholders	An email and FAQ were sent to key stakeholders identified through an analysis process		
Register of Interest	An email was sent to all participants with registered interest in 'Flood'		
Info packs	Frequently asked question sheets and hardcopy feedback forms were made available at Thirroul Library and Customer Service. A hardcopy of the draft report was also made available at Thirroul Library.		
Letter	A letter about the public exhibition, information session and how to submit feedback (via phone, email, in person or post) was mailed to local residents and property owners		
Frequently Asked Questions	Responses to questions about updates to the Study and floodplain risk management were distributed with the letter and emails, published on the project webpage and distributed at the information session		
Poster	A poster was produced to explain the floodplain risk management process		



Engagement HQ Website	 The project webpage hosted background info and supporting documents: Frequently Asked Questions with information on the Study and flood risk management News Feed for updates on project progress Document Library with the draft Flood Study Report Floodplain risk management process Flooding in Hewitts Creek catchment video Flooding in Wollongong video Online survey tool to capture participant's feedback 	
Video	The Flooding in Wollongong video was used on the Engagement HQ webpage and a flood modelling video was screened at information sessions and on the Engagement HQ webpage	
Engagement HQ Website	An online survey tool was used to capture participant's feedback. The page also hosted background information and supporting documents.	
Feedback Form	A hardcopy feedback form was made available at Thirroul Library and at the information session	
Community Information Session	A drop-in session was held to provide the community with information on the work undertaken to date and findings of the Report. The Report, flood modelling maps, flood modelling video and images of flood mitigation work in the catchment were displayed along with the FAQ and feedback forms. Floodplain management engineers working on the Study were on hand to answer questions.	

8

Results

All stakeholders and the wider community were invited to provide feedback on the draft Study. This section provides details on the participation at engagement activities (Table 2), and the feedback received during the exhibition period.

Engagement Participation

Details of the number of participants for each engagement activity are presented in Table 2.

Table 2: Engagement participation results

Engagement Activities	Participation
Northern Floodplain Risk Management Committee Meeting	6
Drop-in Community Information Session at Bulli Senior Citizens Centre	27
Online Participation • Aware – Total number of users who viewed the project page • Informed – Total number of users who clicked a hyperlink, e.g. to download a document	89 70
Engaged – Total number of users who actively contributed to the project, e.g. submitted feedback via the online form	2

Submission Results

There were 15 submissions, including one from Endeavour Energy. Feedback themes relating to the draft flood study focused on the following:

Australian Rainfall and Runoff

It was requested that Council use the latest flood estimation guidelines. There is a perception that the rainfall data used in the Study is wrong or outdated.

The Study uses old rainfall data from 1987 that the Bureau of Meteorology says is wrong.

Expediting steps to prove up the ARR2016-19 methodology in Wollongong should have been given higher priority across the Wollongong LGA, rather than producing yet further 'updated' studies that are not up to date.

Flood modelling

Concerns were expressed about whether the modelling is accurate, particularly regarding the 5-year frequency. There was also a concern that the flood modelling for the upper western catchment area of Hewitts Creek including Turnbull Gully is too conservative.

The draft flood study shows my property and other houses in the street flooding every 5 years! This is a total lie I have lived here for 26 years the only time we got flooded was in 1998 and no other time.

The draft Study looks to have overpredicted frequent flooding given the extensive inundation predicted in the 5-year flood in some locations.



Item 9 - Attachment 2 - Community Engagement Report - Hewitts Creek Flood Study (2019)

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Blockage

There was a perception that the Blockage Policy does not adequately reflect real-life flood behaviour, or that there is insufficient consideration of all-clear blockage condition. It was commented that the Blockage Policy is not suitable for a catchment-wide study. A suggestion on how to simplify the use of risk management blockage factors was provided.

Mapping

Some clarification regarding hazard mapping was requested.

Rainfall intensity

There was a view that the percentage increase in rainfall intensity expected for the worstcase greenhouse gas concentration scenario by an additional 23% was overly conservative. A suggestion was made for the percentage increases in rainfall intensity to also be applied to the most up-to-date rainfall data for Wollongong.

Report presentation

Suggestions were made on how to improve the presentation of the tables in the report, including corrections to the population of some. It was requested that the resolution of the figures be improved and that the latest cadastre be used.

Overland flooding

There was a concern that the Study does not take into consideration recent land clearing and alleged vegetation vandalism that has occurred and continues to occur near Turnbull Gully, at the Armagh Parade development site.

I fail to see how these changes to [overland] flow conditions could be restricted to the development site. The land clearing in this section of the upper catchment is highly likely to change flow conditions in Turnbull Gully and the nature of flooding at the Deborah Ave culvert: a concern for residents downstream, adjacent to Deborah Avenue which has flooded at the road culvert in the past and threatens residential land and property.

Other feedback themes were:

Flood mitigation

Numerous suggestions were made for ways to reduce flooding. Increasing the culvert size under the road and railway line was proposed to reduce flooding at Hewitts and Woodlands Creeks. There was a perception that Council doesn't act on proposals to mitigate flood risk or takes actions that only benefit new housing estate residents. Endeavour Energy's focus was on the future Floodplain Risk Management Study and mitigating risks to the electricity distribution network.

> Insist the Railway Dept reinstate the overflow channel that runs between the houses in Hewitts Ave that back onto the railway land and remove the safety ramp at the bottom of Bulli Pass. A tractor with a slasher can keep the weeds down.



Item 9 - Attachment 2 - Community Engagement Report - Hewitts Creek Flood Study (2019)

10

Flood risk management process

There was frustration over the ongoing flood risk management process and perceived lack of action.

How much money has Wollongong City Council spent since the flood in 1998 without real action? Stop producing costly promotional/propaganda material and get on with it. The Tramway Creek culvert remains the same and still nothing concrete from W.C.C. to address the problem. Residents attended a Council Report Meeting in Jan 2012. 7 years have passed since then with no further feedback on the proposals.

Perceived causes of flooding

Some felt that new developments and seeming lack of culvert maintenance were contributing to an increased risk of flooding.

More development on western side of LHD is putting more water into the creeks and the pipe under Hewitts Ave can't cope with the extra flow

Maintenance

Some felt that culverts were not being adequately maintained. Build-ups of sediment and vegetation were reported for the culverts near the top end of George Street, at the bottom of Cornock Ave below Thirroul Park and under the safety ramp. There were requests for Council to assist with creek and vegetation maintenance for Hewitts Creek, with most being for maintenance of privately-owned land.

Can Council clear the creek at Hewitts Ave? It is 1 block on private land, 1 block Council and 1 block RMS. I've lived here for 50 years and they were always cleared out so the water can get away. I've rung and asked for these blocks to be cleared only to be told they need the vegetation to stabilise the banks.

Impact on individual properties

Some sought flood level information for their individual properties, or to understand what the Study findings mean in relation to their property.

Would you please be able to provide us with an overview of how this study does or may impact our property?

Insurance

There was a view that Council influences how flood data is used for setting insurance premiums.

No homes in Allenby Pde were affected by the 1998 floods. But as a result of the Council's blocked Culvert Policy, many residents no longer can afford flood coverage. Help us with our insurers? Premiums are too expensive. NRMA - \$16k quote ... no way!



Hewitts Creek Flood Study 2019

Comments from the submissions and at the drop in session related to:

Key themes	Council's response
Adoption of Australian	In accordance with the NSW Government, Floodplain Risk Management
Rainfall and Runoff	Guide, Incorporating 2016 Australian Rainfall and Runoff in studies, and in
(ARR) 2016/2019	accordance with Book 1, Chapter 1 of ARR2019, Council is currently
methodology	finalising procedures and data that are more appropriate for our region so that ARR2019 can be implemented. The ARR 2019 methodology will be considered in the future review of the floodplain risk management study and plan for which Council has allocated resources this financial year and has acquired grant funding under the NSW Flood Program. Until then, we will continue to use ARR1987.
Flood modelling validity	The 2019 flood study has developed a detailed and catchment wide flood model with all catchment topography, streams, hydraulic structures and stormwater drainage represented. To ensure the hydraulic models' ability to simulate actual flood behaviour, the model for this study has been based on the model from the 2015 flood study which was calibrated to a series of surveyed historical flood levels. This study has been carried out by experienced flood engineers who have undertaken numerous catchment wide flood studies in accordance with the NSW Floodplain Development Manual. The study was subject to a rigorous technical review process involving Council and NSW Government, DPIE, technical staff.
Blockage Policy	All blockage analyses undertaken for the study have been undertaken in accordance with Council's adopted Conduit Blockage Policy.
Mapping	In the 2015 Flood Study, hydraulic hazard was mapped using the guidelines from the Floodplain Development Manual (ie either low or high hazard). In recent years, there has been research into assessing the classification of hazard to people, vehicles and buildings. The current 2019 Flood Study has mapped hydraulic hazard based on this methodology which is outlined in AIDR Handbook 7 (2017) and documented in ARR 2016. The classification is divided into 6 categories (H1-H6) which indicate vulnerabilities of hazard on people, buildings and vehicles within each zone. Council's draft DCP (Chapters E13: Floodplain Management and E14: Stormwater Management) is due to go on public exhibition from 25 November 2019 to 23 December 2019, and includes the updated hazard curves which relate to flood risk precincts and overland flow paths.
Rainfall intensity	ARR 2016 considers a range of research resources to develop a best practice methodology for considering the impact of climate change on rainfall. The methodology includes the application of adjustment factors derived from temperature predictions under a range of Representative Concentration Pathways (RCP), predicted future greenhouse gas concentration scenarios. ARR 2016 recommends the consideration of RCP 4.5 (low) and RCP 8.5 (high). The percentage increase adjustments in rainfall intensity expected by 2090 are 7.6 % and 16.3 % for RCP 4.5 and

Flood Study (2019)



	RCP 8.5 respectively. Current research suggests that greenhouse concentrations are tracking closer to RCP 8.5. This study has increased rainfall by 20%, which aligns with the adjustment factor (16.3%) for RCP 8.5.
Report presentation	The Flood Study report has been updated where appropriate to improve the presentation of tables and maps. The resolution of the flood mapping was selected in order to cover the large study area with a practical number of 'tiles'. Increasing the number of flood maps and tiles does not necessarily increase their value and, rather, can negatively impact the community's desire or ability to digest the information presented. Owing to the large catchment size mapped and relatively narrow waterways which exhibit a high level of spatial variation in flood result parameters, it can be difficult to determine specific values at an individual property from the flood mapping. However, it is not the purpose of the flood mapping to inform individual property owners or developers of specific details at a property. It is intended to place all output files on the SES flood data portal so that they can be downloaded by local consultants, they provide finer scale resolution.
Overland flooding	The flood modelling undertaken has been extended to take into account the recent development in the upper western part of the catchment including Turnbull Gully. This study shows that the development produces changes in existing flood behaviour that are typically very localised and have minimal impact on flood levels and overland flooding. The lack of sensitivity is considered to be associated with the flood and stormwater controls placed on developments by Council. This study now provides flood information for this area that was previously not available in the 2015 Flood Study.
Flood mitigation options	The purpose of this flood study is to describe existing flood behaviour. Potential flood mitigation options will be considered as part of the future review of the floodplain risk management study and plan. This will involve a review of the flood mitigation measures from the 2002 management study and plan, along with the development of other potential flood mitigation options. At that time, consultation will be undertaken with residents and other stakeholders to get their input on potential options. This process will result in a revised plan of prioritised measures that best address the flood problems in the catchment.
Flood risk management process	Council has implemented, from its 2002 floodplain risk management study and plan, various flood mitigation projects in the catchment including detention basin modifications, overland flow path works, culvert improvements and voluntary purchase of severely flood affected properties. Other flood mitigation projects have been investigated but did not get constructed as they were not viable given their significant cost compared to the limited flood benefits afforded. Council's website includes information on mitigation works in the catchment. As indicated above, a revised floodplain risk management study and plan will be developed, to be based on the updated flood data from this 2019 flood study. It is recommended that reviews be undertaken on average every 5 years, and generally after significant flood events, policy changes, or land use changes and where impediments to floodplain management plan



	implementation exist that warrant a review.	
Perceived causes of flooding	The draft flood study takes into consideration factors which may affect flooding such as the capacity and potential blockage of the existing drainage system, and the level of vegetation within the waterways. The study also shows that development that has occurred since the 2015 flood study produce changes in flood behaviour that are typically very localised and have minimal impact on flood levels. The lack of sensitivity is considered to be associated with the flood and stormwater controls placed on developments by Council.	
Maintenance of creeks and culverts	Where maintenance was requested for culverts and sections of creek owned by Council, they were forwarded to Council's maintenance crews for action. The maintenance of similar assets that are on privately owned land is the responsibility of the owner.	
Impact on individual properties	The flood study report contains information that describes flood behaviour including flood levels, depths and velocities. Specific flood levels for individual properties can be obtained by residents filling out a Flood Level Information Request Form which is available on Council's website.	
Impact of the flood study on home insurance premiums	Fact sheets on insurance were provided to residents. People were advised that the standard definition of 'flood 'for insurance purpose may or may not apply to their properties and that the standard definition does not include overland flows and that overland flows are typically covered as a standard inclusion in home insurance policies. Council doesn't have any say in what and how flood data is used for setting flood premiums. We recommend that homeowners contact their insurer about the flood premium for their properties.	



File: PJ-2913 Doc: IC19/718

ITEM 10 DRAFT TOWRADGI CREEK FLOOD STUDY (2019)

The Draft Towradgi Creek Flood Study (2019) was on public exhibition from 9 September 2019 through to 8 October 2019 and has now been finalised. It is recommended Council adopt the Towradgi Creek Flood Study (2019) which will inform land use planning and planning certificates.

The study improves the accuracy and reliability of flood levels and flood behaviour in the Towradgi Creek Catchment. This catchment includes the suburbs of Tarrawanna, Corrimal, East Corrimal and Towradgi. Towradgi Creek has several smaller tributaries, including North Corrimal Creek, South Corrimal Creek, North Angel Creek, South Angel Creek, Carr Creek and Parker Creek.

The reports and flood models for the Towradgi Creek Flood Study (2019) will be placed on the NSW Flood data portal so that they can be publicly accessed. This will lead to a greater understanding of flood behaviour and risk and wiser decision making.

RECOMMENDATION

- 1 That the Towradgi Creek Flood Study (2019) be adopted
- 2 That the Towradgi floodplain risk management study and plan progress under the current grant agreement
- 3 Persons who made submissions be thanked and advised of Council's decision

REPORT AUTHORISATIONS

Report of: Mike Dowd, Manager Infrastructure Strategy + Planning

Authorised by: Andrew Carfield, Director Infrastructure + Works - Connectivity Assets + Liveable City

ATTACHMENTS

- 1 Community Engagement Report Towradgi Creek Flood Study 2019
- 2 Key Themes and Responses Towradgi Creek Flood Study 2019
- 3 Towradgi Creek Flood Study 2019 Executive Summary

BACKGROUND

The NSW Government's Floodplain Development Manual provides a framework to ensure the sustainable use of floodplain environments and incorporates the NSW Flood Prone Policy. Under the Policy, the management of flood liable land remains the responsibility of Local Government with State Government subsidising flood mitigation works to alleviate existing problems and providing specialist technical advice to assist Councils in performing their floodplain management responsibilities.

The Policy provides for technical and financial support by the State Government through five stages:

- 1 Flood Study Determines the nature and extent of flooding.
- 2 Floodplain Risk Management Study Evaluates risks and management options for the floodplain in respect of both existing and proposed development.
- 3 Floodplain Risk Management Plan Involves formal adoption by Council of a plan of management for the floodplain.
- 4 Implementation of the Plan voluntary house purchase, flood readiness and response plans, construction of flood mitigation works to protect existing development and use of planning controls (LEP, DCP) to ensure new development is compatible with the flood hazard.
- 5 Review reviews are recommended on average every 5 years and are also generally recommended after significant flood events, policy changes, or land use changes and where impediments to floodplain management plan implementation exist that warrant a review.



Towradgi Creek Flood Study

In 2017, WMAwater was commissioned by Wollongong City Council (WCC) to review the Towradgi Creek Floodplain Risk Management Study and Plan (2003). The first stage of this project was to undertake the review of the Towradgi Creek Flood Study (2015) to take into consideration Council's updated Conduit Blockage Policy (2016). The review incorporates recent data from land surveying, drainage network, more detailed modelling techniques, the updated blockage factors, and additional development within the catchment.

The results show that across most of the floodplain, the revised 1% AEP flood levels are typically reduced in comparison to those derived from the 2015 Flood Study. The inclusion of the drainage network through the catchment has reduced flooding and, in some cases, completely removed shallow overland flow. The changes in flood behaviour as a result of the Revised Blockage Policy are generally limited to the area in the vicinity of the structures where the flood levels are reduced between 0.1m and 0.5m. In some locations the flood levels increase, this is mainly due to a combination of model changes in the area including, changes to structures and model terrain.

PROPOSAL

The Towradgi Creek Flood Study (2019) be adopted. After adoption, to undertake the following actions:

- Update the flood planning levels Planning and Environment
- Update the relevant Section 10.7 planning certificate Planning and Environment
- Provide flood level information advice in accordance with the new study results Infrastructure and Works

CONSULTATION AND COMMUNICATION

On 28 May 2019, the draft Flood Study was presented to the Northern Floodplain Risk Management Committee who recommended public exhibition of the draft report.

The final draft Flood Study report went on public exhibition between 9 September 2019 to 8 October 2019. A community drop-in session at the Towradgi Surf Lifesaving Club on 17 September 2019 from 5pm – 7pm was attended by 43 community members.

A letter to over 2400 residents and property owners in flood affected areas (all properties within the extent of the probable maximum flood) was mailed out to advise of the public exhibition process and seek feedback on the document.

Notice of the public exhibition was published in the local newspaper on 18 September 2019. Hard copies of the Flood Study, Frequently Asked Questions and Feedback Forms were placed at the Corrimal Library and PDFs were available through Council's "Have Your Say" page. 79 people viewed the Website's project page. 55 people downloaded the documents from the Website. There were a total of 10 submissions throughout the exhibition period.

Comments from the submissions and at drop in sessions related to:

- Development
- Safety
- Creek alignment
- Adoption of Study
- Maintenance
- Flood Mitigation

Persons who made a submission were thanked and advised of this matter being reported to Council for adoption.

A community engagement report is provided in attachment 2.

Attachment 3 provides responses to all key themes raised during the consultation.



The comments provided can be addressed through on-going education on floodplain management, or considered as part of the review of the floodplain risk management study and plan for the catchment. They did not result in changes to the draft results that were presented to the Northern Floodplain Risk Management Committee and placed on public exhibition. The final flood study report however provides more detailed technical documentation on the methodology adopted by the consultant.

The committee has been advised of the outcomes of the public exhibition and has not raised any objection to Council adopting the final report.

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 2018-2021	Operational Plan 2019-20
Strategy	3 Year Action	Operational Plan Actions
1.1.3 The potential impacts of natural disasters, such as those related to flood and landslips are managed and risks are reduced to protect life, property and the environment	1.1.3.2 Establish effective urban stormwater and floodplain management programs	Develop and Implement Floodplain Risk Management Plans

FINANCIAL IMPLICATIONS

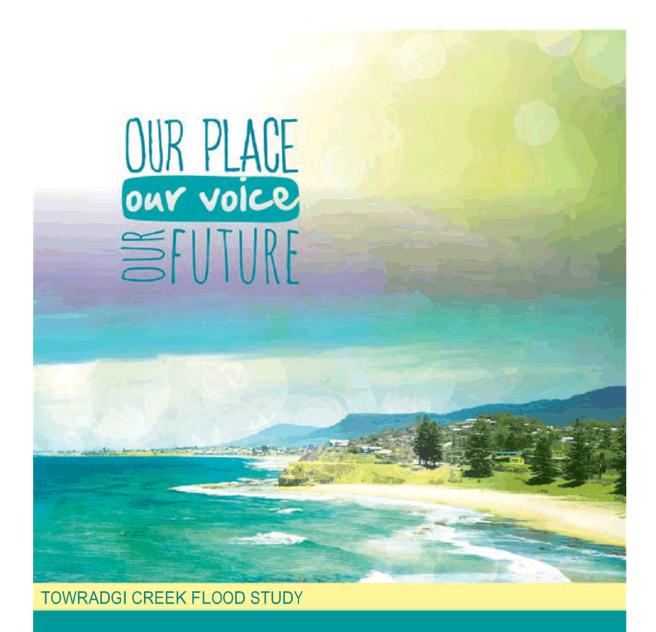
The Draft Towradgi Creek Flood Study (2019) has cost \$52,750 excl. GST. This study attracted 2/3 grant funding under the NSW State Government Flood Management Program, the next stage which is the review of the Floodplain Risk Management study and plan is also funded under the same grant agreement.

CONCLUSION

The Draft Towradgi Creek Flood Study (2019) was prepared with the cooperation, assistance and support of many stakeholders, including community members and State government representatives.

The study improves the accuracy and reliability of flood levels and flood behaviour in the Towradgi Creek Catchment. The reports and flood models for the Towradgi Creek Flood Study (2019) will be placed on the NSW Flood data portal so that they can be publicly accessed. This will lead to a greater understanding of flood behaviour and risk and wiser decision making.





ENGAGEMENT REPORT

OCTOBER 2019

Z19/235718





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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 issues. While it's not possible to include all the details of feedback we received, feedback that was relevant to the project has been provided to technical experts for review and consideration.



Executive Summary

Council is responsible for planning and managing flood prone lands in our area and has updated the Towradgi Creek Flood Study as part of this commitment. A report on the draft Flood Study was prepared with information on how it was updated and what the results are. The updated Study explains the way flooding happens in the Towradgi Creek catchment. The study will form a basis for the ongoing management of flood risk in the catchment.

Council's engagement team worked collaboratively with a technical consultant to share the draft Study with the community and key stakeholders. During the public exhibition period, 9 September to 8 October 2019, Council sent letters to more than 2,400 residents and property owners in the catchment area inviting them to learn more about the Study. Emails with this information were sent to community, education, Register of Interest (flood), business, government and emergency services' stakeholders. The information was also available at Council's Customer Service Centre. Copies of the draft report, a Frequently Asked Questions sheet and Feedback Form were made available at Corrimal Library, and at the information session at Towradgi Surf Lifesaving Club on 17 September 2019. They were also included on the project webpage. A notice of the exhibition was published in the Advertiser on 18 September 2019. The community was invited to provide feedback via Council's website, Customer Service Centre and at the community information session.

The drop-in information session was attended by 43 community members and there were 10 submissions, including one from Endeavour Energy.

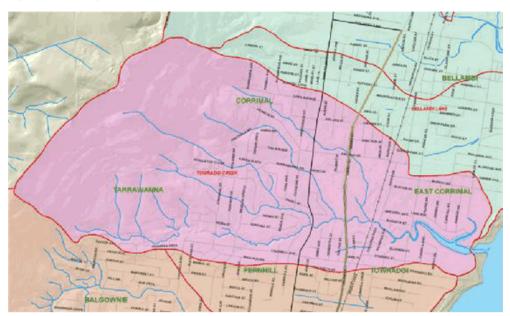
Feedback themes related to queries about whether the Study had considered the impacts of new and proposed developments, such as increased run-off from surface sealing and vegetation removal, silting, and the plan to realign the creek as part of the proposed Corrimal Cokeworks development. A request was made for the stormwater easement between two properties in Caldwell Ave Tarrawanna to be enclosed with a pipe because of a perceived safety risk. Returning the outlet of Towradgi Creek to its original/historic location was suggested, as it was thought this would remove the need for Council to periodically 'open' the entrance and alleviate the build-up of sand that washes into the rock pool from the northern side. A request was made to be notified of the report going to Council for adoption. There were calls for more regular clearing of vegetation and debris from various creek and pipes due to current and ongoing build-up, or overgrown weeds. Endeavour Energy's focus was on the future Floodplain Risk Management Study and mitigating risks to the electricity distribution network.



Background

Wollongong City Council is committed to finding solutions to reduce the social and economic damages of flooding. In 2016, Council updated its Blockage Policy and resolved to review and update its flood studies. The Towradgi Creek Flood Study is one of 10 studies to undergo review. This catchment includes Tarrawanna, Corrimal, East Corrimal and Towradgi.

Figure 1 Towradgi Creek catchment map



A Flood Study, Floodplain Risk Management Study and Floodplain Risk Management Plan for this catchment were completed in 2003. These studies were jointly funded by Council and the NSW Government. The Towradgi Creek Flood Study was reviewed in 2015 with funding from Council and the NSW Government. These studies identified the risk within the Towradgi Creek catchment and the steps that can be taken to manage this risk now and into the future.

As part of updating the Study, Council's revised Blockage Policy was considered, which helps us work out how blocked stormwater structures might affect flooding. We have improved information, such as recent data from land surveying. We included an extended network of drainage pits and pipes and used more improved and detailed modelling techniques. Data was collected and used to update the computer models used to simulate the flooding in the catchment, and to update flood maps which provide a visual illustration of the flood risk in the catchment.

At the Northern Floodplain Risk Management Committee meeting on 28 May 2019, the public exhibition of the draft Towradgi Creek Flood Study was unanimously supported. The outcomes of the exhibition and resulting amendments to the Study will be reported to the Northern Floodplain Risk Management Committee and Council in view of adopting it in 2019.



The study provides an improved understanding of the potential impacts of floods on the local community and will form a basis for the ongoing management of flood risk in the Towradgi Creek catchment.



Methods

Our Stakeholders



Our Methods

Table 1: Details of Communication and Engagement Methods

Methods	Details of Methods		
	Communication Methods		
Presentation	Information about the proposal was presented at the Floodplain Risk Management Committee (Northern) meeting on 28 May 2019		
The Advertiser	Details of the public exhibition, information sessions and Engagement HQ webpage were included in Council's Community Update pages on 18 September 2019		
Email to key stakeholders	An email and FAQ were sent to key stakeholders identified through an analysis process		
Register of Interest	An email was sent to all participants with registered interest in 'Flood'		
Info packs	Frequently asked question sheets and hardcopy feedback forms were made available at Corrimal Library and Customer Service. A hardcopy of the draft report was also made available at Corrimal Library.		
Letter	A letter about the public exhibition, information session and how to submit feedback (via phone, email, in person or post) was mailed to local residents and property owners		
Frequently Asked Questions	Responses to questions about updates to the Study and floodplain risk management were distributed with the letter and emails, published on the project webpage and distributed at the information session		
Poster	A poster was produced to explain the floodplain risk management process		



Engagement HQ Website	The project webpage hosted background info and supporting documents: Frequently Asked Questions with information on the Study and flood risk management News Feed for updates on project progress Document Library with the Report Floodplain risk management process Flood modelling video Flooding in Wollongong video Online survey tool to capture participant's feedback
Video	The Flooding in Wollongong video was used on the Engagement HQ webpage and a flood modelling video was screened at information sessions and on the Engagement HQ webpage
Engagement HQ Website	An online survey tool was used to capture participant's feedback. The page also hosted background information and supporting documents.
Feedback Form	A hardcopy feedback form was made available at Corrimal Library and at the information session
Community Information Session	A drop-in session was held to provide the community with information on the work undertaken to date and findings of the Report. The Report, flood modelling maps and flood modelling video were displayed along with the FAQ and feedback forms. Floodplain management engineers working on the Study were on hand to answer questions.



Results

Flood Study 2019

All stakeholders and the wider community were invited to provide feedback on the draft Study. This section provides details on the participation at engagement activities (Table 2), and the feedback received during the exhibition period.

Engagement Participation

Details of the number of participants for each engagement activity are presented in Table 2.

Table 2: Engagement participation results

Engagement Activities	Participation
Northern Floodplain Risk Management Committee Meeting	6
Drop-in Community Information Session at Towradgi Surf Lifesaving Club	43
Online Participation Aware – Total number of users who viewed the project page Informed – Total number of users who clicked a hyperlink, e.g. to download	79
a document	55
☐ Engaged – Total number of users who actively contributed to the project, e.g. submitted feedback via the online form	3

Figure 2 Community Information Session





Submission Results

There were 10 submissions, including one from Endeavour Energy. Feedback themes focused on the following:

Development

It was queried whether the proposed Corrimal Cokeworks development had been considered as part of the Study. There was a view that surface sealing of all roads and parking areas for this development would cause increased run-off and should be taken into account. It was questioned whether proposed and new development had been considered when modelling flood risk and behaviour during periods of heavy rain combined with high tides in the downstream zone. There was a view that extensive tree removal as part of new multi-dwelling housing, dual occupancies, subdivisions and secondary dwellings (attached or unattached) leads to vastly-increased run-off, and it was queried whether this, along with silting coming from all the building going on in the catchment, had been considered as part of the Study.

I feel that there has been incomplete modelling of potential flooding because of such large-scale development proposed at North Corrimal Creek. The proposal to realign the creek will involve substantial earthworks and changes to the local topography.

Safety

A request was made for the stormwater easement between two properties in Caldwell Ave Tarrawanna to be enclosed with a pipe because of a perceived safety risk of children drowning, erosion of land and people throwing rubbish into the entrance. It was reported that when making this same request previously, Council advised the private land owners that the easement was their responsibility.

Creek alignment

It was suggested to return the outlet of Towradgi Creek to its original/historic location (close to the northern side of the rock pool), as it was thought that this would remove the need for Council to periodically 'open' the entrance and alleviate the build-up of sand that washes into the rock pool from the northern side.

Adoption of Study

A request was made to be notified when the report goes to the Council for adoption.

Maintenance

There were requests for more regular clearing of vegetation and debris from various creek and pipe locations due to current and ongoing build-up, or overgrown weeds. One was for the Council-owned creek beside Harrigan Park, due to a concern that the vegetation and debris could exacerbate floods and is also causing a rat problem. Other requests were for the creek near Charles Road, two pipes at the corner of Willow Grove and Collins Street, and at the



creek looking east from the footbridge on Meadow Street, Tarrawanna, adjacent to Tarrawanna Primary School.

The creek adjacent to Tarrawanna Primary School is choked with trees, some fallen that would act like a barrier in a flood event in the future.

Flood mitigation

Endeavour Energy's focus was on the future Floodplain Risk Management Study and mitigating risks to the electricity distribution network.



Towradgi Creek Flood Study 2019

Comments from the submissions and at drop in sessions related to:

Key themes	Council's response
Potential impacts from existing and future development	The draft flood study 2019 shows that development that has occurred since the 2015 flood study result in very minor and localised changes to flood behaviour. The minor impacts are generally contained within the development sites. The lack of sensitivity is considered to be associated with the flood and stormwater controls placed on developments by Council. Similar controls would also be applied to future development.
Request to enclose natural watercourse for Safety	Where there was request to enclose private natural watercourse within private land for safety reason, residents were advised on their responsibility by letter.
Suggestion to return the creek alignment to original location	Suggestion to return the outlet of Towradgi Creek to original location to remove the need for Council to periodically open the entrance and alleviate the build –up of sand that washes into the rock pool. The future review of the floodplain risk management study and plan will consider how the state of the entrance influences flood behaviour and will consider entrance management options should they be appropriate to mitigate flooding.
Request to be notified regarding the adoption of the study	Council will notify persons who made a submission regarding the adoption of the Flood Study
Request for creek maintenance	Where maintenance was requested for sections of creek on Council's property, they were forwarded to Council's maintenance crews for action. Where it was brought to Council's attention that maintenance was required on private land, residents were advised of their responsibilities in person or by letter.
Flood mitigation options	Potential flood mitigation options will be considered as part of the future review of the floodplain risk management study and plan. At that time, consultation will be undertaken with residents to get their thoughts on potential options.

VOLUME 1 OF 2



WOLLONGONG CITY COUNCIL



TOWRADGI CREEK FLOODPLAIN **RISK MANAGEMENT STUDY AND PLAN** ADDENDUM TO REVIEW OF TOWRADGI CREEK FLOOD STUDY (2015)









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TOWRADGI CREEK FLOODPLAIN RISK MANAGEMENT STUDY AND PLAN

ADDENDUM TO REVIEW OF TOWRADGI CREEK FLOOD STUDY (2015) **FINAL**

NOVEMBER 2019

Project Towradgi Creek Floodplain Risk Management Study and Plan Project Number 117027					
Client			Client's Representati	ve	
Wollongong	City Council		Yelia Pandika		
Authors Prepared by					
Erin Askew			TO BE SIGNED FOR FINAL REPORT		
Date			Verified by		
15 November	er 2019		TO BE SIGNED FOR	FINAL REPORT	
Revision	Description		Distribution	Date	
4	Final Flood Study Addendum	WC	С	NOV 19	
3	Revised Flood Study Addendum	WC	C – Public Exhibition	SEP 19	
2	Draft Flood Study Addendum	WC	С	JUN 19	
1	Stage 1 Progress Report	WCC		FEB 19	

Summary



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EXECUTIVE SUMMARY

Introduction

Towradgi Creek is located within the Wollongong City Council Local Government Area (LGA) and the 7.5km² catchment incorporates the northern Wollongong suburbs of Tarrawanna, Corrimal, East Corrimal and Towradgi. The catchment extends from the Illawarra Escarpment in the west, discharging at Corrimal Beach in the east.

Towradgi Creek has a number of smaller tributaries, including:

- South Angels Creek;
- · North Angels Creek;
- South Corrimal Creek:
- North Corrimal Creek;
- Carr Creek (sometimes locally known as Jones Creek); and,
- Parker Creek.

The flood behaviour in the catchment is influenced by catchment runoff, in addition to the interaction with ocean conditions, particularly in the lower catchment. Significant flooding was experienced in August 1998 when vast areas of the Illawarra region were impacted. Within the Towradgi Creek catchment both public and private property were damaged in that event. Reports of flooding also exist for events in 1988 and 2013.

In order to understand and allow for the management of flooding in the Towradgi Creek catchment, Wollongong City Council prepared the Addendum to the Towradgi Creek Flood Study and Floodplain Risk Management Study and Plan in 2003. More recently, preparing the Review of Towradgi Creek Flood Study in 2015, which provided updated flood information for the catchment.

Following the completion of the 2015 Flood Study Review, Council developed a revised Conduit Blockage Policy in 2016. The 2015 Flood Study Review was based on Council's previous Conduit Blockage Policy (2002) as documented in Council's 2009 Development Control Plan.

This report provides an addendum to the 2015 Flood Study Review and outlines the revised design flood behaviour considering Council's Revised blockage policy, in addition to catchment changes since 2015 and recommendations coming out of review of the models.

This document was placed on Public Exhibition for a period of four weeks (9 September to 8 October 2019). During the consultation period Council sent letters to 2,400 residents and property owners in the catchment area inviting them to learn more about the study. An information session was held for community members to discuss the study and ask questions. Copies of the draft report, a Frequently Asked Questions sheet and Feedback form were available at Corrimal Library and on the project webpage. Submissions could be made during the information session, via the Feedback form, via Council's website and through the Customer Service Centre. A total of 10 submissions were received. These submissions have been considered in the finalisation of this report.





Flood Models

The Review of Towradgi Creek Flood Study (2015) aimed to determine design flood behaviour in the study area. To achieve this, a Watershed Bounded Network Model (WBNM) hydrologic model and a 1D/2D TUFLOW hydraulic model were established. The models have been reviewed as part of the current study to ensure they have been developed using best practice approaches and to determine the suitability for use in the future Floodplain Risk Management Study.

Both the WBNM hydrologic model and TUFLOW hydraulic model established as part of the Flood Study Review (2015) were generally considered appropriate. Some minor updates were required to ensure the models produce an improved representation of design flood behaviour. These updates included updating the terrain information to a more recent dataset, improved representation at a number of hydraulic structures, inclusion of the drainage network and minor reassignment of the hydraulic roughness parameter, Manning's 'n'. These updated models formed the basis for assessment of a range of scenarios including Council's Revised Conduit Blockage Policy (2016).

Modelled Scenarios and Results

The primary objective of this Flood Study Addendum was to update the design flood behaviour to existing floodplain conditions, considering recent developments and floodplain changes, and to take into account Council's Revised Blockage Policy. In order to understand the relevant changes to flood behaviour as a result of each of these updates a series of scenarios have been assessed and compared where relevant. The scenarios are outlined in Table ES1 below.

Table ES1 - Modelled Scenarios

Scenario ID	Aim	Blockage Policy	Catchment Conditions	Topographic Dataset
0	Re-establish the conditions presented in the Flood Study Review (2015) considering the model review (Section 3).	2002	2015	2013 LiDAR and field survey
1	Understand the influence of the 2016 Revised Blockage Policy (Section 2.6.3).	2016	2015	2013 LiDAR and field survey
2	Understand the influence of catchment changes since 2015.	2016	2018	2013 LiDAR, field survey and recent catchment changes/developments

The 2015 Flood Study Review was undertaken in accordance with the methodologies outlined in Australian Rainfall and Runoff 1987 (ARR 1987), which were applicable at the time of the study. In late 2016, a first release of a revised Australian Rainfall and Runoff guideline became available, a later revision was subsequently released in mid 2019. The design flood behaviour produced as part of this Flood Study Addendum has been developed using the methodologies described in ARR 1987. The revised guidelines will be considered as part of the Floodplain Risk Management Study stage.

The updated hydrologic and hydraulic models were used to simulate flood behaviour under each scenario for a range of design events and relevant flood mapping produced.





Scenario ID 2 reflects 2018 catchment conditions and Council's Revised Conduit Blockage Policy and therefore represents the current revised design flood behaviour for the Towradgi Creek catchment. Flood mapping (peak flood level, depth, velocity and hydraulic hazard (1% AEP only)) for Scenario ID 2 for the 5 year ARI, 1% AEP and probable maximum flood (PMF) events is reproduced in Figures ES1 to ES7. Mapping presented in Figures ES1 to ES7 has adopted the "risk management" blockage scenario.

Comparison was made between the scenarios to understand the influence of the various factors on design flood behaviour. The following provides a brief summary.

- Scenario ID 0 (Re-established Base Case) This scenario was compared to the results from the Flood Study Review (2015). Across a large proportion of the study area the flood level results in the 1% AEP remain within +/- 0.1m of those presented in the Flood Study Review (2015). The inclusion of the drainage network through the catchment has reduced flooding and, in some cases, completely removed shallow overland flow. Other localised variation in flood levels occur as a result of the changes to the model terrain and hydraulic structures. The magnitude of these changes is generally between 0.1m and 0.5m.
- Scenario ID 1 (Revised Conduit Blockage Policy) This scenario was compared to Scenario ID 0. The changes in flood behaviour as a result of the Revised Conduit Blockage Policy are generally limited to upstream of some structures where flood levels are reduced by between 0.1m and 0.5m. The flood level reduction generally extends up to 300m upstream. There are also small patches of associated reduction in flood extent. There is limited change in flood levels downstream of structures.
- Scenario ID 2 (Current Catchment Conditions) This scenario was compared to Scenario ID 1. Changes to flood behaviour as a result of developments within the catchment are minor, localised and generally contained within the development site. There are no impacts on the broader flood behaviour.
- Scenario ID 2 (Current Catchment Conditions) This scenario was also compared to the results from the Flood Study Review (2015). Across a large proportion of the study area the flood level results in the 1% AEP are reduced from those presented in the Flood Study Review (2015). The inclusion of the drainage network through the catchment has reduced flooding and, in some cases, completely removed shallow overland flow. In addition, the application of the Revised Conduit Blockage Policy has reduced flood levels upstream of some structures (up to 0.5m). Other localised variation in flood levels occur as a result of the changes to the model terrain and hydraulic structures.

Updated design flood behaviour for current Towradgi Creek catchment conditions has been defined for the 5 year ARI, 10%, 5%, 2%, 1%, 0.5%, 0.2% AEP and PMF events.



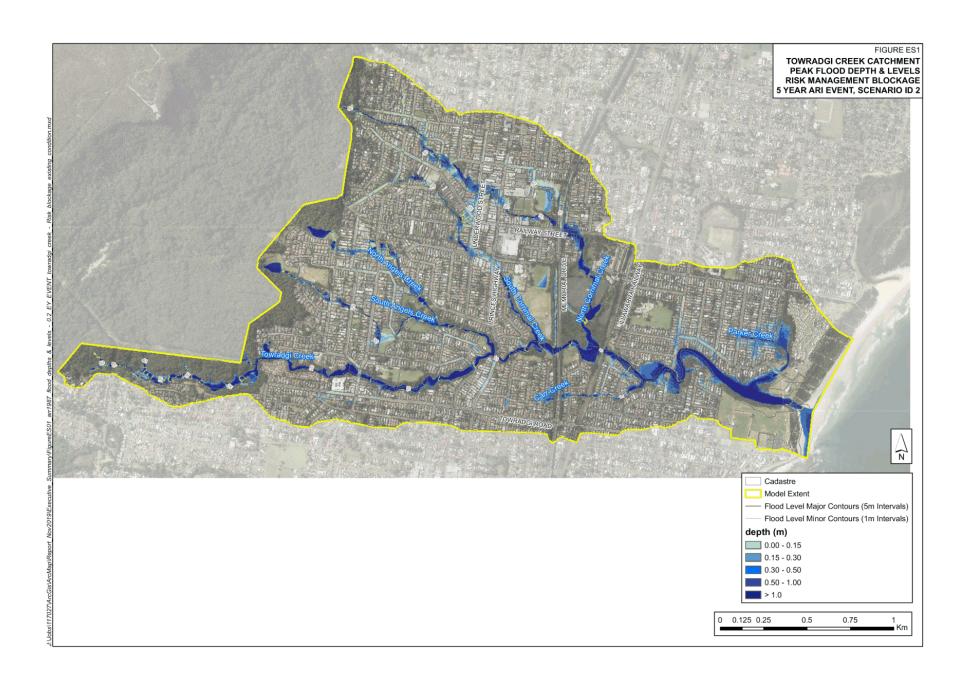


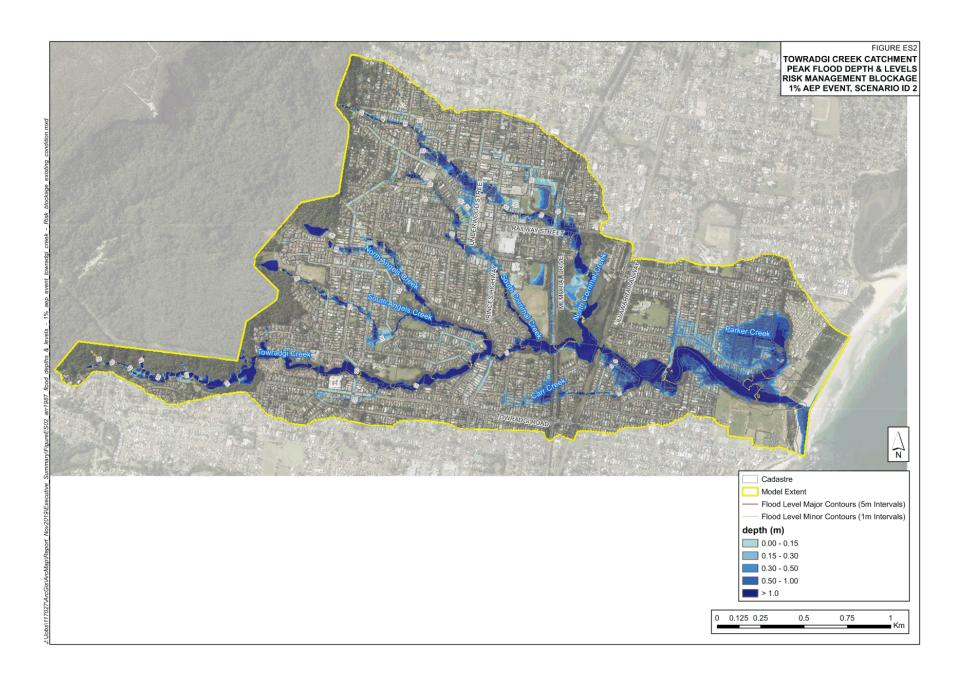
Hydraulic hazard for the 1% AEP event is shown on Figure ES7. Hazard classifications H5 and H6, those areas considered unsafe for buildings, are generally contained to the creek lines and immediately adjacent riparian areas, in addition to localised areas where street flow may become hazardous. Some vacant areas of the catchment are subject to hazard classification H4 which is considered unsafe for people and vehicles. The hydraulic hazard across most developed areas of the catchment is category H3 or less. While category H3 has the potential to be unsafe for children and the elderly and pose a potential mobilisation hazard for vehicles, the flood behaviour across most of the remaining study area is unlikely to pose a significant threat to people.

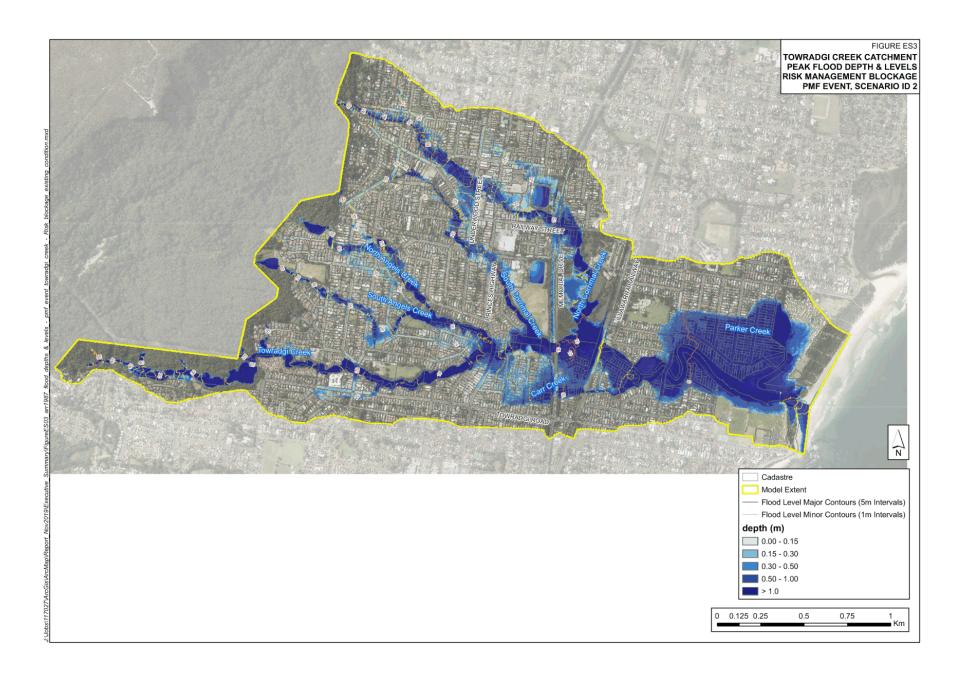
Climate Change

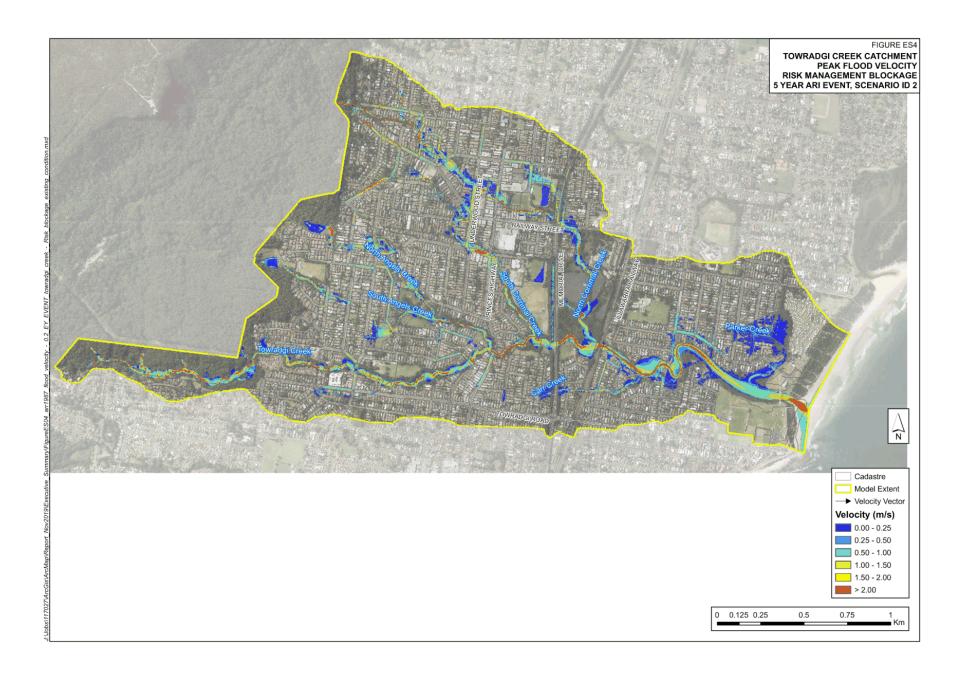
Climate change is expected to have adverse impacts upon sea levels and rainfall intensities into the future and as such a range of scenarios have been assessed in order to understand the sensitivity of the catchments' flood behaviour to these influences. Potential increases to rainfall intensity and sea level due to climate change and a combination of both have been considered as part of the current Flood Study Addendum for the 1% AEP event. All climate change scenarios were based on Scenario ID 2. Rainfall increases of 20% and sea level rise increases of 0.4m and 0.9m were assessed. Increases in rainfall intensity have been shown to increase flood levels along waterways by between 0.1m and 0.3m. Larger increases of between 0.5m and 1.0m are shown to occur upstream of hydraulic structures. Increases in sea level are shown to result in increased flood levels however are limited to the downstream areas of the Towradgi Creek catchment.



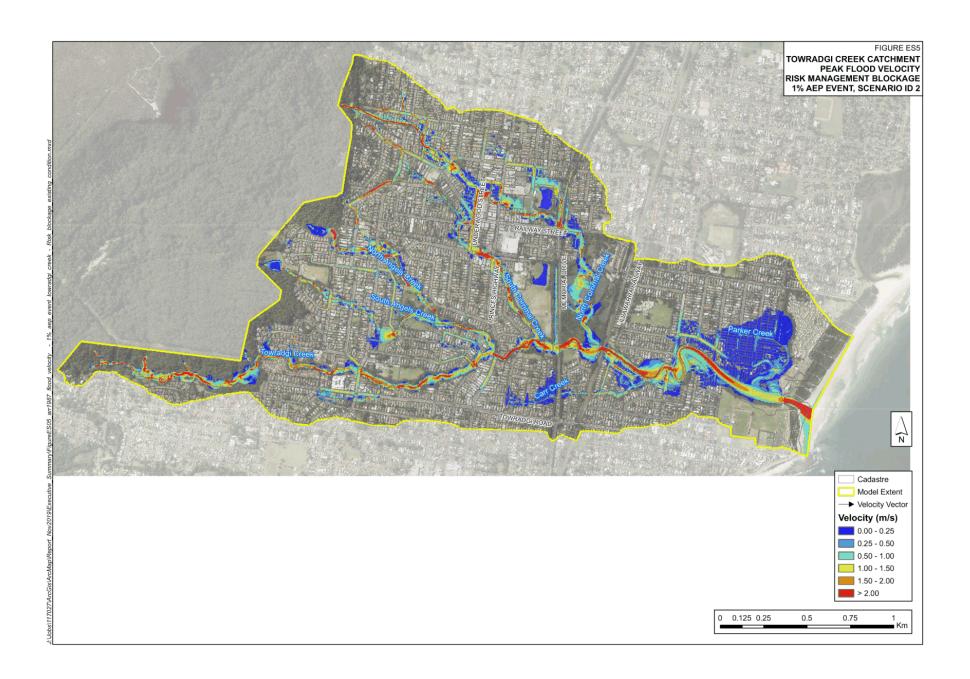




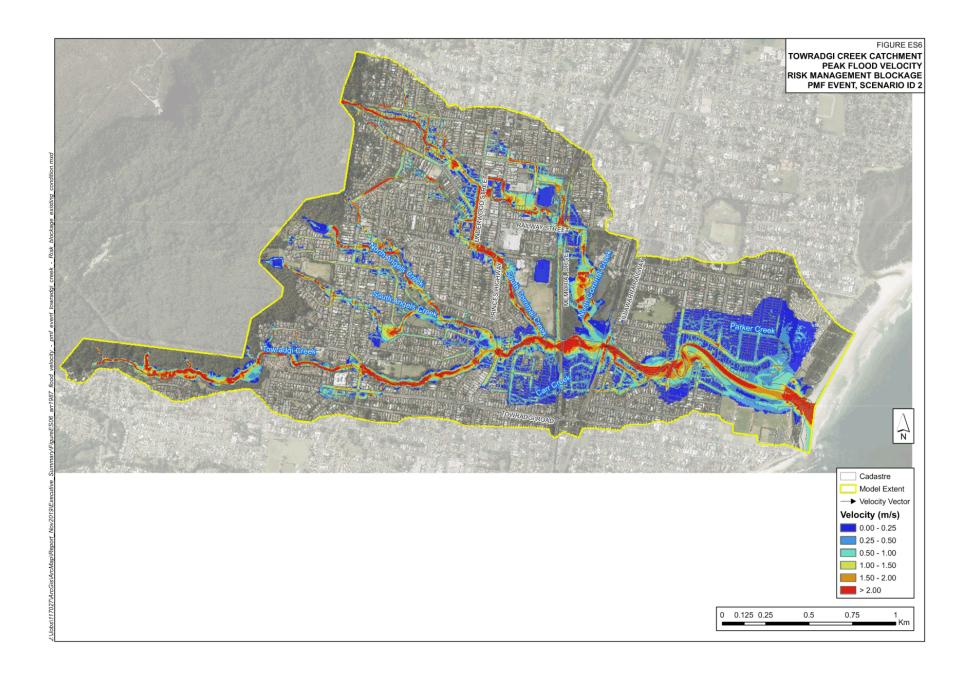




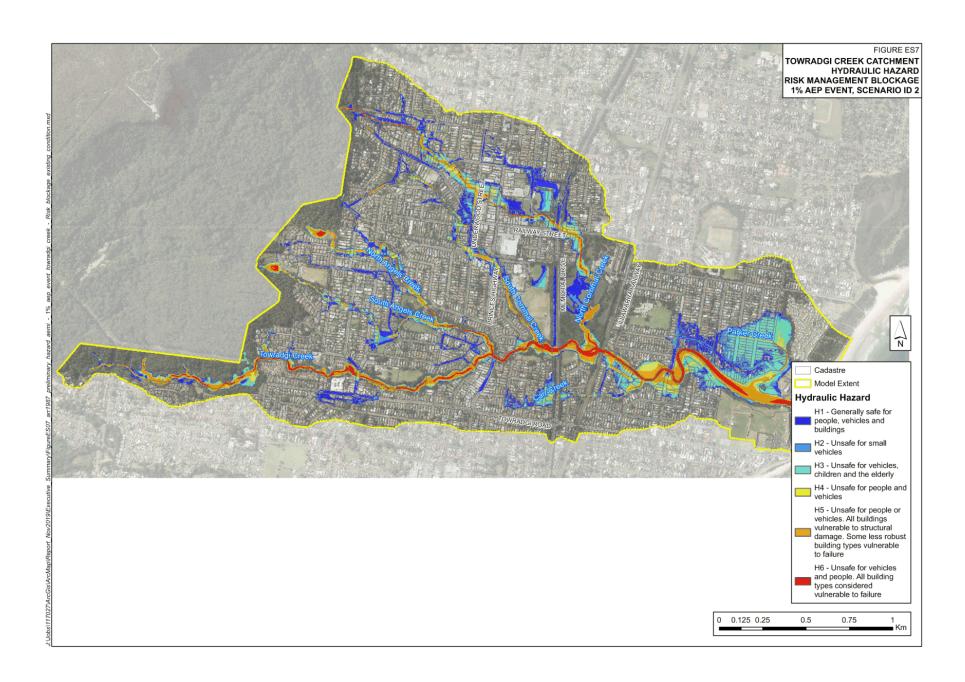














File: PJ-3183 Doc: IC19/720

ITEM 11 ALLANS CREEK FLOOD STUDY (2019)

At the 28 October 2019 meeting, Council considered a report on the draft Allans Creek Flood Study 2019 and resolved that "The item be deferred for a 6 week period to allow for a review of the methodology and further consultation with key stakeholders". This report documents the review of the methodology and the consultation that occurred following Council's resolution.

RECOMMENDATION

- 1 That the Allans Creek Flood Study (2019) be adopted
- 2 That the Floodplain Risk Management Study and Plan for Allans Creek commence as a priority
- 3 Persons who made submissions be thanked and advised of Council's decision

REPORT AUTHORISATIONS

Report of: Mike Dowd, Manager Infrastructure Strategy + Planning

Authorised by: Andrew Carfield, Director Infrastructure + Works - Connectivity Assets + Liveable City

ATTACHMENTS

- 1 Copy of report to Council's meeting on 28 October 2019
- 2 Peer Review Report Allans Creek catchment hydrologic modelling

BACKGROUND

At its meeting on 28 October 2019, Council considered a report on the draft Allans Creek Flood Study 2019 (refer attachment 1) as well as a presentation by Dr John Mathieson, on behalf of the Northview Estate Flooding Residents Action Group (NEFRAG) and resolved that "The item be deferred for a 6 week period to allow for a review of the methodology and further consultation with key stakeholders".

In order to implement Council's resolution, Council engaged GHD to undertake an independent peer review of the Advisian WBNM model as well as NEFRAG's WBNM model. The following information was provided to the peer reviewer:

- Advisian's WBNM model,
- Advisian's draft flood study report,
- NEFRAG's WBNM model, read first disclosure statement and copy of emails from NEFRAG explaining how their model has been set up.

The role of the reviewer was to review the methodology applied to both models and objectively and independently draw his own conclusions without Council staff, NEFRAG, or any other involved parties giving their own opinions about the models under review.

The NEFRAG's submission on the draft Allans Creek Flood study report from Advisian was also provided to the reviewer and its review and implication on the peer review are documented in Addendum 1 of the report provided by GHD.

In addition, Council staff consulted with NEFRAG and Dr John Mathieson via emails. Extensive information was exchanged by both parties.

Provided in attachment 2 is the peer review report. It highlights that the Advisian's hydrologic model is considered fit for purpose and more reliable than the NEFRAG's model.

PROPOSAL

The Allans Creek Flood Study (2019) be adopted. After adoption, undertake the following actions:

- Update the flood planning levels Planning + Environment
- Update the relevant Section 10.7 of the planning certificate Planning + Environment
- Provide flood level information advice in accordance with new study results Infrastructure + Works



 Progress to engage a consultant to undertake the Floodplain Risk Management Study and Plan for Allans Creek which will take into consideration the new AR&R 2019 guidelines.

CONSULTATION AND COMMUNICATION

A copy of the peer review report was provided to the Central Floodplain Risk Management Committee for their information. The committee had previously, by majority, recommended to that the Allans Creek Flood study 2019, be adopted by Council.

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 2018-2021	Operational Plan 2019-20
Strategy	3 Year Action	Operational Plan Actions
1.1.3 The potential impacts of natural disasters, such as those related to flood and landslips are managed and risks are reduced to protect life, property and the environment	1.1.3.2 Establish effective urban stormwater and floodplain management programs	Develop and implement Floodplain Risk Management Plans

FINANCIAL IMPLICATIONS

The cost of the peer review is \$9,188.00 (exc. GST). Staff time and cost to act on Council resolution has been evaluated at 33 hours and a value of approximately \$3,000.

Council has received notification on 4 November 2019 that its grant application for the Allans Creek Floodplain Risk Management Study and Plan (FRMSP) was successful. Should the flood study be adopted by council, it will be possible to progress the FRMSP straight away.

CONCLUSION

Flood studies are highly technical documents. They are undertaken and reviewed by flood engineers with skills and expertise in hydrology and hydraulics. Flood modelling in Wollongong LGA due to the steepness of the terrain and presence of structures that affect flood behaviour and create flow diversions requires extensive experience not only in hydrology and hydraulics but also in modelling. For that reason, council ensures that it engages flood consultants with relevant expertise and knowledge through a thorough competitive procurement process and that technical review of the work undertaken by consultants is performed by flood experts in Council and State Government (NSW DPIE). This ensures that the studies are technically sound and reflect best practices of the time at which they are prepared.

However, the results of a flood study are never static in time and are always best estimates. There are a number of assumptions that inform flood studies, and as new flood events occur, new terrain or survey information, new rainfall statistical data or blockage data, new flood modelling guidelines become available flood studies are reviewed and flood levels estimates change.

The highly technical nature of the document and on-going changes to flood levels pose a challenge when it comes to public understanding. We have aimed to provide an executive summary of our flood studies to facilitate their comprehension and explain in broad terms how and why flood levels have changed.

The draft Allans Creek Flood Study (2019) is technically sound and is recommended for adoption by Council.







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File: PJ-3183 Doc: IC19/633

ITEM 8 ALLANS CREEK FLOOD STUDY (2019)

The Allans Creek Flood Study (2019) went on public exhibition from 29 July 2019 through to 26 August 2019 and is now finalised. It is recommended Council adopt the Allans Creek Flood Study (2019) which will inform land use planning and planning certificates.

This catchment encompasses various suburbs including Mount Keira, Figtree, Mount Kembla, Kembla Heights, Cordeaux Heights, Unanderra and Port Kembla. It incorporates five main tributaries, namely, Byarong Creek, American Creek, Charcoal Creel, Allans Creek and the Unanderra Industrial Area Drains. The study improves the accuracy and reliability of flood levels and flood behaviour in the Allans Creek Catchment.

The reports and flood models for the Allans Creek Flood Study (2019) will be placed on the NSW Flood data portal so that they can be publicly accessed. This will lead to a greater understanding of flood behaviour and risk and wiser decision making.

RECOMMENDATION

- That the Allans Creek Flood study (2019) be adopted
- 2 That the Floodplain Risk Management Study & Plan for Allans Creek commence as a priority
- Persons who made submissions be thanked and advised of Council's decision

REPORT AUTHORISATIONS

Report of: Mike Dowd, Manager Infrastructure Strategy + Planning Andrew Carfield, Director Infrastructure + Works Authorised by:

ATTACHMENTS

- Allans Creek Flood Study 2019 Community Engagement Report
- 2 Allans Creek Flood Study 2019 - Executive Summary
- 3 Key Themes raised during public exhibition and Council's response

BACKGROUND

The NSW Government's Floodplain Development Manual provides a framework to ensure the sustainable use of floodplain environments and incorporates the NSW Flood Prone Policy. Under the Policy, the management of flood liable land remains the responsibility of Local Government with State Government subsidising flood mitigation works to alleviate existing problems and providing specialist technical advice to assist Councils in performing their floodplain management responsibilities.

The Policy provides for technical and financial support by the State Government through five stages:

- 1 Flood Study – Determines the nature and extent of flooding.
- Floodplain Risk Management Study Evaluates risks and management options for the floodplain in respect of both existing and proposed development.
- Floodplain Risk Management Plan Involves formal adoption by Council of a plan of management for the floodplain.
- Implementation of the Plan voluntary house purchase, flood readiness and response plans, construction of flood mitigation works to protect existing development and use of planning controls (LEP, DCP) to ensure new development is compatible with the flood hazard.
- Review reviews are recommended on average every 5 years and are also generally recommended after significant flood events, policy changes, or land use changes and where impediments to floodplain management plan implementation exist that warrant a review.







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Allans Creek Flood Study

In 2017, Advisian was commissioned by Wollongong City Council (WCC) to review the Allans Creek Flood Study (2006) to take into consideration Council's updated Conduit Blockage Policy (2016). The review incorporates new survey data, more detailed modelling techniques, the updated blockage factors, and additional development within the catchment.

New hydrologic and hydraulic models have been developed and calibrated and verified to historic flood data to confirm their ability to simulate catchment flood behaviour.

Attachment 1 to this report provides an executive summary of the final report recommended for adoption by Council.

PROPOSAL

The Allans Creek Flood Study (2019) be adopted. After adoption, undertake the following actions:

- Update the flood planning levels Planning & Environment
- Update of the relevant Section 10.7 planning certificate Planning & Environment
- Provide flood level information advice in accordance with -new study results Infrastructure & Works

CONSULTATION AND COMMUNICATION

On 26 June 2019, the draft flood study was presented to the Central Floodplain Risk Management Committee who recommended public exhibition of the draft report.

The final draft Flood Study report went on public exhibition from 29 July 2019 through to 26 August 2019. Two community drop-in sessions were attended by 74 community members; the first on Wednesday, 7 August 2019 from 4:00 pm - 5:30 pm at the Figtree Community Centre, and the second on Saturday, 10 August 2019 from 10:30 am – 12 noon at the Berkeley Community Centre.

Mailed out a letter to over 7,700 residents and property owners in flood affected areas (all properties within the extent of the probable maximum flood) to advise of the public exhibition process and seek feedback on the document.

Notices of the public exhibition were published in the local newspaper on 31 July and 7 August 2019. Hard copies of the Flood Study and Frequently Asked Questions were placed at the Unanderra and Wollongong Libraries and PDFs were available through Council's "Have Your Say" page. 200 people viewed the Website's project page. 125 people downloaded the documents from the Website. There were a total of 26 submissions throughout the exhibition period.

Comments from the submissions and at drop in sessions related to:

- Australian Rainfall and Runoff
- Flood modelling
- Mapping
- Observations of flooding
- Creek maintenance
- Flood mitigation
- Flood Risk to individual properties
- Perceived causes of flooding
- 1998 Floods
- Planning / Development
- Insurance premiums

Persons who made a submission were thanked and advised of this matter being reported to Council for adoption.

A community engagement report is provided in attachment 2 and outlines in more detail the process and outcomes of the consultation.

Attachment 3 provides responses to all key themes raised during the consultation.







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The comments provided can be addressed through on-going education on floodplain management, or considered as part of the future review of the floodplain risk management study and plan for the catchment. Some submissions were very technical in nature and were considered by the consultants, council's flood engineers and flood experts from the NSW Government Department of Planning, Industry and Environment and resulted in additional information and clarifications being provided in the final

On 17 October 2019, a presentation was provided to the Central Floodplain Risk Management Committee summarising the outcomes of the exhibition process and how submissions have been addressed. The Committee, by majority, recommended that the Allans Creek Flood study 2019 report be adopted by Council.

The Northview Estate Flooding Residents Action Group (NEFRAG) representatives on the Committee did not support adoption of the plan by Council as the Flood Study does not apply the new National quidelines for flood estimation (AR&R 2016/19). This is consistent with the submission provided by NEFRAG during the exhibition period. Council has committed to implement AR&R 2016/19 as part of the review of the Floodplain Risk Management Study and Plans, with Allans Creek catchment being the first catchment to be reviewed, commencing in early 2020.

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 2018-2021	Operational Plan 2019-20	
Strategy	3 Year Action	Operational Plan Actions	
1.1.3 The potential impacts of natural disasters, such as those related to flood and landslips are managed and risks are reduced to protect life, property and the environment	1.1.3.2 Establish effective urban stormwater and floodplain management programs	Develop and implement Floodplain Risk Management Plans	

FINANCIAL IMPLICATIONS

The Allans Creek Flood Study (2019) cost \$146,430 excluding GST. The next stage in the flood planning process for this catchment, being the Floodplain Risk Management Study & Plan, will be funded from existing budget allocations and an application has already been made to the State Government for grant funding. It is expected that the Floodplain Risk Management Study & Plan will commence in early 2020.

CONCLUSION

The Allans Creek Flood Study (2019) was prepared with the cooperation, assistance and support of many stakeholders, including community members and State government representatives and the Central Floodplain Risk Management Committee.

The study improves the accuracy and reliability of flood levels and flood behaviour in the Allans Creek Catchment. The reports and flood models for the Allans Creek Flood Study (2019) will be placed on the NSW Flood data portal so that they can be publicly accessed. This will lead to a greater understanding of flood behaviour and risk and wiser decision making.

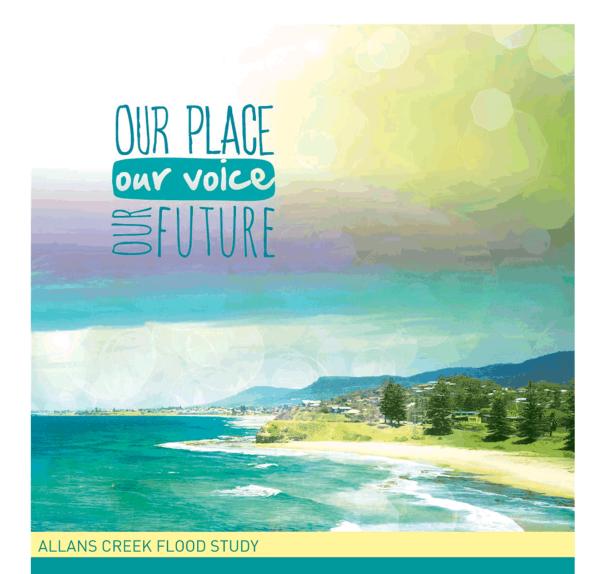




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ENGAGEMENT REPORT

SEPTEMBER 2019 Z19/203884







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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 issues. While it's not possible to include all the details of feedback we received, feedback that was relevant to the project has been provided to technical experts for review and consideration.





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Executive Summary

Council is responsible for planning and managing flood prone lands in our area and has updated the Allans Creek Flood Study as part of this commitment. A report on the draft Flood Study was prepared with information on how it was updated and what the results are. The updated Study explains the way flooding happens in the Allans Creek catchment. The study will form a basis for the ongoing management of flood risk in the catchment.

Council's engagement team worked collaboratively with a technical consultant to share the updated Study with the community and key stakeholders. During the public exhibition period, 29 July to 26 August 2019, Council sent letters to more than 7,700 residents and property owners in the catchment area inviting them to learn more about the review. Emails with this information were sent to community, education, Register of Interest (flood), business, government and emergency services' stakeholders. The information was also available at Council's Customer Service Centre. Copies of the draft report, a Frequently Asked Questions sheet and Feedback Form were made available at Unanderra and Wollongong Libraries, as well as information sessions at Figtree Community Hall on 7 August 2019 and Berkeley Community Centre on 10 August 2019. They were also included on the project webpage. Notices of the exhibition were published in the Advertiser on 31 July and 7 August 2019. A media release was distributed on 29 July 2019. The community were invited to provide feedback via Council's website, Customer Service Centre and at the community information sessions.

There were 25 submissions. Some comments were provided at the drop-in information sessions which were attended by a total of 74 community members.

Feedback themes relating to the flood study focused on flood estimation methodology, flood modelling and mapping. Concerns were expressed that Council is not using the most current available data. It was noted that the developers of Cobblers Run took Council to court about using the ARR1987 and were successful, with the new guidelines subsequently being used for that development. Questions were raised about why the new guidelines could not also be used for the rest of Northview Estate. Some detailed technical analyses of the Study were provided, with suggested changes. Comments related to the modelling of calibration events, blockage, hydrologic and hydraulic modelling, estimates, validity, verification, data, catchment delineation, grid size, percentage impervious values, Manning's values and definitions. There was some uncertainty about whether the modelling replicates real events. A comment was made that the mapping confirmed observed flood levels. Some suggested that the resolution of the maps needed to be improved. A method was stepped out as to how to improve this in a way that reduces loss of quality. It was also suggested to remove most maps that are based on "risk management" blockages.

Other feedback themes related to observations of flooding, creek maintenance, flood mitigation, flood risk to individual properties, perceived causes of flooding, 1998 floods, planning/development and insurance premiums.





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Background

Wollongong City Council is committed to finding solutions to reduce the social and economic damages of flooding. In 2016, Council updated its Blockage Policy and resolved to review and update its flood studies. The Allans Creek Flood Study is one of 10 studies to undergo review. This catchment is located in Mount Keira, West Wollongong, Figtree, Mount Kembla, Unanderra, Farmborough Heights and Berkeley.

Figure 1 Allans Creek catchment map



The Allans Creek Catchment Flood Study and Floodplain Risk Management Study and Plan were completed by Council in 2006, with addendums to the Flood Study in 2008 and 2009. These studies identified the risk within the Allans Creek catchment and the steps that can be taken to manage this risk now and into the future.

As part of updating the Study, Council's revised Blockage Policy was considered, which helps us work out how blocked stormwater structures might affect flooding. We have improved information, such as recent data from land and waterway surveying. We've included an extended network of drainage pits and pipes and used more improved and detailed modelling techniques. We've also extended the mapping to capture additional flood-prone areas and waterways that were not previously mapped. Data was collected and used to update the computer models used to simulate the flooding in the catchment, and to update flood maps which provide a visual illustration of the flood risk in the catchment.



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At the Central Floodplain Risk Management Committee meeting on 26 June 2019, the public exhibition of the draft Allans Creek Flood Study was unanimously supported. The outcomes of the exhibition and resulting amendments to the Study will be reported to the Central Floodplain Risk Management Committee and Council in view of adopting it in 2019.

The study provides an improved understanding of the potential impacts of floods on the local community and will form a basis for the ongoing management of flood risk in the Allans Creek catchment.





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Methods

Our Stakeholders



Our Methods

Table 1: Details of Communication and Engagement Methods

Methods	Details of Methods
Communication	on Methods
Presentation	Information about the proposal was presented at the Floodplain Risk Management Committee (Central) meeting on 26 June 2019
The Advertiser	Details of the public exhibition, information sessions and Engagement HQ webpage were included in Council's Community Update pages on 31 July and 7 August
Media release	A media release was made available for media outlets
Email to key stakeholders	An email and FAQ were sent to key stakeholders identified through an analysis process
Register of Interest	An email was sent to all participants with registered interest in 'Flood'
Info packs	Frequently asked question sheets and hardcopy feedback forms were made available at Corrimal Library and Customer Service. Hardcopies of the draft report were also made available at Wollongong and Unanderra Libraries.
Letter	A letter about the public exhibition, information sessions and how to submit feedback (via phone, email, in person or post) was mailed to local residents and property owners
Frequently Asked Questions	Responses to questions about updates to the Study and floodplain risk management were distributed with the letter and emails, published on the project webpage and distributed at the information sessions.

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Engagement HQ Website	 The project webpage hosted background info and supporting documents: Frequently Asked Questions with information on the Study and flood risk management News Feed for updates on project progress Document Library with the Report Flood modelling video Flooding in Wollongong video Online survey tool to capture participant's feedback
Video	The Flooding in Wollongong video was used on the Engagement HQ webpage and a flood modelling video was screened at information sessions and on the Engagement HQ webpage
Engagement HQ Website	An online survey tool was used to capture participant's feedback. The page also hosted background info and supporting documents.
Feedback Form	A hard copy feedback form was made available at libraries and engagement activities.
Community Information Sessions	Two drop-in sessions were held to provide the community with information on the work undertaken to date and findings of the Report. The Report, flood modelling maps, flood modelling video and images of flood mitigation work taking place in the catchment were displayed along with the FAQ and feedback forms. Floodplain management engineers working on the Study were on hand to answer questions.





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Results

All stakeholders and the wider community were invited to provide feedback on the draft Study. This section provides details on the participation at engagement activities (Table 2), and the feedback received during the exhibition period.

Engagement Participation

Details of the number of participants for each engagement activity are presented in Table 2.

Table 2: Engagement participation results

Engagement Activities	Participation
Central Floodplain Risk Management Committee Meeting	7
Drop-in Community Information Session at Figtree Community Hall	59
Drop-in Community Information Session at Berkeley Community Centre	15
Online Participation Aware – Total number of users who viewed the project page Informed – Total number of users who clicked a hyperlink, e.g. to download a document Engaged – Total number of users who actively contributed to the project, e.g. submitted feedback via the online form	200 125 3

Figure 2 Community Information Session at Figtree Community Hall







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Submission Results

There were 25 submissions, including 6 group submissions from Figtree Gardens Caravan Park Residents' Committee, Neighbourhood Forum 5, Rienco Consulting, Maddan Investments, Northview Estate Figtree Resident Action Group and Cardno. Discussions from drop-in sessions are also presented in this section.

Feedback themes relating to the flood study focused on flood estimation methodology, flood modelling and mapping.

Australian Rainfall and Runoff (ARR)

Concerns were expressed that Council is not using the most current available data. It was noted that the developers of Cobblers Run took Council to court about using the ARR1987 and were successful, with the new guidelines subsequently being used for that development. Questions were raised about why the new guidelines could not also be used for the rest of Northview Estate.

Expedite steps to prove up the ARR2016-19 methodology in Wollongong.

The study should not be formally released until current methodology is used for design flood estimation.

Council's engineers have said there are concerns with the new ARR2019 method and it needs to be adjusted for local characteristics unique to Wollongong. Is Wollongong so different that it can run its own race.

Use of the lower ARR2019 design rainfall for the region inevitably would have led to more scientifically correct and even lower flood levels in the Northview Estate.

Flood modelling

Technical comments were provided on modelling calibration events, blockage, hydrologic and hydraulic modelling, estimates, validity, verification, data, catchment delineation, grid size, percentage impervious values, Mannings values and definitions. There was some uncertainty about whether the modelling replicates real events. A comment was made that the mapping confirmed observed flood levels.

To alleviate confusion surrounding how the modelling has been assembled and its outputs, we recommend a Compendium of Data is published with the adopted Study which documents more of the underlying data that supports the modelling.

The modelling should include consideration of blockage, calibrated against real world events. It is difficult to see whether this has been done or not.

Clarify the hydrologic modelling's validity and superiority over conventional WBNM formulations

Mapping shows American Creek at my location to be increasing in width in the various flood conditions considered. They show increased depth and velocity. This is confirmed by my observations over the years.

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Land surveys are required at two key locations where calibration of the model needs additional information to be reliable; these are immediately upstream of the Princes Highway bridge over Byarong Creek and at Figtree Grove Shopping Centre.

For calibration and verification modelling, a more forensic approach to understanding the "apparent blockage" values and harnessing them in cases where their physical significance cannot be reconciled with historical observations.

The definition of floodway includes a criteria that is too low and should be revised to exclude H1 hazard areas

Maps

Some felt the resolution of the maps needed to be improved. A suggestion was made to plot to PDF from GIS software and retain cadastre/contours/velocities as vector data instead of raster data to reduce loss of quality. It was also suggested to remove most maps that are based on "risk management" blockages.

> The current maps have a poor resolution and are of little use for examining results at a street or property level.

Other feedback themes were:

Observations of flooding

Experiences of significant flood events in the catchment were recounted.

It went 12 ins up my wife's knee. My son was outside 16 ins in the carport. Within 10 minutes it was gone.

March 2019 - a car drove in floodwaters in Hurt Pde [Unanderra]. SES tried to get them out. Our backyard was underwater.

The area around Figtree Westfield shopping centre was so flooded on The Avenue at the Bowling Club that many cars had been washed over the fence in the front car park. Three houses opposite the Bowling Club were ¾ under water.

I have photographs of the big flood in 1959, 1998 and 1999







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Creek Maintenance

Requests were made for creek maintenance on private land, Council land or where the landowner was not identified.

I would like the Council to remove trees that were washed down the creek up against the bridge. The creek needs to be cleared further up so the coral trees won't fall into creek and block the bridge.

Islands of vegetation have been allowed to grow in the middle of the creek, trees have fallen into the creek and in one spot fallen trees have formed a dam.

The banks are eroding toward properties on Leigh Crescent. The waterway needs to be maintained & improved.

The owners of the entry culvert/causeway land at Figtree Gardens Caravan Park have not done any vegetation clearing either side for a number of years. I understand Council can "encourage" them to maintain the area affected and also as it's a public road help with said maintenance to a degree.

Flood mitigation

There was a high level of interest in the next stage of the flood risk management process, i.e. what Council might do to reduce the impact of floods.

How many more studies are Council going to do? And when will we see something being done?

According to the current Wollongong flood map, the M1 is predicted to hold back floodwaters over a length of 1.5km. The American Creek M1 culverts are the most sensitive location along this length. What can Council do to improve this position?

The Forum requests that in the Flood Risk Management Study priority is given to the implementation of flood mitigating infrastructure affecting the Figtree Grove Shopping Centre and the nearby residential areas that are otherwise suitable for redevelopment at higher densities.

There were many bright graphs/pictures and we could all see light and dark blue which was the flood water etc -But what is Council going to do?

A range of potential options for mitigating flood impacts was suggested.

Target the 'low hanging fruit' in terms of the suite of flood mitigation management measures e.g. a well-designed debris trap at the M1 culvert

Open the culvert on Gladstone Avenue at least another metre higher and possibly make the spans wider

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Flood risk to individual properties

There was uncertainty about what the outcomes of the Study mean for flood risk to individual properties.

We still do not know if we are at risk of a flood according to your studies What should I expect in significant rain events if your proposed plans are adopted?

Perceived causes of flooding

A range of reasons for what people perceived to be the cause of flooding was presented.

Potential flooding is mainly caused by blockage of the M1 Culvert Water is being diverted towards properties by a bridge constructed in 1979 and is eroding a creek bank less than 1 metre from the main sewerage line

[Comments in 1999 letter to the Illawarra Mercury] Byarong Creek gets choked with straight willows. These catch the debris and break free of the mud and flow downstream and block the culvert forming a huge damn.

1998 floods

Experiences of the 1998 flood were shared, including those that occurred in other catchments.

The High Tide was in, the water could not flow back into the ocean. The now Ml had been built and the walls on either side of this highway are about 4 to 5 meters high. The water from the creek built up and water accumulated and pushed onto the Ml wall and therefore Preston Avenue flooded.

Corrimal Westfield Shopping Centre lower section was totally flooded and all merchandise and equipment etc was ruined. Fairy Meadow Fraternity Club was flooded. Bulli Pass had collapsed. Thirroul Escarpment (Sylvan Way) became a waterfall, creek flooded, water just ran down the mountain.

Planning / development

There was a concern that the Flood Study would add to the cost of making new developments compliant.

Many have been told by Council that they would not get planning permission for their build in Cobblers Run unless they built 1.0m above the ground. This adds significant cost to an average family home.

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Insurance premiums

Concerns were raised about the impact of the flood study on home insurance premiums.

The modelling results in the 'flood affected' label being unnecessarily applied to hundreds of homes in Figtree which now require flood insurance when clearly they are not flood prone. This adds further annual costs of flood insurance.

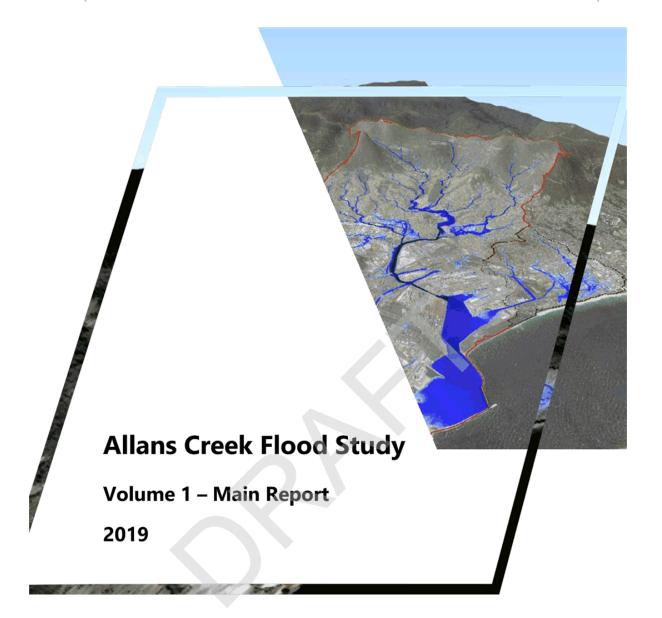
People that have lived here for more than 30 years have never seen flood waters on the backyards from rising creek water and yet due to Councils classification it is very costly to have any flood insurance





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Level 17, 141 Walker St North Sydney NSW 2060 Australia

Revision B

October 2019

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Wollongong City Council Allans Creek Flood Study

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Cover Photo: Three-dimensional render of major flowpaths in the Allans Creek & Wollongong City catchments (Source: Advisian)

Project: Allans Creek Flood Study Draft Flood Study Report

Rev	Description	Author	Review	Advisian Approval	Date
0	Draft Report for Internal Review	LC L Collins	CRT C Thomas		18/7/2019
Α	Draft Report issued for Public Exhibition	LC L Collins	CRT C Thomas		26/7/2019
В	Final Draft Report	LC L Collins			





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Executive Summary

Introduction

The Allans Creek catchment is located within the Wollongong City Council Local Government Area (LGA) in the Illawarra Region of New South Wales. The catchment drains from the Illawarra Escarpment to Port Kembla Harbour, covering an area of approximately 45 km². The study area includes additional areas which drain directly to Port Kembla Harbour totalling about 5 km².

The catchment encompasses various suburbs including Mount Keira, Figtree, Mount Kembla, Kembla Heights, Cordeaux Heights, Unanderra and Port Kembla, and incorporates five main tributaries, namely Byarong Creek, American Creek, Charcoal Creek, Allans Creek and the Unanderra Industrial Area Drains. A number of major transport links also pass through the catchment including the Princes Motorway (M1), Princes Highway and the Illawarra Railway.

The catchment has a history of flooding, with extensive damage caused to private and public property located near the creeks and major drainage channels during floods in August 1998 and October 1999.

Previous floodplain risk management activities completed in the study area by Wollongong City Council (Council) have included the *Allans Creek Flood Study (Lawson and Treloar 2006a)*, *Allans Creek Floodplain Risk Management Study and Plan (Lawson and Treloar 2006b)*, and the implementation of flood risk management measures including creek modification works, riparian corridor management and voluntary property purchase.

Council engaged Advisian (part of the Worley Group) to complete an updated Flood Study for the Allans Creek catchment in response to a range of factors including release of Council's Revised Conduit Blockage Policy (2016), recent improvements in flood modelling technology, the availability of new data, and changes in the catchment.

The study provides an improved understanding of the potential impacts of floods on the local community and will form a basis for the ongoing management of flood risk in the Allans Creek catchment.

Flood Model Development

New hydrologic and hydraulic flood models have been developed using the latest available data for the catchment and up-to-date guidelines, modelling software and techniques.

The models underwent calibration and verification to historic flood data to confirm their ability to reliably simulate catchment flood behaviour. The models and their outputs will help inform the subsequent preparation of a Floodplain Risk Management Study and Plan for the Allans Creek catchment including the assessment of potential floodplain risk management measures.





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Design Flood Modelling and Mapping

Design flood conditions are estimated from hypothetical design rainfall events that have a particular statistical probability of occurrence. These design floods are used by Council and other agencies to understand flood risk and help plan for the occurrence of flooding.

The probability of a design event occurring can be expressed in terms of percentage Annual Exceedance Probability (AEP), which provides a measure of the relative frequency and magnitude of the flood event. The new WBNM hydrologic and TUFLOW hydraulic models were used to simulate a range of design flood events including the 20%, 10%, 5%, 2% and 1% AEP floods and the Probable Maximum Flood (PMF). These design flood events were assessed for both 'risk management' and 'design' blockage factors as defined in Council's *Revised Conduit Blockage Policy* (2016).

Resultant flood mapping is presented in **Volume 2** of this report. A selection of flood mapping is reproduced at the end of this Executive Summary.

Summary of Flood Behavior

For design flood events up to and including the 1% AEP a critical storm duration of 120-minutes was found for the majority of the study area. This is indicative of a 'flashy' catchment where flooding generally occurs in response to relatively short durations of intense rainfall and flood levels quickly rise and fall over the course of just a few hours.

For design flood events up to and including the 1% AEP a longer critical storm duration of 360-minutes was found for the lower catchment, from where Allans Creek discharges to Port Kembla upstream to the area where Byarong and American Creeks pass beneath the M1 Motorway. This indicates that flooding in these areas is more sensitive to the total volume of rainfall than other parts of the catchment, and that floodwaters may rise somewhat slower and remain elevated for longer.

Flood model results indicate that flooding can be widespread along the various creeks, and numerous minor tributaries and local overland flow paths in the study area. While numerous properties may be affected, many others are located high on ridges and remain unaffected by flooding even during the PMF.

Flood extents along incised creek channels and in steeper areas of the catchment generally increase in relatively small increments with flood magnitude. However, in the lower, flatter areas of the catchment floodwaters from different tributaries converge and flood extents and depths can increase markedly with flood magnitude. Such areas include Byarong and American Creeks in the vicinity of the Princess Highway and M1 Motorway.

During the 1% AEP flood event, areas of high flood hazard that may pose a significant threat to life and property (e.g. ≥ H4 Hazard) are generally constrained to defined water courses, open channels and flood flow paths. However, there are various exceptions including (but not limited to) properties adjacent to Byarong Creek at Koloona Avenue, Arrow Avenue and Preston Street; properties near a low-point in Phillips Crescent, Mangerton, and; parts of Figtree Gardens Caravan Park and O'Donnell Drive adjacent to American Creek. Flood depths and velocities also become significant along various roads in the study area and would affect vehicle stability and pose constraints for evacuation and emergency response.





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During the PMF event, the extent and degree of hazard posed to life and property would increase significantly, with buildings vulnerable to structural damage or failure in various areas. Evacuation and emergency response constraints would also be significantly worse, with some areas requiring early evacuation to avoid rapid isolation and inundation.

Potential Impacts of Climate Change

To assess the potential impacts of climate change on flooding in the Allans Creek catchment the following scenarios were investigated:

- Scenario ID 5A: 1% AEP event with 20% increase in rainfall intensity
- Scenario ID 5B: 1% AEP and PMF events with 0.4m increase in ocean level (2050 conditions)
- Scenario ID 5C: 1% AEP and PMF events with 0.9m increase in ocean level (2100 conditions)
- Scenario ID 5D: 1% AEP event with 20% increase in rainfall intensity and 0.4m increase in ocean level
- Scenario ID 5E: 1% AEP event with 20% increase in rainfall intensity and 0.9m increase in ocean level.

The findings are summarised as follows:

- The investigated sea level rise scenarios of up to 0.9 m would be expected to cause little change to existing flood conditions and impacts. This owes to the steep flood gradient in Allans Creek approaching Port Kembla, and the relatively high surrounding ground elevations.
- Increases in the intensity of heavy rainfall events would be expected to have a more significant impact on flooding. Flood model results indicate that a 20% increase in rainfall intensity for the 1% AEP event would lead to increases in peak flood level of 0.1 m or more along most tributaries, with localised increases of more than 0.5 m.
- Additional impacts caused by up to 0.9 m of sea level rise in conjunction with a 20% increase in rainfall intensity (beyond those caused by the 20% increase in rainfall intensity alone) would be expected to be small and limited to the lower reaches of Allans Creek.

Blockage Policy Sensitivity

As noted previously, Council's *Revised Conduit Blockage Policy* (2016) includes two different sets of blockage factors, namely 'risk management' and 'design' blockage factors. To quantify the relative impact of these blockage factors on peak design flood levels a comparison was undertaken as discussed in the following. Similarly, a comparison was undertaken between the 2016 Blockage Policy and the 2002 Blockage Policy adopted in the previous flood study.

2016 Blockage Policy Risk Management vs Design Blockage Factors

The revised 2016 blockage policy 'risk management' factors were found to result in higher 1% AEP and PMF peak flood levels upstream of many structures relative to the 'design' blockage factors, though the magnitude of increase is often less than 0.1 m. Localised differences in 1% AEP peak flood levels of up to 0.85 m were however observed. The magnitude of flood level difference is generally lower for the PMF event than the 1% AEP event.





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2016 Blockage Policy vs 2002 Blockage Policy

To determine the degree of any changes in peak flood levels that are attributable to the adoption of Council's *Revised Conduit Blockage Policy* (2016) a comparison between the following scenarios was made for the 1% AEP and PMF events using the new TUFLOW hydraulic model:

- 2016 policy 'risk management' blockage factors
- 2002 policy blockage factors as described in Chapter 3 of Allans Creek Flood Study Addendum 1 (Cardno Lawson Treloar 2008) and Chapter 7 of Allans Creek Flood Study (Lawson and Treloar 2006a).

The revised 2016 blockage policy 'risk management' factors were found to result in a decrease in peak flood levels upstream of many structures relative to the 2002 Blockage Policy. No increases in peak flood level were indicated by the model results.



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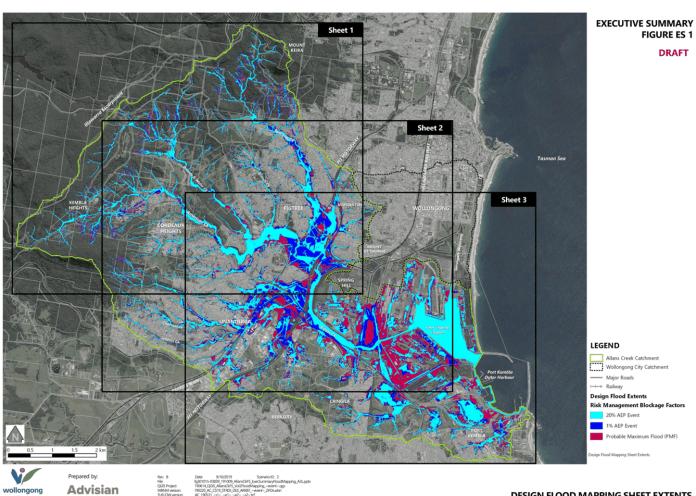




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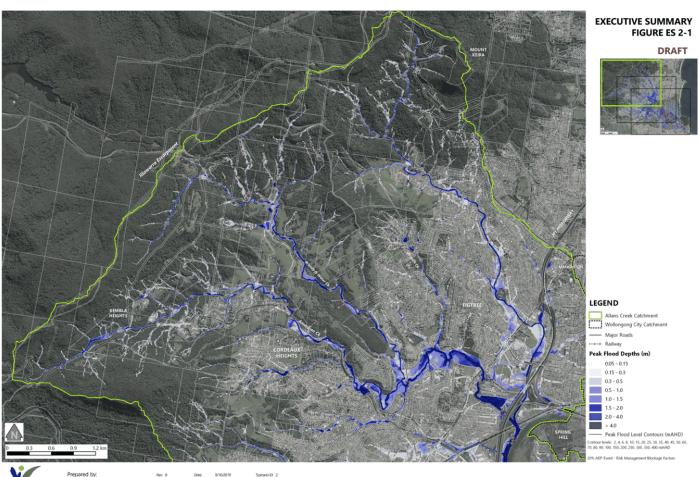




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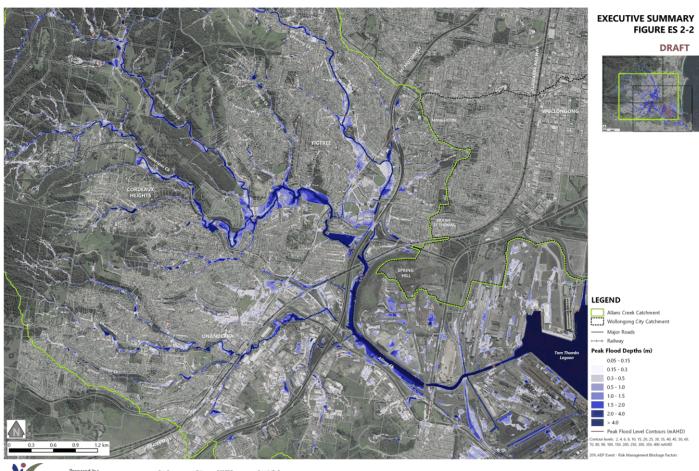




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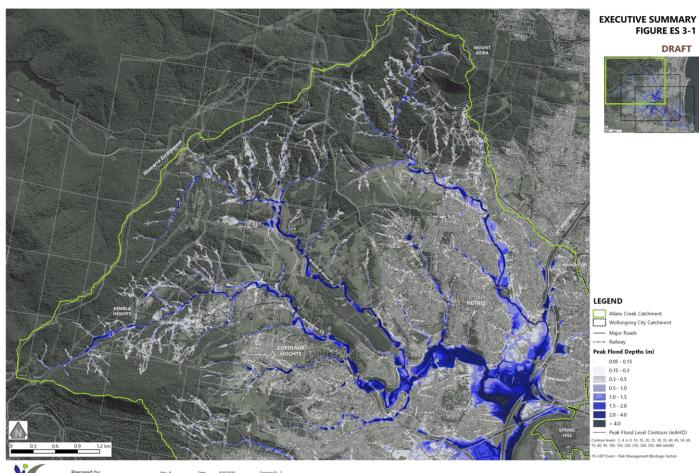




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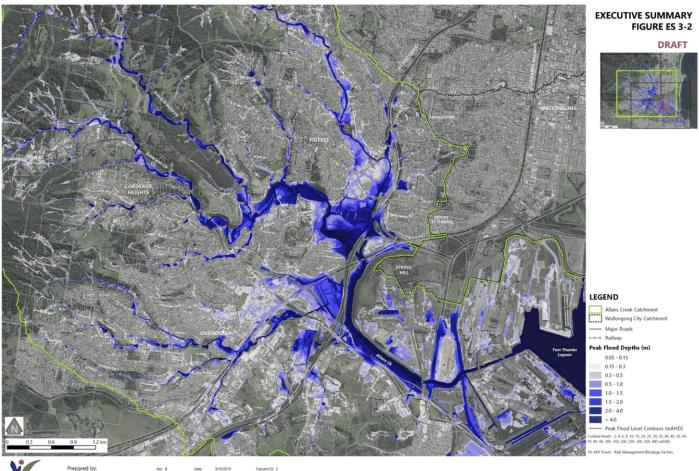




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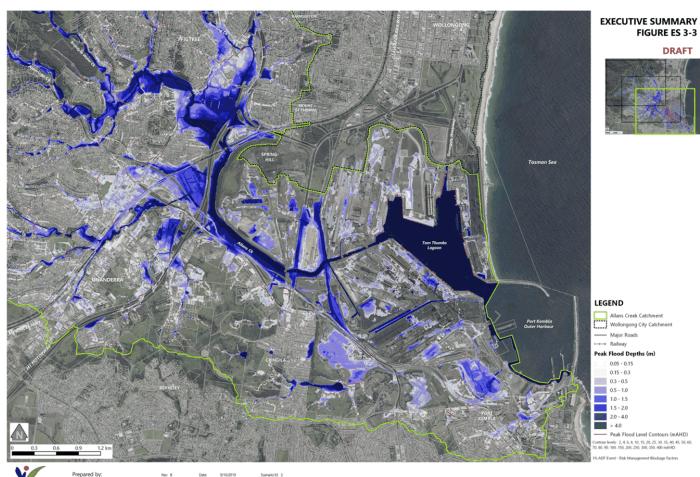




Advisian

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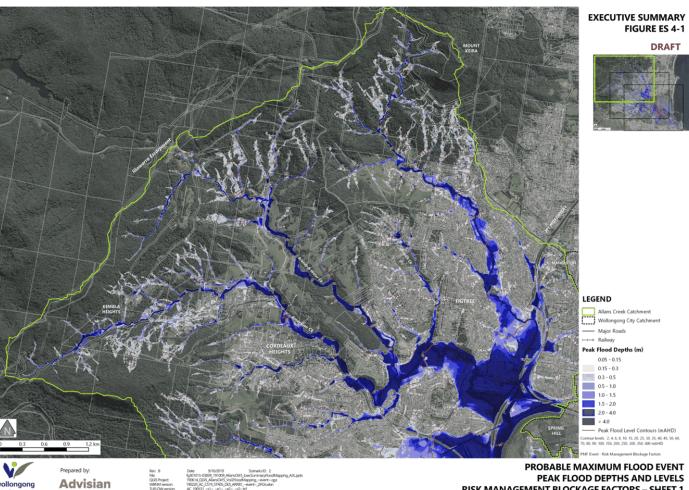






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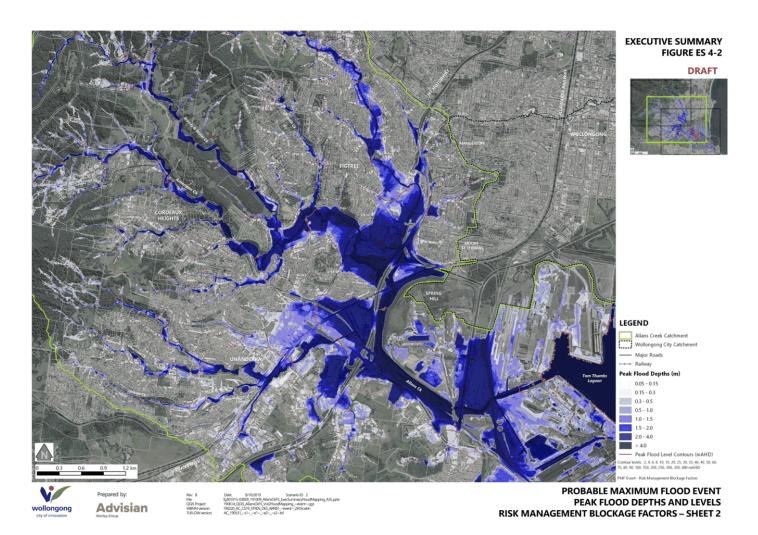






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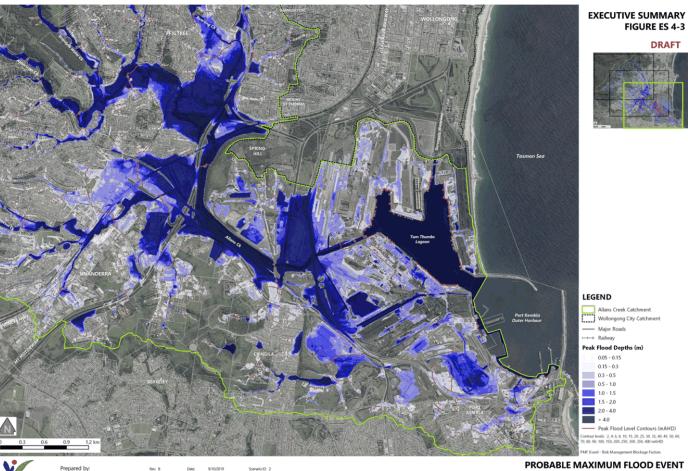




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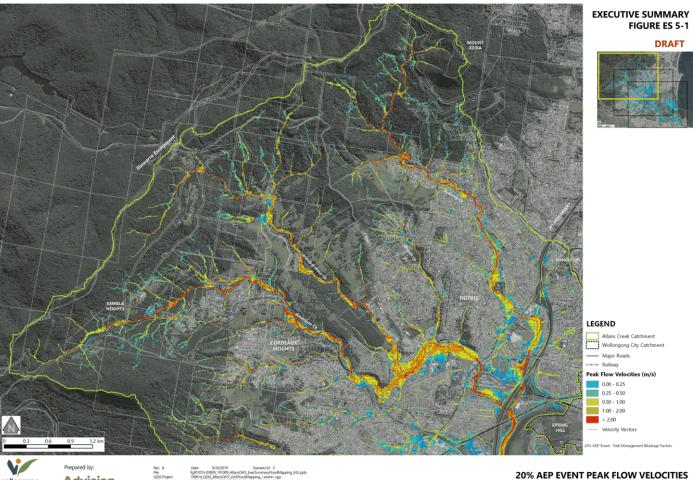
PROBABLE MAXIMUM FLOOD EVENT
PEAK FLOOD DEPTHS AND LEVELS
RISK MANAGEMENT BLOCKAGE FACTORS – SHEET 3





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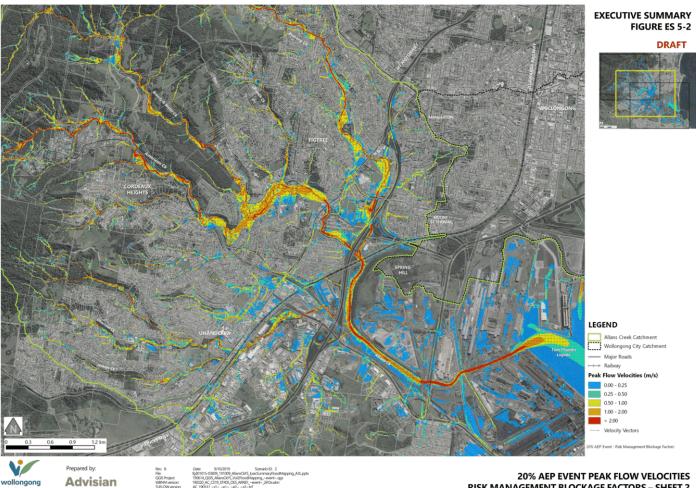
RISK MANAGEMENT BLOCKAGE FACTORS – SHEET 1





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20% AEP EVENT PEAK FLOW VELOCITIES **RISK MANAGEMENT BLOCKAGE FACTORS – SHEET 2**

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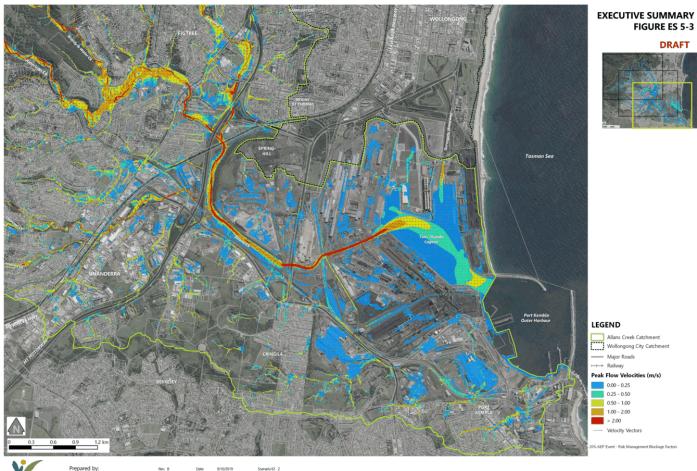




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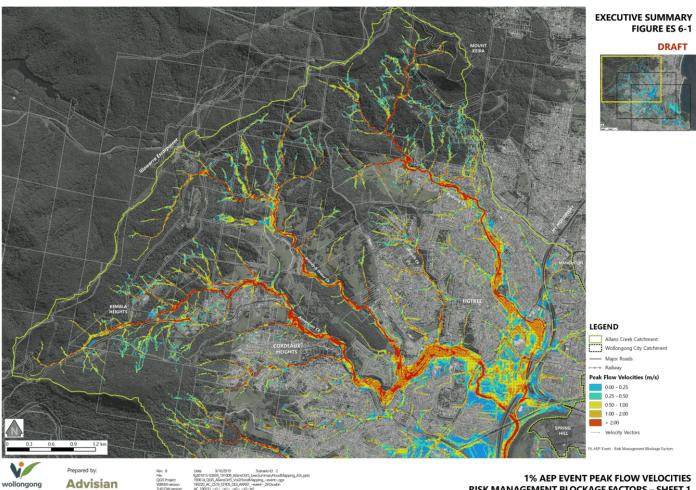


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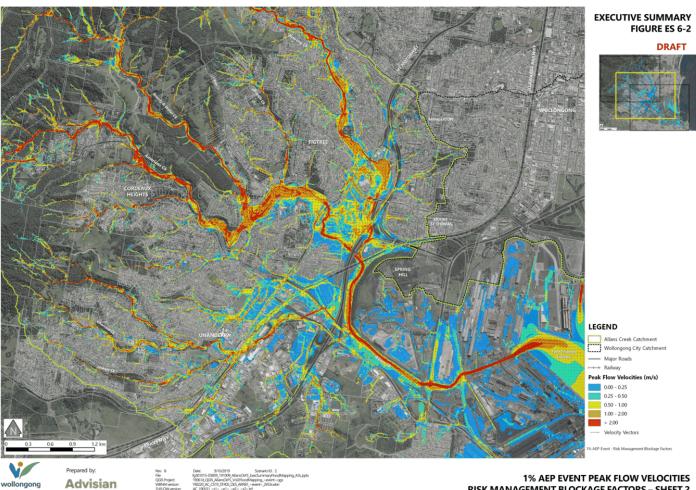


RISK MANAGEMENT BLOCKAGE FACTORS – SHEET 1



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RISK MANAGEMENT BLOCKAGE FACTORS – SHEET 2

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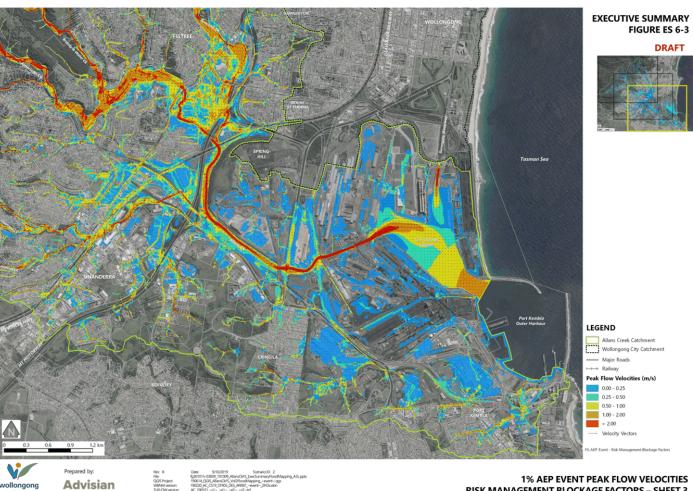




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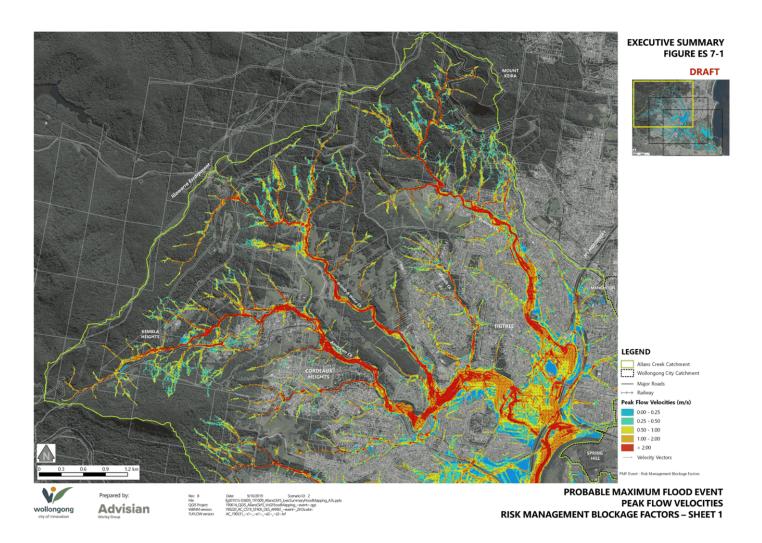
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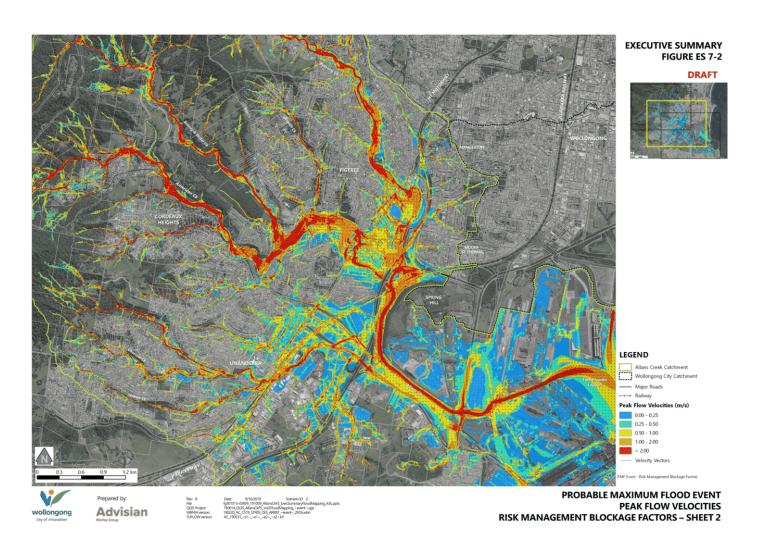






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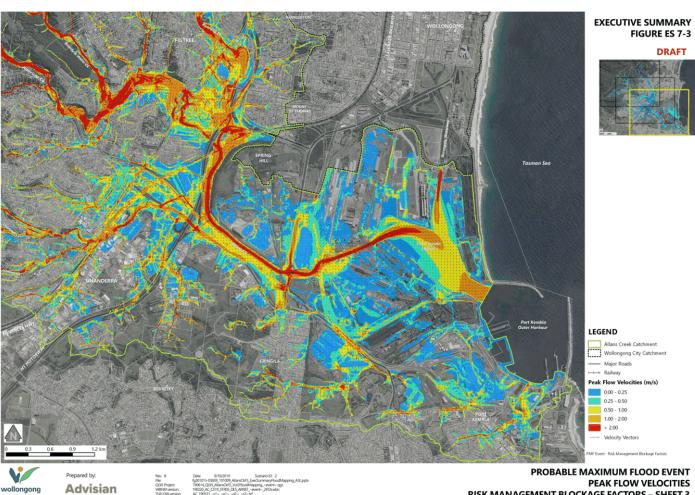




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RISK MANAGEMENT BLOCKAGE FACTORS – SHEET 3

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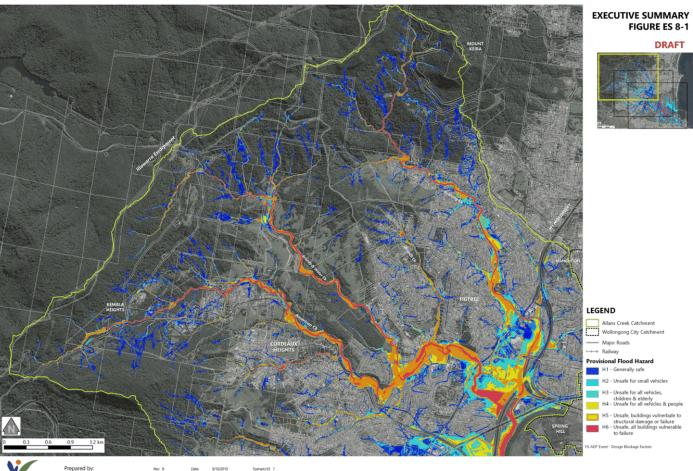




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1% AEP EVENT PROVISIONAL FLOOD HAZARD DESIGN BLOCKAGE FACTORS – SHEET 1

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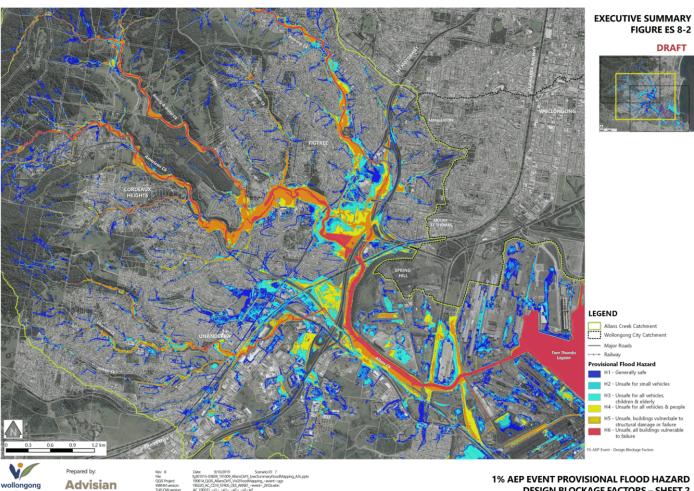




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DESIGN BLOCKAGE FACTORS – SHEET 2

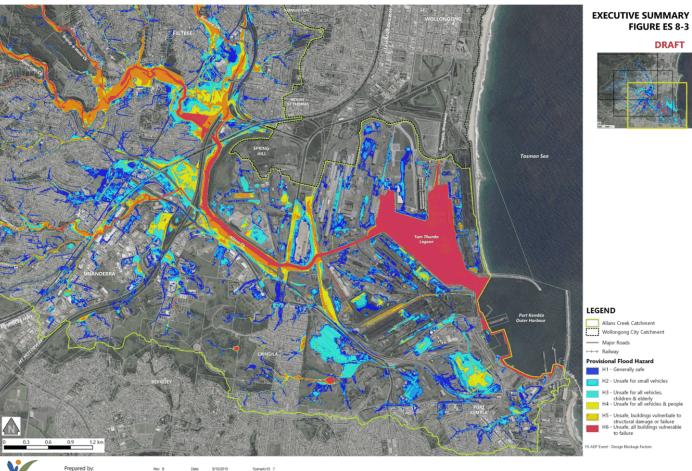


Advisian

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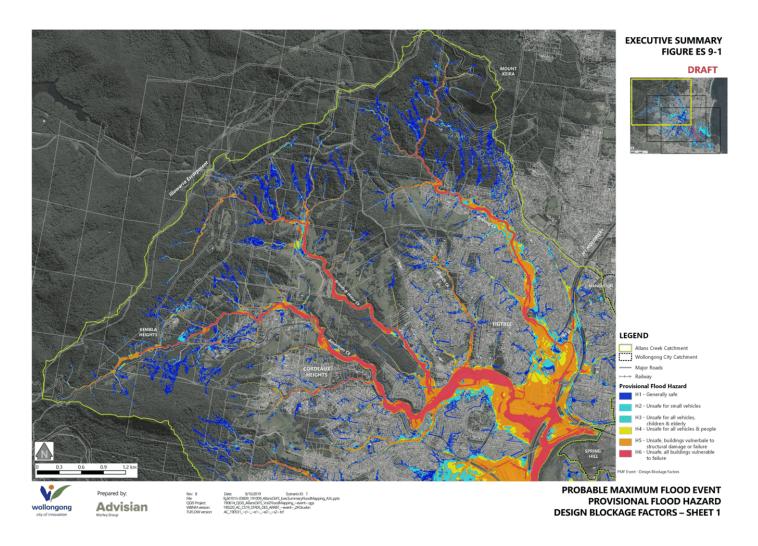
1% AEP EVENT PROVISIONAL FLOOD HAZARD DESIGN BLOCKAGE FACTORS – SHEET 3





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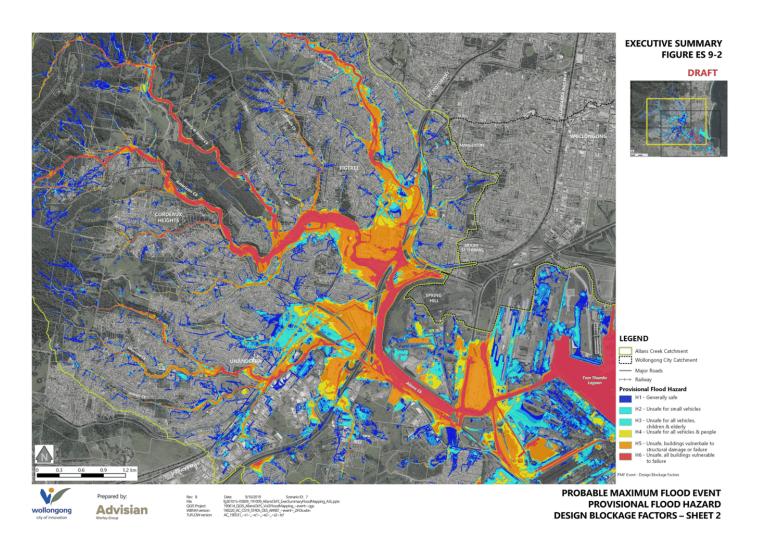






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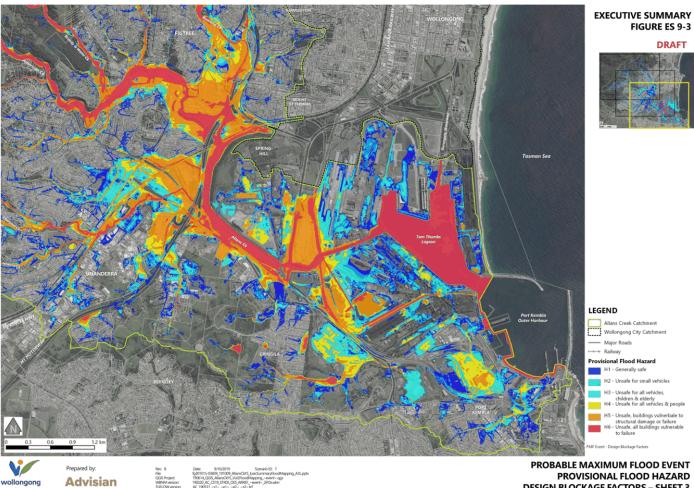






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PROVISIONAL FLOOD HAZARD **DESIGN BLOCKAGE FACTORS – SHEET 3**





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Allans Creek Flood Study 2019

Comments from the submissions and at drop in sessions related to:

Key themes	Council's response
Adoption of Australian	In accordance with the NSW Government, Floodplain Risk Management
Rainfall and Runoff	Guide, Incorporating 2016 Australian Rainfall and Runoff in studies, and in
(ARR) 2016/2019	accordance with Book 1, Chapter 1 of ARR2019, Council is currently
methodology	finalising procedures and data that are more appropriate for our region so
	that ARR2019 can be implemented. The ARR 2019 methodology will be
	considered in the future review of the floodplain risk management study
	and plan for which Council has allocated resources this financial year and
	has applied for funding under the NSW Flood Program. Until then, we will
	continue to use ARR1987.
Flood modelling	The 2019 flood study has developed a detailed and catchment wide flood
validity	model with all catchment topography, streams, hydraulic structures and
	stormwater drainage represented. To confirm the models' ability to
	simulate actual flood behaviour the hydraulic model was calibrated to a
	series of surveyed historical flood levels and the Byarong Creek gauge
	record. No previous model of the study area has undergone calibration to
	water level gauge data to indicate that the timing or magnitude of flood
	hydrographs is appropriate. This study has been carried out by
	experienced flood engineers who have undertaken numerous catchment wide flood studies in accordance with the NSW Floodplain Development
	Manual. The study was subject to a rigorous technical review process
	involving Council and NSW Government, DPIE, technical staff.
Resolution of the maps	The resolution of the flood mapping was selected in order to cover the large study area with a practical number of 'tiles'. Increasing the number of flood maps and tiles does not necessarily increase their value and, rather, can negatively impact the community's desire or ability to digest the information presented. Owing to the large catchment size mapped and relatively narrow waterways which exhibit a high level of spatial
	variation in flood result parameters, it can be difficult to determine specific values at an individual property from the flood mapping. However, it is not the purpose of the flood mapping to inform individual property owners or developers of specific details at a property. It is intended to place all output files on the SES flood data portal so that they can be downloaded by local consultants, they provide finer scale resolution.
Observation of flooding	Council acknowledged and recorded information provided on observed
	historical flood behaviour. This was used to confirm the model
	calibration/verification results.
Request for creek	Where maintenance was requested for sections of creek on Council's
maintenance	property, they were forwarded to Council's maintenance crews for action.
	Where it was brought to Council's attention that maintenance was
	required on private land, residents were advised on their responsibilities
Electrical desired	in person or by letter.
Flood mitigation works	Council has undertaken/is currently undertaking various flood mitigation
in the catchment	projects in the catchment including debris control structures, creek





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	restoration works along Council – owned portions of creeks, creek bed and bank stabilisation and voluntary purchase of severely flood affected properties. Council's website includes information on mitigation works in the catchment.
Flood mitigation options	Potential flood mitigation options will be considered as part of the future review of the floodplain risk management study and plan. At that time, consultation will be undertaken with residents to get their thoughts on potential options. Council is committed to undertake the review of floodplain risk management study and plan and has applied for financial assistance from the State Government for this project.
Flood risk to individual properties	The purpose of a flood study is to describe existing flood behaviour. Options to reduce flooding on individual properties will be considered as part of the future review of the floodplain risk management study and plan.
Perceived causes of flooding	The draft flood study takes into consideration factors which may affect flooding such as the alignment and capacity of the existing drainage system (much of which is verified by detailed survey) and the level of vegetation within the waterways. The study also incorporates the developments that have occurred since the completion of the 2006 flood study.
1998 floods	The 1998 floods that caused significant disruption and damage in the catchment were not as big as a 1% AEP flood. This explains why residents in some areas mapped as flood affected may not have experienced flooding will be affected by the 1% AEP and larger flood events. A 1% AEP is extreme. There is a 1% chance of a flood of this size occurring at a particular location in any given year.
Impacts of flood study on Planning/development	The draft flood study has been prepared in accordance with the NSW Government's Floodplain Development Manual and incorporates the NSW Flood Prone Policy. The study was overseen by the Central Area Floodplain Risk Management Committee.
	The NSW Government's Floodplain Development Manual provides a framework to ensure the sustainable use of floodplain environment and incorporates the NSW Flood Prone Policy. Under the Policy, the management of flood liable land remains the responsibility of Local Government. Council's policies are consistent with the framework and ensure minimal damages and less flood risk to newly developed properties.
Impact of the flood study on home insurance premiums	Fact sheets on insurance were provided to residents. People were advised that the standard definition of 'flood 'for insurance purpose may or may not apply to their properties and that the standard definition does not include overland flows and that overland flows are typically covered as a standard inclusion in home insurance policies. Council doesn't have any say in what and how flood data is used for setting flood premiums. We recommend that homeowners contact their insurer about the flood premium for their properties.



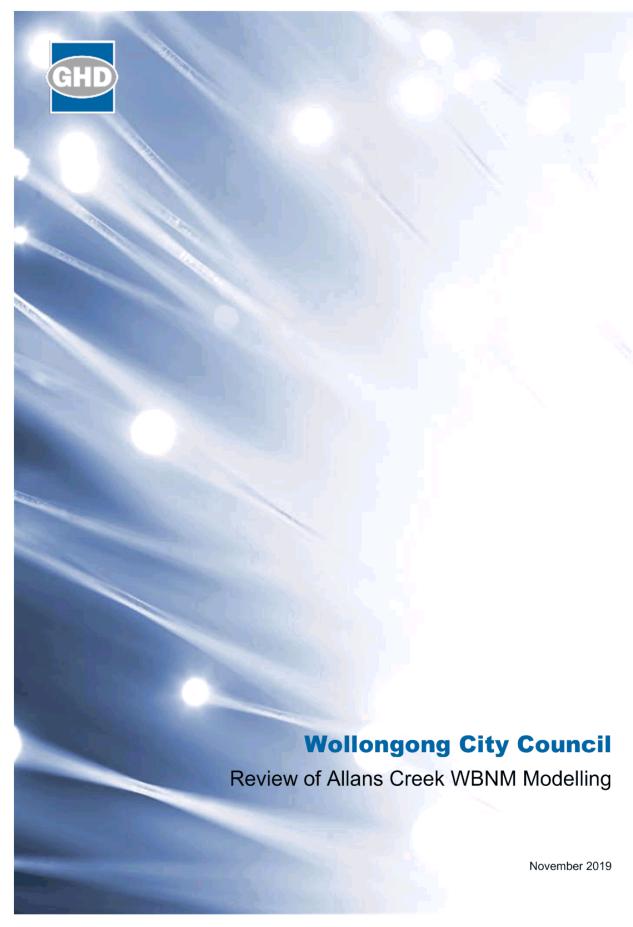




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Appendices

Appendix A - Addendum 1



1. Summary of Findings

Wollongong City Council (WCC) engaged GHD to carry out a review of two alternative hydrologic models that have been prepared for the Allans Creek catchment. These are:

- A WBNM model prepared for Council by Advisian as documented in the Allans Creek Flood Study, Volume 1 – Main Report, 2019 Revision B; and
- A WBNM model prepared separately by NEFRAG

GHD's findings are summarised as follows:

- 1. The Council model has been calibrated to a TUFLOW model (a 2 dimensional hydrodynamic flood model) which has itself been calibrated to historic flood marks.
- The Council model contains the floodplain storage and flow diversions that occur
 downstream of the Princes Highway which are essential to model the complex flood behaviours
 including cross catchment transfers that occur in this part of the catchment. The NEFRAG
 model omits these features.
- 3. The Council model catchment has been subdivided outside of recommended guidelines for model subdivision. However the model has been demonstrated to match the catchment response determined using the calibrated TUFLOW model and the degree of subdivision does not therefore affect the ability of the model to achieve a good calibration to TUFLOW.
- 4. The whole of catchment Council WBNM model is not the primary determinant of flooding behaviour for the Allans Creek flood study. Flooding behaviour has been determined using TUFLOW as the primary means of determining catchment response. The whole of catchment WBNM model has then been calibrated to match the flood response predicted by TUFLOW.
- 5. The NEFRAG WBNM model generally adheres to recommended modelling practice however this model omits floodplain storage and flow diversions contained in the Council model. It is therefore not an accurate predictor of flood behaviour in those areas downstream of the Princes Highway where cross catchment flow transfers occur.
- The NEFRAG model is not calibrated. Rather the NEFRAG model adopts regional model parameters and is therefore what is termed a "regional flood model".
- 7. Australian Rainfall and Runoff (ARR) 2019, Book 7, Chapter 6 discusses the differences between Regional models and calibrated models and states:
 - "In all cases the reliability of regional relationships is likely to be less than parameter estimates derived from calibration from several recorded flood events on the catchment of interest. Regional relationships should be used with due caution, as most derived relations incorporate considerable scatter of the data from individual catchments".
- 8. In accordance with the guidance provided in ARR 2019 and, because the NEFRAG model excludes floodplain storage and cross catchment flow diversions that are observed to occur in the Alans Creek catchment, flowrates derived using the Council model (a calibrated model) are expected to be more reliable than flowrates derived using the NEFRAG model (a regional model).



2. Introduction

2.1 Introduction

Wollongong City Council (WCC) engaged GHD to carry out a review of two alternative hydrologic models that have been prepared for the Allans Creek catchment. These models were prepared respectively by:

- Advisian, a consultant engaged by Council to prepare the Allans Creek Flood Study (2019);
 and
- NEFRAG, an independent organisation.

The models were prepared using the Watershed Bounded Network Model (WBNM) computer program.

The purpose of this report is to document GHD's review of these models and to provide GHD's opinion as to whether the models provided for review are reasonable in their structure and input parameters.

2.2 Scope and limitations

This report has been prepared by GHD for Wollongong City Council and may only be used and relied on by Wollongong City Council for the purpose agreed between GHD and the Wollongong City Council. The scope of this investigation is limited to:

- · Review of the Advisian WBNM model (referred to in this report as Council's model); and
- Review of the NEFRAG WBNM model.

The review objective is to ascertain:

- whether there are material structural differences between the Council and NEFRAG models;
- · whether appropriate input parameters have been adopted in each model;
- why the respective models may produce different discharges and if so the cause of these differences;
- whether there are clear reasons why the Council model should not be considered reasonable.

GHD's review was for the purposes stated above only. GHD has not reviewed every aspect of the model and has not commented on the overall adequacy or accuracy of the models. GHD's disclaims any ownership, responsibility or warranty pertaining to the models that were reviewed.

This report does not constitute a review of the Allans Creek Flood Study. It is noted that the Allans Creek Flood study has relied on a TUFLOW model to simulate the passage of flood waters through the catchment stream network. GHD has not reviewed the TUFLOW model other than to read what is reported in the Flood Study as background information. This review does not consider any aspect of the Allans Creek flood study, other than to review the full catchment WBNM model and compare this to the NEFRAG model, and to consider model sub area parameters in general.



This review has been limited to consideration of the following aspects of the WBNM flood models:

Council Model Review Limitations

Due to the very large number of model subareas in the Council model (4268 sub areas) the model parameters and model connectivity have not been reviewed at a sub area level. However inspections have been made of a sample of individual sub area input parameters and overall volumetric outputs have been checked at the catchment outlet as a way of assessing whether the sub areas have been broadly connected in their entirety.

NEFRAG Model Review Limitations

The review has been limited to the 59 sub area NEFRAG model. The review is based only on the model supplied to GHD, an accompanying Disclosure Statement, and a map of the model sub areas, indicating sub area labels.

GHD otherwise disclaims responsibility to any person other than Wollongong City Council arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.



3. Information Provided

The following information has been provided to GHD for this review:

3.1 Council Model

- Allans Creek Flood Study, Volume 1 Main Report, 2019 Revision B;
- WBNM model input and output files ((START_STATUS_BLOCK comment: "last edited 28/06/2018;
- GIS layers indicating sub areas and streams.

3.2 NEFRAG Model

- WBNM model input and output (1% AEP event only) (START_STATUS_BLOCK comment: "Last edited 22/12/2015");
- Map of 59 sub catchment model sub areas;
- Disclosure Statement (Mathieson, Version 2, 03 November 2019).



4. Review Findings

The Council and NEFRAG WBNM model extents were initially superimposed using GIS software. The NEFRAG model layout provided only as an image so this image was manually aligned with the Council provided GIS model layout. The individual and overlain model extents are shown on Figures 1, 2 and 3. The Council model extends to include sub catchments draining to Port Kembla Harbour beyond the NEFRAG model outlet. The superimposed models shown on Figure 3 indicate general agreement between the models as to the contributing catchment to the outlet of Allans Creek at Port Kembla.

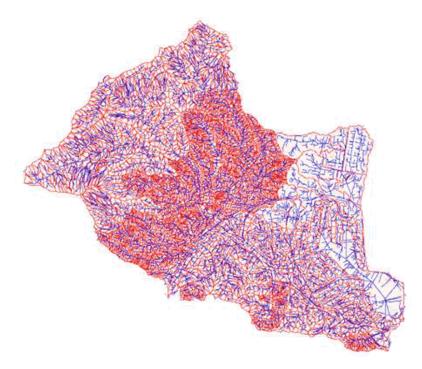


Figure 1: Council WBNM Model Extent



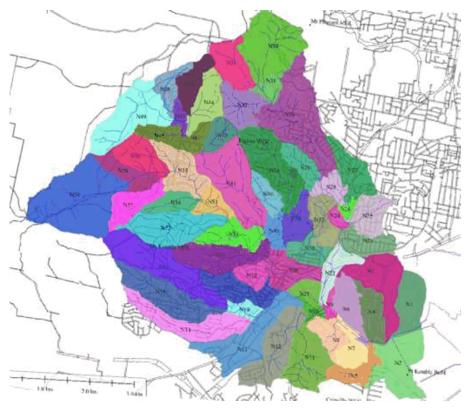


Figure 2: NEFRAG WBNM Model Extent (Source: NEFRAG)



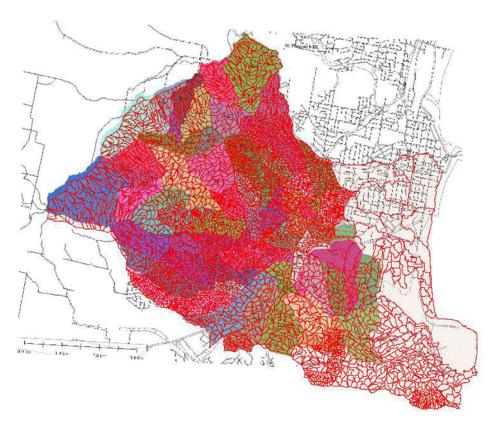


Figure 3: Council Model and NEFRAG Model superimposed

The 1% AEP, 6 hour duration flood hydrograph at the Allans Creek outlet of each model (Council sub area 1.133, NEFRAG sub area N23) was extracted and is plotted on Figure 4.

The peak discharge predicted by the Council and NEFRAG models are 864 m^3/s and 854 m^3/s respectively. The Council model peak is delayed by approximately 30 minutes compared to the NEFRAG model. The relative runoff volumes are within 3.7%.

The adopted global model parameters for the Council and NEFRAG models are shown in Table 1

Table 1: Council and NEFRAG Model Parameters

Parameter	Council Model	NEFRAG Model
C (lag parameter)	1.5	1.29
Stream Lag	Variable	1.0 globally
n (linearity)	0.23	0.23
Initial Loss (pervious)	10 mm	0 mm
Continuing Loss (pervious)	2.5 mm/h	2.5 mm/h
Initial Loss (impervious)	0 mm	0 mm



The global parameters adopted by each model, while not identical, lie within the bounds of industry recommended WBNM model parameters.

The lag parameter C determines the overall model response time. Australian Rainfall and Runoff (ARR) 2019 recommends a WBNM C parameter of 1.6 for un-calibrated models based on numerous studies. Many studies in Wollongong have adopted a C value of 1.29 and the NEFRAG C parameter is considered reasonable.

The Council model has adopted a C value of 1.5. This has then been adjusted within individual model reaches using a TUFLOW model to determine stream response behaviour as shown on Figure 4, extracted from the Flood Study. In the upper reaches of the catchment, lower lag values have been applied. Lower lag values are justified on the basis that watercourses in the upper reaches are steeper and may therefore respond faster compared to the lower reaches.

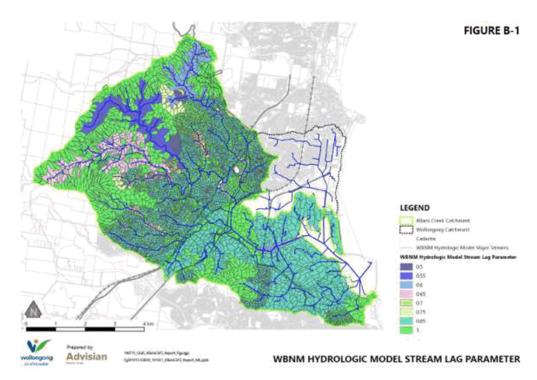


Figure 4: Council Model Adjustment of WBNM Stream Lag Parameter



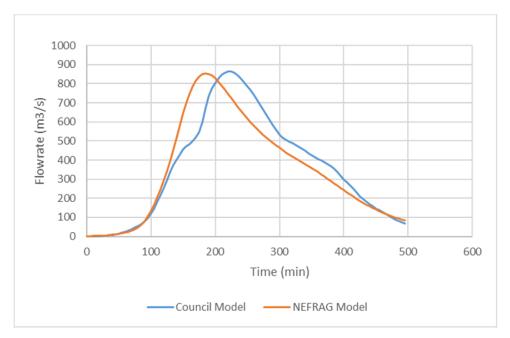


Figure 5: Council and NEFRAG Model Discharge - Allans Creek at Port Kembla Harbour

Review of the impervious fraction of each model shows that the Council model adopts an overall impervious fraction of 32% compared to 22% for the NEFRAG model to the same location at the NEFRAG model outlet. The overall impervious percentage has not been measured as part of this review but the difference may account to some extent for the 3.7% volumetric difference and possibly to a small extent for internal flow differences within the models.

Despite the use of different C values, at a whole of catchment scale, the two models perform similarly, although timing of peaks is delayed in the Council model when compared to the NEFRAG model. This timing difference is likely to be due to structural differences between the models and is discussed further below.

4.1 Council Model

The Council WBNM model has two functions and configurations:

- At a sub area level to provide fine scale sub area input hydrographs to a TUFLOW hydrodynamic model (which models the catchment response by solving unsteady flow equations). The TUFLOW model is the primary predictor of flood levels and stream discharges within the catchment.
- As a whole of catchment model, to model flood behaviour, by utilising the TUFLOW predicted behaviour to calibrate the model stream links and fit appropriate parameters to represent this behaviour.

As a general rule, non-linear rainfall runoff routing models such as WBNM should be subdivided in accordance with guidance by Boyd (1985) in relation to the recommended minimum and maximum number of sub areas (this is particularly the case if the model will not be calibrated and is reliant on applying a recommended C parameter to estimate discharges).

The model subdivision guidelines suggested by Boyd are shown in Table 2. Boyd also notes that values outside these guidelines can be used without problems. GHD's experience is that the number of sub areas does affect the predicted peak discharge and timing and too few or too many sub areas affects the model response. This effect is also reported by a number of



researchers wherein too many sub areas is reported to result in delayed response time and higher discharges (eg Weeks, 1980). It is therefore likely that the applicable C value would differ depending on the degree of model subdivision.

Table 2: Boyd (1985) Guidance on Model Subdivision

Catchment area (km2)	0.1	1	10	100	1000	10000
Minimum sub areas	4	5	7	9	15	20
Maximum sub areas	20	26	35	45	60	80

The process for calibration of Council's model was to firstly calibrate a TUFLOW model to historic flood marks and installed flood height recorders. This TUFLOW model adopted individual sub area inflows from the WBNM model but was not dependent on the whole of catchment WBNM model to route the flows through the catchment.

The stream lag parameters within the whole of catchment model were then calibrated to the calibrated TUFLOW model predicted discharges. Therefore the Council WBNM model is a calibrated, rather than regional (ie un-calibrated model that adopts regional parameters) flood model.

With 4268 model sub areas, the Council WBNM model exceeds the guidance on maximum number of sub areas suggested by Boyd. Also it was observed that, probably as a result of the automated subdivision process applied, some sub area catchment shapes and sizes are not optimal. However the calibration process applied has mitigated these model structural issues by using TUFLOW as the primary stream routing mechanism, then adjusting WBNM stream lags to achieve a fit to the TUFLOW model predicted catchment response. The TUFLOW model response is governed by the selection of stream roughness values. The adopted Manning n values are noted to be reasonable and in line with industry recommended values and include:

- Watercourses 0.04
- Concrete open channels 0.03
- Vegetation Medium Density 0.08
- Vegetation High Density 0.15

The Council model also includes floodplain storage (input to the model at 13 locations as stage vs storage relationships) and diversions (input to the model at 13 locations as stage vs discharge relationships) that occur within the catchment, mostly at and downstream of the Princes Highway (notably in Byarong Creek, American Creek, Allans Creek, Charcoal Creek). These have been incorporated to simulate two dimensional flood behaviour at these locations, informed by the TUFLOW model.

An example of the WBNM model fit to TUFLOW response is shown on Figure 6, which is extracted from the Flood Study. Figure 6 shows the TUFLOW and WBNM model hydrograph comparisons in Byarong Creek for the 1998 flood event, provided in the Flood Study, Appendix B. The WBNM model is seen to closely match the TUFLOW model predicted response and it is therefore considered that the adopted Council model WBNM stream lag times are reasonable. Similar results are also presented for other tributaries.



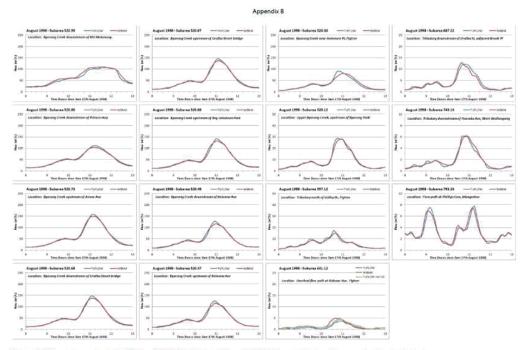


Figure B 10 Comparison of WBNM and TUFLOW simulated August 1998 hydrographs along Byarong Creek and tributaries

Figure 6: WBNM and TUFLOW Hydrograph Comparisons

The WBNM model fit has been achieved through adjustment of stream lags in individual reaches within the WBNM model, which has, in general reduced the model response time (compared to application of a default stream lag multiplier of 1.0 as adopted by NEFRAG) in the upper reaches and also to a lesser extent the lower reaches.

The TUFLOW fit to flood marks generally reasonable with a number of outliers which are explainable. This suggests that discharges predicted by Council's WBNM model are reasonable.

4.2 NEFRAG model

The NEFRAG model comprises 59 sub areas. The number of sub areas, loss rates, C and m value adopted by NEFRAG is in line with ARR guidance for ungauged catchments. The NEFRAG model is not calibrated and as such is a regional flood model - ie a model which is not calibrated but adopts recommended regional parameters which may or may not be suitable to a particular catchment. Regional models are normally used in the absence of calibration data and are considered to be less accurate than calibrated models.

The model structure is reasonable as a predictor of overall catchment behaviour although the model omits important components that are necessary to model internal complex catchment behaviour that exists in this catchment including diversions and floodplain storage. This is acknowledged by NEFRAG in its Disclosure Statement. The model is therefore unsuitable for flow estimation between the Princes Highway and M1 Motorway due to the fact that the extensive interchange of water between tributaries at this location during major flood events has not been represented.

There are a number of poorly represented stream reaches within the model downstream of M1 motorway where a number of catchments have been routed through large sub areas with very short main stream length. This then incorrectly models the stream routing process by over



estimating the lag in the reach in question. Sub areas where this is apparent include: N3, N4, N6, N7, N13.

As an un-calibrated regional hydrologic model, and subject to the omissions described above the NEFRAG model is reasonable, however compared to Council's model the NEFRAG model lacks any form of calibration and is reliant on generally recommended regional parameter values which do not account for catchment specific behaviours.



5. Conclusions

The Council and NEFRAG WBNM models of Allans Creek have been reviewed and compared at a high level.

It should be noted that the WBNM models, on their own and without input to a hydraulic model, will only approximate flooding behaviour, in particular in areas of significant floodplain storage and two dimensional flooding behaviour such as occurs in the lower reaches of the Allans Creek catchment. For this reason Council has developed a TUFLOW model as the primary tool to assess flooding behaviour, complemented by distributed inputs from fine scale WBNM models.

It should also be noted that Council's whole of catchment WBNM model was not developed as input to the flood study, but rather as a tool for further hydrologic investigation outside of the Flood Study. The Flood Study modelling relies on the TUFLOW model as for the flood routing mechanism, with numerous small scale WBNM models providing distributed rainfall runoff hydrographs inputted this model. The TUFLOW model does not rely on the whole of catchment WBNM model routing along the main streams.

Despite having different model structures, the Council and NEFRAG models were found to produce similar overall discharges and runoff volumes at the NEFRAG mode outlet location in Allans Creek at Port Kembla, albeit with the Council model having a longer time to peak.

Internally flow differences were apparent between the two models. The NEFRAG model was found to be a relatively basic model which adopted uniform lag parameters throughout and an overall lag parameter (C) which is in line with values that have been adopted by other practitioners in Wollongong. No attempt was made to calibrate this model and therefore flow rates estimated by this model are subject to usual uncertainty associated with un-calibrated hydrologic models which adopt regional rather than catchment specific model parameters.

It was noted that the NEFRAG model does not make allowance for storage and diversion of flow that occurs downstream of the Princes Highway. This diversion is significant and therefore runoff hydrographs extracted from the NEFRAG model downstream of the Princess Highway will not be accurate without further detailed hydraulic modelling to accurately route and distribute these flows, as has been done by Council using TUFLOW.

Other than the omission of diversions and flood plain storage there were no obvious structural errors noted in the NEFRAG model. However it was noted that in the lower reaches some sub areas would be expected to over-attenuate the discharges due to the sub area shape and size being unrepresentative.

The Council model was found to be complex in terms of the number of sub areas, variable stream lag parameters and inclusion of important floodplain storage and diversions which dictate flood behaviour in the lower portion of the catchment. Most importantly the ability of the Council model to represent catchment response was validated using a TUFLOW model and it was demonstrated that the Council model mimics the stream response behaviour as predicted by the TUFLOW model. By selection of appropriate stream lag parameters, the WBNM model was fitted to the TUFLOW model behaviour. The TUFLOW model itself was calibrated to flood marks from historic events.

Australian Rainfall and Runoff (ARR) 2019, Book 7, Chapter 6 discusses the differences between regional models and calibrated models and states:

"In all cases the reliability of regional relationships is likely to be less than parameter estimates derived from calibration from several recorded flood events on the catchment of interest. Regional relationships should be used with due caution, as most derived relations incorporate considerable scatter of the data from individual catchments".



In accordance with the guidance provided in ARR 2019 and, because the NEFRAG model excludes floodplain storage and cross catchment flow diversions that are observed to occur in the Alans Creek catchment, flowrates derived using the Council model (a calibrated model) are expected to be more reliable than flowrates derived using the NEFRAG model (a regional model).



Appendices



Appendix A – Addendum 1

Following completion of the review of Council and NEFRAG WBNM models described in the main body of this report, the following documents were provided to GHD for further review and comment as relevant to GHD's WBNM model review:

- Northview Estate Flooding Residents Action Group, "Feedback to Wollongong City Council Concerning Draft Report: Allans Creek Flood Study 2019 Revision A, July 2019". Version 2.3b- 26 August 2019;
- · Addendum 1 to the above report;
- Addendum 2 to the above report.

These documents have been read and matters relevant to GHD's review have been considered. There is no change to GHD's findings as a result of reading and considering the contents of these documents.



GHD

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23-SO1-545804359-53/C:\Users\dbannigan\Documents\allans ck\GHD Report re Allans Ck WBNM model review.docx

Document Status

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
Draft B	D Bannigan	R. Berg				20/11/19



File: GCS-50.02.041 Doc: IC19/757

ITEM 12 DELEGATIONS OVER THE CHRISTMAS PERIOD

This report recommends a temporary amendment to delegations to allow for the General Manager and the Lord Mayor, or Deputy Lord Mayor, to accept tenders satisfying the necessary legislative criteria from 10 December 2019 through to 31 January 2020.

RECOMMENDATION

- 1 Council note the report on Delegations over the Christmas Period.
- Council delegate to the General Manager and the Lord Mayor, or Deputy Lord Mayor, the authority to accept tenders under Request for Tender processes between 10 December 2019 and 31 January 2020, with a report on the exercise of such delegation to be provided to the Ordinary Meeting of Council on 24 February 2020.

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

In accordance with the requirements of the Local Government Act 1993, specifically in relation to the requirement for Council to review its delegations during the first 12 months of its term, Council considered and confirmed delegations to the General Manager at its meeting of 3 September 2018. Council resolved unanimously, that:

- 1 Council delegate to the General Manager all of the delegable functions of the Council, but excluding:
 - a Those functions specified in clauses (a) to (u) of section 377(1) of the Local Government Act 1993.
 - b The granting of leases of Council property where the total lease rental payable to Council for the term of the lease is more than \$1 million (including GST).
 - c The granting of leases of Council property where the term of the lease is for 10 years or more.
 - d The acceptance of tenders required to be invited pursuant to section 55 of the Local Government Act 1993 as at the date of this delegation.
- 2 Council fix the amount of \$3,000 as the amount above which any individual rate charge or debt owed to the Council may be written off only by resolution of the Council pursuant to clauses 131(1) and 213(2) of the Local Government (General) Regulation 2005.

This report seeks a temporary amendment to delegations to allow continued progress of project delivery across the Christmas/New Year period.

PROPOSAL

There is a seven-week period between the December 2019 Ordinary Meeting of Council, and the first Ordinary Meeting scheduled for 2020. At the present time, tenders in-progress across the December/January period are anticipated to be:



- T19/34 Electrical Distribution Board Inspecting and Testing
- T19/35 Asbestos and Hazardous Materials Surveys
- T19/39 Administration Building Library Lighting Upgrades

It is recommended to delegate to the General Manager, in conjunction with the concurrent approval of the Lord Mayor and Deputy Mayor (or their respective nominees), the authority to accept these tenders on behalf of Council.

CONSULTATION AND COMMUNICATION

The matter of delegations, specifically tenders, has been discussed with Executive 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 2019-20.

CONCLUSION

The impending Christmas/New Year period, and break between Ordinary Meetings of Council, make it timely to consider a temporary amendment to delegations, specifically with respect to determining tenders.



File: GCS-80.06.02.01.022 Doc: IC19/621

ITEM 13 MODEL CODE OF CONDUCT COMPLAINTS STATISTICS REPORT 2018-2019

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 August each year.

RECOMMENDATION

1 The report on Model Code of Conduct Complaints Statistics Report for 2018-2019 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 Model Code of Conduct Complaints Statistics - Wollongong City Council - 2018 to 2019

BACKGROUND

Under Part 12.1 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 August 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 end of August.
- b The number of Code of Conduct complaints referred to a Conduct Reviewer.
- c The number of Code of Conduct complaints finalised by a Conduct Reviewer at the preliminary assessment stage and the outcome of those complaints.
- d The number of Code of Conduct complaints investigated by a Conduct Reviewer.
- e The number of Code of Conduct complaints investigated by a Conduct Review Committee.
- f Without identifying particular matters, the outcome of Code of Conduct complaints investigated by a Conduct Reviewer or Conduct Review Committee under these procedures.
- g The number of matters reviewed by the Office and, without identifying particular matters, the outcome of the reviews.
- h The total cost of dealing with Code of Conduct complaints made about Councillors and the General Manager in the year to end of August including staff costs.

Under Part 12.2 of the Procedure, Council is to provide the office of Local Government with a report containing the statistics referred to in Part 12.1 within three months of the end of August each year.

CONSULTATION AND COMMUNICATION

The complaint statistics were reported to the Office of Local Government via email on 8 November 2019.

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 Administration Service Plan 2019-20.

CONCLUSION

The report presents to Council the complaint statistics relating to the Model Code of Conduct for 2018-2019.



Page 1 of 3

	Model Code of Conduct Complaints Statistics				
		Wollongong City Council			
Ν	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	1		
	b	The total number of complaints finalised in the period about councillors and the GM under the code of conduct	0		
0	ver	view of Complaints and Cost			
2	а	The number of complaints finalised at the outset by alternative means by the GM or Mayor	0		
	b	The number of complaints referred to the Office of Local Government under a special complaints management arrangement	1		
	С	The number of code of conduct complaints referred to a conduct reviewer	0		
	d	The number of code of conduct complaints finalised at preliminary assessment by conduct reviewer	0		
	е	The number of code of conduct complaints referred back to GM or Mayor for resolution after preliminary assessment by conduct reviewer	0		
	f	The number of finalised code of conduct complaints investigated by a conduct reviewer	0		
	g	The number of finalised code of conduct complaints investigated by a conduct review committee	0		
	h	The number of finalised complaints investigated where there was found to be no breach	0		
	i	The number of finalised complaints investigated where there was found to be a breach	0		
	j	The number of complaints referred by the GM or Mayor to another agency or body such as the ICAC, the NSW Ombudsman, the Office or the Police	0		
	k	The number of complaints being investigated that are not yet finalised	1		
	1	The total cost of dealing with code of conduct complaints within the period made about councillors and the GM including staff costs	0		



Page 2 of 3

P	Preliminary Assessment Statistics					
3	The number of complaints determined by the conduct reviewer at the preliminary assessment stage by each of the following actions:					
	а	To take no action	0			
	b	To resolve the complaint by alternative and appropriate strategies	0			
	С	To refer the matter back to the GM or the Mayor, for resolution by alternative and appropriate strategies	0			
	d	To refer the matter to another agency or body such as the ICAC, the NSW Ombudsman, the Office or the Police	0			
	е	To investigate the matter	0			
	f	To recommend that the complaints coordinator convene a conduct review committee to investigate the matter	0			
Ir	ives	stigation Statistics				
4		e number of investigated complaints resulting in a determination that there was no breach , in which the lowing recommendations were made:	y			
	а	That the council revise its policies or procedures	0			
	b	That a person or persons undertake training or other education	0			
5		e number of investigated complaints resulting in a determination that there was a breach in which the lowing recommendations were made:				
	а	That the council revise any of its policies or procedures	0			
	b	That the subject person undertake any training or other education relevant to the conduct giving rise to the breach	0			
	С	That the subject person be counselled for their conduct	0			
	d	That the subject person apologise to any person or organisation affected by the breach	0			
	е	That findings of inappropriate conduct be made public	0			
	f	In the case of a breach by the GM, that action be taken under the GM's contract for the breach	0			
	g	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	0			
	h	In the case of a breach by a councillor, that the matter be referred to the Office for further action	0			
6		Matter referred or resolved after commencement of an investigation under clause 8.20 of the Procedures and clause 7.20 of the new Procedures	0			



Page 3 of 3

С	ategories of misconduct	
7	The number of investigated complaints resulting in a determination that there was a breach with respect to each of the following categories of conduct:	arte en
	a General conduct (Part 3)	0
	b Conflict of interest (FMCC Part 4) and Non-pecuniary conflict of interest (NMCC Part 5)	0
	c Personal benefit (FMCC Part 5 / NMCC Part 6)	0
	d Relationship between council officials (FMCC Part 6 / NMCC Part 7)	0
	e Access to information and resources (FMCC Part 7 / NMCC Part 8)	0
0	utcome of determinations	
8	The number of investigated complaints resulting in a determination that there was a breach in which the council failed to adopt the conduct reviewers recommendation	0
9	The number of investigated complaints resulting in a determination that there was a breach in which the council's decision was overturned following a review by the Office	0



File: PR-195.005 Doc: IC19/705

ITEM 14 POLICY REVIEW: SMOKE-FREE (RECREATION AREAS) COUNCIL POLICY

The Smoke-free (Recreation Areas) Council Policy has now been reviewed as part of Council's rolling review schedule of its policies. Proposed amendments include the prohibition of smoking between and within 50m of the flagged area at Council's patrolled beaches, and the incorporation of e-cigarettes in accordance with legislative changes to the Smoke-free Environment Act 2000.

This report seeks Council's endorsement of the revised policy.

RECOMMENDATION

Council endorse the revised Smoke-free (Recreation Areas) Policy noting the proposed inclusions:

- a) Incorporation of e-cigarettes as per legislation.
- b) The provision of smoke-free areas between and within 50m of the red and yellow flags at patrolled beaches from 1 February 2020.

REPORT AUTHORISATIONS

Report of: Lucielle Power, Manager Property + Recreation (Acting)

Authorised by: Sue Savage, Director Community Services - Creative + Innovative City (Acting)

ATTACHMENTS

- 1 Draft Smoke-Free (Recreation Areas) Policy 2019
- 2 Smoke-free (Recreation Areas) Policy 2017
- 3 Letter of Support CEO Surf Life Saving NSW
- 4 Health Victoria Smoke-free Patrolled Beach Fact Sheet
- 5 Smoke-Free Area Diagram Patrolled Beaches

BACKGROUND

Tobacco smoking is the single most important preventable cause of ill health and death in Australia (Australian Institute of Health and Welfare 2019). Wollongong LGA has a higher rate of smoking compared with NSW and Australian rates of smoking (Public Health Information Development Unit 2019) which places substantial social, economic and environmental costs on the community.

Tobacco control is the primary domain of federal and state government however local government can encourage communities to lead healthy lifestyles by reducing exposure to smoke in public places. This strategy may help to de-normalise smoking in social settings by further reducing people's exposure (particularly young people) to role modelling of smoking behaviour, limiting opportunity and by reducing the cues to smoke for those persons who previously smoked.

Current Policy

Council's Smoke-free (Recreation Areas) Council Policy was last adopted by Council on 20 November 2017 (Attach 2) and is due for review. In line with the *Smoke-free Environment Act 2000*, the policy designates the following areas as smoke-free areas in the interest of public health and safety:

- Within 10m of all children's playground equipment
- Within 10m of all outdoor fitness equipment
- Around and within the identified perimeter of all Council outdoor sporting facilities and skate parks
- Around and within the identified perimeter of Council leisure centres and public swimming pools
- Within 4m of an entrance used by pedestrians to get into or out of a public building.

Since the adoption of the original policy in 2010, Council has installed signage at the above facilities which assists in the policy's implementation.



The review of this policy has identified that the policy remains valid and is consistent with Section 6A of the *Smoke-free Environment Act 2000* but also identified areas for strengthening of the policy.

This includes extending the policy to include patrolled beaches where a high number of children, young people and families visit and congregate. The proposed approach will provide smoke-free areas between and within 50m of the red and yellow flags during the patrol season which is based on the Victorian Government model (Attach 4). The smoke-free area will not apply beyond the landward edge of the beach's sanded area. This approach provides a smoke-free area where people typically locate on beaches in close proximity to the red and yellow flags whilst allowing persons who smoke to remain in a line of sight to the swimming area between flags and to personal belongings.

An example of its application at North Wollongong Beach is shown in Attach 5.

Finally, the draft policy includes reference to and inclusion of e-cigarettes which are now covered by recent legislative changes to the *Smoke-free Environment Act 2000*.

Review of other local government areas

A review of coastal local government areas in NSW identified that a number of councils have designated smoke-free areas on beaches including:

- Bayside Council (trial only at this stage)
- Bega Valley Shire Council
- Byron Shire Council
- Hornsby Shire Council
- Mosman Council
- Northern Beaches Council
- Port Macquarie Hastings Council
- Randwick City Council
- Richmond Valley Council
- Waverly Council
- Woollahra Municipal Council.

The states of Western Australia, Victoria (2012), and Queensland (2005) have all implemented legislation that designates the area adjacent to the red and yellow flags on patrolled beaches as smoke-free areas.

Compliance

Council's current approach to compliance with the policy is based on self-regulation by the community supported by signage. This policy approach has been implemented since 2010 and has evolved over time to include additional areas without issue. Users of these recreational areas have accepted the changes and complied with policy requirements without the need for punitive enforcement.

NSW Health Authorised Inspectors can enforce smoke-free areas designated by the *Smoke-free Environment Act 2000* and can issue cautions or on the spot fines of \$300. It is noted that beaches are not covered by the current legislation.

Council lifeguards perform an essential service in ensuring visitors to our beach remain safe during summer. It is proposed that they do not have an active role in enforcing the smoke-free areas on patrolled beaches.

Volunteer lifesavers and local surf life saving clubs will also not be required to enforce the smoke-free areas. This is supported by consultation findings with Surf Life Saving NSW (Attach 3), Illawarra Shoalhaven Local Health District and the Heart Foundation.



PROPOSAL

It is recommended the policy be amended to incorporate:

- a) e-cigarettes reflecting legislative requirements
- b) The provision of smoke-free areas between and within 50m of the red and yellow flags at patrolled beaches from the 1 February 2020.

CONSULTATION AND COMMUNICATION

The review of this policy has incorporated extensive consultation with representatives from:

- Surf Life Saving NSW and Surf Life Saving Illawarra
- Heart Foundation
- Illawarra Shoalhaven Local Health District Health Promotion Team and Tobacco Compliance Unit
- Council's Sports and Facilities Reference Group.

Consultation findings support Council's proactive approach in extending the policy to patrolled beaches to protect children, young persons, families and vulnerable populations from smoking. The proposed policy also incorporates recommendations and amendments suggested by these parties. Council officers have also consulted with officers from the following divisions:

- Property and Recreation
- Regulation and Enforcement
- Community Cultural and Economic Development
- Open Space and Environment.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 goal 4 "We have a healthy community in a liveable city". It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2018-2021	Operational Plan 2019-20
Strategy	3 Year Action	Operational Plan Actions
4.3.1 Positive leadership and governance, values and culture are built upon	4.3.1.1 Ensure appropriate strategies and systems are in place that support good corporate governance	Conduct rolling reviews of Council's policy register.

Ecological Sustainability

Cigarette butts are the most littered item in Australia. Cigarette butts leach toxic chemicals such as cadmium, lead and zinc. It is anticipated that over time there will be less cigarette butt litter on our patrolled beaches as a result of the proposed policy change.

RISK ASSESSMENT

Introduction of the policy may create an environment for potential conflict between volunteer lifesavers and Council lifeguards and members of the public. Council's Beach Services will inform local surf clubs of the policy and appropriate protocols for managing potential conflict.

FINANCIAL IMPLICATIONS

The costs for additional signage and promotional materials will be absorbed by existing operational budget.



CONCLUSION

Council's Smoke-free (Recreation Areas) Policy confirms Council's commitment to advocating public health outcomes and improving the natural environment and amenity of the city through reducing the community's exposure to smoking in public areas.

The Smoke-free (Recreation Areas) Council Policy has now been reviewed and it is recommended the changes as proposed be approved.





SMOKE-FREE (RECREATION AREAS) COUNCIL POLICY

ADOPTED BY COUNCIL: [TO BE COMPLETED BY CORP SUPPORT]

BACKGROUND

This Policy has been developed to recognises that Council plays an important role in advocating public health outcomes and has a commitment to improving the natural environment and amenity of the local area by reducing the negative effects of smoking and use of e-cigarettes in public areas.

There is substantial evidence linking exposure to second-hand smoke with a range of serious and life-threatening health impacts including heart disease, cancer, asthma and other respiratory problems. Children exposed to second-hand smoke are at an increased risk of asthma, acute respiratory infections and other health issues.

In addition to the health impacts, cigarettes also contribute to street, <u>beach</u> and storm water litter and are considered as an environmental issue. The provision of smoke-free recreation areas can assist in reducing cigarette-butt litter and enhance our local environment.

OBJECTIVE

The main objectives of this policy are to -

- 1 Improve the health of community members;-
- 2 Improve public amenity and maintenance of Council property:
- 3 Raise community awareness of the issues associated with smoking and e-cigarette use;
- 4 Provide community leadership in taking measures to protect the health and social wellbeing of the community; and-
- 5 Minimise cigarette-butt pollution on Council-owned beaches, waterways, parks and other public open space areas.

POLICY STATEMENT

This policy recognises that Council has:

- an obligation to promote public health outcomes where Council provides assets and services intended to be of benefit to children and other members of the community;
- a commitment to improve the natural environment and the amenity of the local area by reducing the amount of cigarette butt litter found in outdoor spaces;
- an understanding that the damaging effects of passive-smoking and vapour, while well documented
 in regard to indoor areas, is also beginning to emerge in regardrecognised as a priority in outdoor
 recreation to outdoor-areas; and
- outlined a strategy for Council's management of smoking on and around public playgrounds, swimming pools, patrolled beaches, leisure centres and sports fields; and-
- a commitment to improve the natural environment and the amenity of the local area by reducing the amount of cigarette-butt litter found in outdoor spaces.

POLICY REVIEW AND VARIATION

1 Council is to have opportunity to review and adopt, at least once during its Term, each Council policy.



COUNCIL POLICY

Document No: Z19/224756

A resolution of Council is required to adopt any variations to this policy, with the exception of minor administrative changes, such as updates to legislative references, which may be endorsed by the Executive Management Committee (EMC). Endorsement of administrative changes made to this policy by EMC does not alter the requirement for it to be reviewed and adopted by each Term of Council.

DEFINITIONS OF THIS POLICY

RECREATION AREA

The term 'recreation area' where stated in this policy, refers to Council owned or managed outdoor sporting facilities, playgrounds, skate parks, outdoor fitness equipment, public swimming pools, patrolled beaches and leisure centres.

OUTDOOR SPORTING FACILITIES.

The term 'outdoor sporting facilities' where stated in this policy, refers to Council owned or managed (including leased and licensed) sportsfields and the infrastructure associated with a sportsfield, including amenities buildings, canteens, grandstands and clubhouses.

SMOKE.

Means use, consume, hold or otherwise have control over a tobacco product, non-tobacco smoking product or e-cigarette that is generating (whether or not by burning) smoke or an aerosol or vapour.

PATROLLED BEACH

An area of a beach that has an active lifeguarding or volunteer lifesaving service supervising a public bathing area where red and yellow flags have been erected.



COUNCIL POLICY

1 SMOKE-FREE AREAS

The following areas of public open space and sport and recreation facilities managed by Council are designated smoke-free areas:

- Within 10 metres of all children's playground equipment;
- Within 10 metres of all outdoor fitness equipment;
- Around and within the identified perimeter of all Council outdoor sporting facilities and skate parks;
- Around and within the identified perimeter of Council leisure centres and public swimming pools (including rock pools);
- Within 4 metres of an entrance used by pedestrians to get into or out of a public building; and
- Between the red and yellow flags to the land edge and within a 50 metre radius of the red and yellow flagged area at Council's patrolled beaches. The smoke-free area will apply during patrolled times, when the red-and-yellow lifesaving flags are erected.

2 AREA TO WHICH THIS POLICY APPLIES

This policy applies to the entire Wollongong Local Government Area (LGA).

3 EXEMPTIONS

There are no exemptions.

4 ENFORCEMENT



COUNCIL POLICY

Document No: Z19/224756

STATEMENT OF PROCEDURES

1 Signage

The following areas of public open space and sport and recreation facilities managed by Council will be signposted, wherever practicable, to provide smoke-free zones:

- Within 10 metres of all children's playground equipment;
- Within 10 metres of all outdoor fitness equipment;
- Around and within the identified perimeter of all Council outdoor sporting facilities and skate parks; and
- Around and within the identified perimeter of Council leisure centres and public swimming pools.
- Within 4 metres of an entrance used by pedestrians to get into or out of a public building.

Signs wherever practicable will be installed in prominent places in the open space areas listed above. The signs will include the international no-smoking symbol.

Where required, 'smoke-free zone' may be stencilled on concrete along the perimeter of Council's netball courts.

2 Legislation

Under Section 6A of the Smoke-free Environment Act 2000 the following public places are listed smoke-free areas in NSW:

- a place that is within 10 metres of children's play equipment but only if the children's play equipment is in an outdoor public place;
- open areas within the perimeter of all public swimming pool complexes; and
- an area set aside for, or being used by, spectators to watch an
 organised sporting event at a sportsground or other recreational area, but only
 when an organised sporting event is being held there.

Under Sections 632, 670 and 679 of the NSW Local Government Act 1993 Council has the power to:

- erect suitably worded and strategically placed notices in 'public places' (such places including but not limited to public reserves, Crown reserves, public bathing reserves, public baths, public swimming pools, public parks and public reads) within the local government area prohibiting smoking;
- serve, by means of an authorised person, a penalty notice upon any person who fails to comply with the terms of any such notice;
- demand, by means of an authorised person, the name and address of any person reasonably suspected of failing to comply with the terms of any such notice; and
- otherwise prohibit smoking in any place within the local government area of Wollongong, in respect of which Council is the owner or occupier, as a condition of entry to that place.

3 Implementation of Policy

Under Sections 632, 670 and 679 of the NSW Local Government Act 1993 Council has the power to:

 erect suitably worded and strategically placed notices in 'public places' (such places including but not limited to public reserves, Crown reserves, public bathing reserves, public baths, public swimming pools, public parks and public roads) within the local government area prohibiting smoking:





COUNCIL POLICY

- <u>serve</u>, by means of an authorised person, a penalty notice upon any person who fails to comply with the terms of any such notice;
- demand, by means of an authorised person, the name and address of any person reasonably suspected of failing to comply with the terms of any such notice; and
- otherwise prohibit smoking in any place within the local government area of Wollongong, in respect of which Council is the owner or occupier, as a condition of entry to that place.
- Wollongong City Council's Enforcement Policy will guide the implementation of Council's Smokefree Policy (Recreation Areas), with the view that this policy will be supported by persuasion and
 self-policing, rather than punitive enforcement.
 - A promotion program specifically targeting sporting clubs and associations is also to be undertaken annually.

Adopted by Council: [Date]

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Document No: Z19/224756



COUNCIL POLICY

SUMMARY SHEET				
Responsible Division	Property & Recreation			
Date/s adopted	Executive Management Committee [updated by policy owner]	Council [DD Mmmm YYYY]		
Date/s of previous adoptions	20 November 2017, 13 July 2015; Review (no changes); 26 October 2010	ed by EMC on 15 July 2013		
Date of next review	[Mmmm YYYY - Must be within next Term	n of Council]		
Legislative or other requirement for review	Biannually – Corporate Governance Committee request			
Responsible Manager	Recreation Services Manager			
Authorised by	Manager Property and Recreation			





SMOKE-FREE (RECREATION AREAS) COUNCIL POLICY

ADOPTED BY COUNCIL: 20 NOVEMBER 2017

BACKGROUND

This Policy has been developed to recognise that Council plays an important role in advocating public health outcomes and has a commitment to improving the natural environment and amenity of the local area by reducing the negative effects of smoking in public areas.

There is substantial evidence linking exposure to second-hand smoke with a range of serious and life-threatening health impacts including heart disease, cancer, asthma and other respiratory problems. Children exposed to second-hand smoke are at an increased risk of asthma, acute respiratory infections and other health issues.

In addition to the health impacts, cigarettes also contribute to street and storm water litter and are considered as an environmental issue. The provision of smoke-free recreation areas can assist in reducing cigarette-butt litter and enhance our local environment.

OBJECTIVE

The main objectives of this policy are to -

- 1 Improve the health of community members.
- 2 Improve public amenity and maintenance of Council property.
- 3 Raise community awareness of the issues associated with smoking.
- 4 Provide community leadership in taking measures to protect the health and social wellbeing of the community.
- 5 Minimise cigarette-butt pollution on Council-owned beaches, waterways, parks and other public open space areas.

POLICY STATEMENT

This policy recognises that Council has:

- an obligation to promote public health outcomes where Council provides assets and services intended to be of benefit to children and other members of the community;
- a commitment to improve the natural environment and the amenity of the local area by reducing the amount of cigarette-butt litter found in outdoor spaces;
- an understanding that the damaging effects of passive smoking, while well documented in regard to indoor areas, is also beginning to emerge in regard to outdoor areas; and
- outlined a strategy for Council's management of smoking on and around public playgrounds, swimming pools, leisure centres and sportsfields.

POLICY REVIEW AND VARIATION

- 1 Council is to have opportunity to review and adopt, at least once during its Term, each Council policy.
- 2 A resolution of Council is required to adopt any variations to this policy, with the exception of minor administrative changes, such as updates to legislative references, which may be endorsed by the Executive Management Committee (EMC). Endorsement of administrative changes made to this policy by EMC does not alter the requirement for it to be reviewed and adopted by each Term of Council.



COUNCIL POLICY

DEFINITIONS OF THIS POLICY

Recreation Area

The term 'recreation area' where stated in this policy, refers to Council owned or managed outdoor sporting facilities, playgrounds, skate parks, outdoor fitness equipment, public swimming pools and leisure centres.

Outdoor Sporting Facilities

The term 'outdoor sporting facilities' where stated in this policy, refers to Council owned or managed (including leased and licensed) sportsfields and the infrastructure associated with a sportsfield, including amenities buildings, canteens, grandstands and clubhouses.

STATEMENT OF PROCEDURES

1 Signage

The following areas of public open space and sport and recreation facilities managed by Council will be signposted, wherever practicable, to provide smoke-free zones:

- Within 10 metres of all children's playground equipment;
- Within 10 metres of all outdoor fitness equipment;
- Around and within the identified perimeter of all Council outdoor sporting facilities and skate parks; and
- Around and within the identified perimeter of Council leisure centres and public swimming pools.
- Within 4 metres of an entrance used by pedestrians to get into or out of a public building.

Signs wherever practicable will be installed in prominent places in the open space areas listed above. The signs will include the international no-smoking symbol.

Where required, 'smoke-free zone' may be stencilled on concrete along the perimeter of Council's netball courts.

2 Legislation

Under Section 6A of the Smoke-free Environment Act 2000 the following public places are listed smoke-free areas in NSW:

- a place that is within 10 metres of children's play equipment but only if the children's play equipment is in an outdoor public place;
- open areas within the perimeter of all public swimming pool complexes; and
- an area set aside for, or being used by, spectators to watch an organised sporting event at a sportsground or other recreational area, but only when an organised sporting event is being held there.

Under Sections 632, 670 and 679 of the NSW Local Government Act 1993 Council has the power to:

- erect suitably worded and strategically placed notices in 'public places' (such places including but not limited to public reserves, Crown reserves, public bathing reserves, public baths, public swimming pools, public parks and public roads) within the local government area prohibiting smoking;
- serve, by means of an authorised person, a penalty notice upon any person who fails to comply with the terms of any such notice;
- demand, by means of an authorised person, the name and address of any person reasonably suspected
 of failing to comply with the terms of any such notice; and
- otherwise prohibit smoking in any place within the local government area of Wollongong, in respect of which Council is the owner or occupier, as a condition of entry to that place.

3 Implementation of Policy

Wollongong City Council's Enforcement Policy will guide the implementation of Council's Smoke-free Policy (Recreation Areas), with the view that this policy will be supported by persuasion and self-policing, rather than punitive enforcement.

A promotion program specifically targeting sporting clubs and associations is also to be undertaken annually.



SMOKE-FREE (RECREATION AREAS)

COUNCIL POLICY

Document No: Z17/68824

SUMMARY SHEET				
Responsible Division	Property and Recreation			
Date adopted by Council	20 November 2017			
Date of previous adoptions	13 July 2015; Reviewed by EMC on 15 July 2013 (no changes); 26 October 2010			
Date of next review	November 2019			
Legislative or other requirement for review	Biannually – Corporate Governance Committee request			
Responsible Manager	Recreation Services Manager			
Authorised by	Manager Property and Recreation			





6 November 2019

Mr Mark Bond Recreation Services Manager Wollongong City Council Locked Bag 8821 Wollongong DC NSW 2500

Via email: mbond@wollongong.nsw.gov.au

Dear Mark

Thank you for your email correspondence dated 31 October 2019 in relation to the current review of Wollongon City Council (WCC) Smoke Free Recreation Areas Policy. I understand there is consideration to extend the smoke free areas to within 50 metres of a patrolled beach which is based on the Victorian Health Approach.

I note the numerous other NSW Councils that have implemented trial or permanent smoke free designated areas along the coastline, and SLSNSW acknowledges and supports each and every local government that continues to implement environmentally sustainable solutions to assist both community and the environment along our coastline.

Surf Life Saving NSW would support WCC proposal to extend smoke free areas to within 50 metres of a patrolled beach, on the condition that our volunteer lifesavers were not required to enforce the restricted areas as per the Victorian Government approach.

Thank you for allowing SLSNSW to comment on this proposal.

Yours faithfully

Steven Pearce AFSM Chief Executive Officer

Surf Life Saving New South Wales



health

Smoke-free patrolled beaches

Summary fact sheet

What is the proposed change?

From 1 December 2012 smoking is banned at all patrolled beaches in Victoria.

Similar bans have been in place in Queensland since 2005, Western Australia since 2010 and in Tasmania from March 2012.

Why ban smoking on patrolled beaches?

This ban will protect beach users from exposure to second-hand smoke, stop children seeing people smoke (which may influence their behaviour as adults) and reduce environmental damage from butt littering.

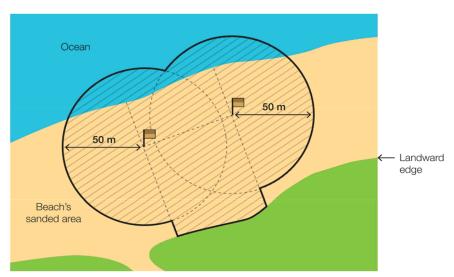
How will people know about the ban?

To inform people of the ban, 'No Smoking' signs will be installed at patrolled beaches. A community awareness campaign will further emphasise that Victoria's patrolled beaches are now smoke-free.

Where and when will the ban apply?

Smoking will be banned between the red-and-yellow flags and within a 50 metre radius of a red-and-yellow flag. This includes publicly accessible areas primarily covered by sand and water. The ban will apply during patrolled times, when one or more red-and-yellow lifesaving flags installed by a Life Saving Victoria club are in place.

The ban will not apply beyond the landward edge of the beach's sanded area.



Shading indicates 'No smoking' area

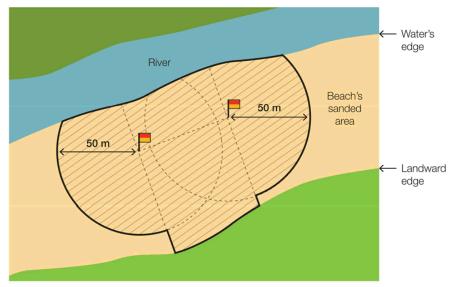
Figure 1: Ocean/bay beaches



Item 14 - Attachment 4 - Health Victoria Smoke-free Patrolled Beach Fact Sheet

Will the ban apply to riverside beaches?

The ban will apply to the patrolled river beach on the Murray River in Mildura. However, in the case of this beach in Mildura, the ban will not apply beyond the water's edge or beyond the landward edge of the beach



Shading indicates 'No smoking' area

Figure 2: Riverside beach

How will compliance with the ban be achieved?

Community attitudes towards smoking have changed, especially about smoking around children. Making patrolled beaches smoke-free is expected to be achieved mainly through the observation of signs and the influence of friends and family members encouraging respect for the ban in the specified smoke-free areas.

Initially, inspectors authorised under the *Tobacco Act 1987* may provide information about and, if necessary, enforce the ban. Inspectors will not be available to respond to every complaint, but where circumstances allow, may attend patrolled beaches in response. Lifesavers will not be responsible for enforcing this ban.

The overall goal in responding to a complaint is to make sure smokers understand that smoking is banned between the red-and-yellow flags and within a 50 metre radius of a red-and-yellow flag.

What penalties might apply?

An inspector can issue an infringement (fine) of 1 penalty unit for smoking on a patrolled beach, and 1 penalty unit if a person fails to stop smoking upon request. In 2012-13, a penalty unit is \$140.84.

Authorised by the Victorian Government, Melbourne. To receive this publication in an accessible format phone the Tobacco Information Line on 1300 136 775 or email tobacco.policy@health.vic.gov.au

Page 2 Department of Health

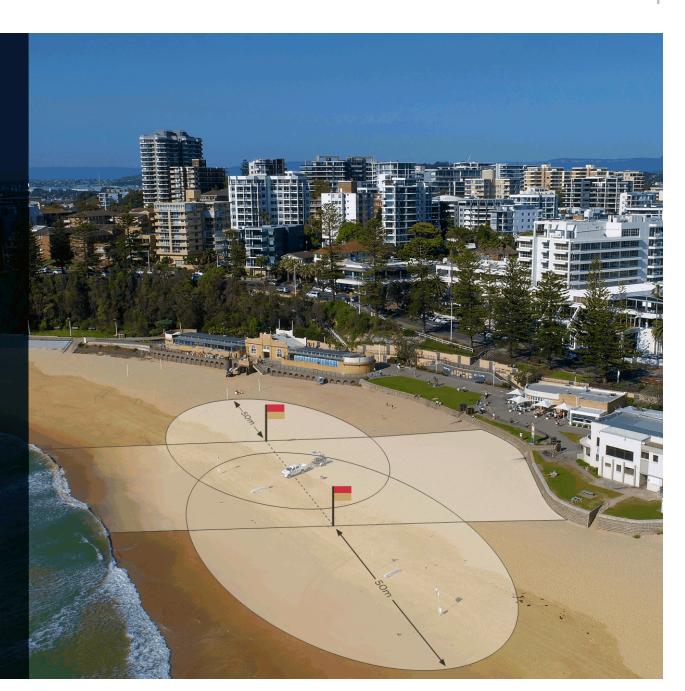
648



From 1 February 2020, all Wollongong City **Council patrolled** beaches will be designated smoke-free zones within 50 metres of the red and yellow beach flags.



This is a Smoke-Free area. Smoking within 50m of the red and yellow flags is





File: FI-230.01.392 Doc: IC19/683

ITEM 15

TENDER T17/56 - WASTE WISE EVENTS FULL WASTE MANAGEMENT SERVICES

This report recommends the acceptance of the tender for the provision of Waste Wise Events Full Event Waste Management Services to Council in accordance with the requirements of the Local Government Act 1993 and the Local Government (General) Regulation 2005.

Council's major events including Viva La Gong, New Year's Eve and Australia Day are conducted as Waste Wise Events which divert approximately 80% of the waste generated per event from landfill.

RECOMMENDATION

- In accordance with clause 178(1)(a) of the Local Government (General) Regulation 2005, Council accept the tender of Community Resources Limited (trading as Green Connect) for Waste Wise Events full waste management services, in the sum of \$74,156.58 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: Joanne Page, Manager Open Space & Environmental Services

Authorised by: Andrew Carfield, Director Infrastructure + Works - Connectivity Assets + Liveable City

ATTACHMENTS

There are no attachments for this report.

BACKGROUND

A Waste Wise Event is designed so that waste to landfill is minimised and recyclables and organics recovery are maximised. A Waste Wise Event involves planning and implementing waste avoidance strategies that encourage stakeholders to minimise the use of products and packaging that are not reusable, compostable or recyclable, including discouraging the use of single use plastics. The event should also have a bin system that encourages and makes it easy for attendees to recycle, compost and dispose of waste materials responsibly.

Council's major events including Viva La Gong, New Year's Eve and Australia Day are conducted as Waste Wise Events which divert approximately 80% of the waste generated per event from landfill.

This tender is an identified Environmental Procurement Initiative and was open to companies that support high environmental performance and have integrated environmental practices into their operations. This contract was also an identified Social Procurement Initiative and was open to companies and not for profit organisations that support social outcomes as identified in Council's Social Procurement Policy.

Council's Waste Wise Events are funded until 2021 through the NSW Government Better Waste Recycling Program (non-contestable grant funds), with the possibility of future funding for the program. This tender is for a period of one year with three options for extensions of one year each, with such extensions exercisable at Council's sole discretion.



Tenders were invited for the provision of Waste Wise Events Full Waste Management Service Provision for the following events:

- Viva la Gong;
- New Year's Eve; and
- Australia Day.

Tenders were invited for this project by the open tender method (Tenderlink, Sydney Morning Herald and Illawarra Mercury) with a close of tenders of 10.00 am on 17 September 2019.

18 organisations downloaded the information with One (1) tender received by the close of tenders. This has been scrutinised and assessed by a Tender Assessment Panel constituted in accordance with Council's Procurement Policies and Procedures and comprising representatives of the Governance and Customer Service, City Strategy and Open Space and Environmental Services 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

Assessable Criteria

- 1 Cost to Council 25%
- 2 Experience and satisfactory performance in undertaking projects of a similar size, scope and risk profile 20%
- 3. Environmental management policies and procedures 15%
- 4. Demonstrated social capacity and outcomes 25%
- 5. Demonstrated strengthening of local economic capacity 5%
- 6. Workplace health and safety management system 5%
- 7. Safe manual handling 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
Community Resources Limited (trading as Green Connect)	1

PROPOSAL

Council should authorise the engagement of Community Resources Limited (trading as Green Connect) to carry out the Waste Wise Events Full Event Waste Management Services 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
- 3 Tenderer information session held 20 September 2019 open invitation to any potential tenderer.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 goal "Goal 1 - We value and protect our environment and Goal 5 – We have a healthy community and liveable City". It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2018-2021	Operational Plan 2019-20
Strategy	3 Year Action	Operational Plan Actions
Reduce our ecological footprint, working together to minimise the impacts of climate change and reducing waste going to landfill	1.2.1.1 Develop and implement programs that encourage community participation in reducing Wollongong's ecological footprint	1.2.1.1.1 Coordinate community environmental programs including: Rise and Shine, Clean Up Australia Day, World Environment Day, National Recycling Week, International Composting Week and other waste education activities.
		1.2.1.1.2 Deliver waste minimisation programs in accordance with the Waste Strategy.
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	1.5.1.1.2 Set an emissions reduction target that is in alignment with the Global Covenant of Mayors compliance requirements.

Delivering Waste Wise Events is an action identified in the Environmental Sustainability Strategy 2014-22 supporting document.

- Focus Area 2 Reducing our ecological footprint Reducing emissions from Council operations and Deliver Waste Wise Events.
- Focus Area 5 Demonstrating Sustainable Leadership and Governance Complying with Global Covenant of Mayors requirements, which includes setting emissions reduction targets and developing an action plan to achieve the target.

Waste Wise Events delivery will also support the achievement of the following United Nations Sustainable Development Goals –





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 low based upon Council's risk assessment matrix and appropriate risk management strategies will be implemented.

FINANCIAL IMPLICATIONS

It is proposed that the total project can be funded from the following source:

Better Waste Recycling – Non contestable EPA grant funding

FY19 spending for Waste Wise Events was \$79,317.

FY20 Tender for Waste Wise Events is \$74,156.58.

CONCLUSION

The recommended tenderer has submitted an acceptable tender for this project and Council should endorse the recommendations of this report.



File: FI-914.05.001 Doc: IC19/703

ITEM 16 TENDER T19/14 - CASH-IN-TRANSIT SERVICES

This report recommends acceptance of a tender for provision of cash-in-transit services in accordance with the requirements of the Local Government Act 1993 and the Local Government (General) Regulation 2005. This service covers the collection and transportation of cash from Council facilities and parking meters to the bank.

The current contract for the provision of cash-in-transit services for Council's external sites and parking meters is due for expiration. Two conforming tenders were received and the report recommends Council accept the tender submitted by Knightguard Protections Services Pty Ltd t/as Knightguard Protection Group.

RECOMMENDATIONS

- In accordance with the Local Government (General) Regulation 2005, Clause 178 (1) (a), Council accept the tender of Knightguard Protections Services Pty Ltd t/as Knightguard Protection Group for the provision of cash-in-transit services for the approximate sum of \$164,031, excluding GST, in accordance with the priced schedule of collections, for the period of three years.
- 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: Brian Jenkins, Chief Financial Officer

Authorised by: Renee Campbell, Director Corporate Services - Connected + Engaged City

ATTACHMENTS

There are no attachments for this report.

BACKGROUND

Expressions of interest for the tender were invited by an open expression of interest method with a close time and date of 10.00 am, 17 September 2019, due to the sensitive and high-risk nature of Council's cash-in-transit policies and processes. Expressions of interest were judged on the following criteria:

- 1 Demonstrated ability to perform Cash-In-Transit Services for a large organisation
- 2 Demonstrated compliance with Cash-in-Transit Code of Practice 2013
- 3 Demonstrated Workplace Health & Safety Policies and Procedures
- 4 Referees

Expressions of interests were scrutinised and assessed by a Tender Assessment Panel constituted in accordance with Council's Procurement Policies and Procedures and comprising representatives of the Finance, Governance and Information and Property and Recreation Divisions.

From this process, six expressions of interest were deemed appropriate for the requirements of Council and were subsequently invited by the closed tender method with a close of tenders 10.00 am, 17 October 2019.

Two conforming tenders were received by the close of tender 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 Finance, Governance and Information and Property and Recreation Divisions.



The Tender Assessment Panel assessed all tenders in accordance with the following assessment criteria as set out in the formal tender documents:

- 1 Cost to Council
- 2 Practical application of WHS and Risk Assessment Methodology of Council's nominated sites
- 3 Demonstrated strengthening of local economic capacity
- 4 Score brought forward from the Expression of Interest process
- 5 Referees
- 6 Financial capacity

The Tender Assessment Panel utilised a weighted scoring method for the assessment of tenders which allocates a numerical score out of five 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 five 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.

Tenderer	Rank of Tender
Knightguard Protection Group	1
ECS International Security and Investigations	2
Crackweld Pty Ltd	NA
Australasian Protective Services Pty Ltd	NA
Prosegur Australia Holdings	NA
Commander Security Services Pty Ltd	NA

PROPOSAL

It is proposed that Council award Knightguard Protections Services Pty Ltd t/as Knightguard Protection Group, to carry out the provision of cash-in-transit services 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.

CONSULTATION AND COMMUNICATION

Members of the Tender Assessment Panel.

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 Financial Services Service Plan 2019-20.

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.



FINANCIAL IMPLICATIONS

It is proposed that the service be funded from the existing budget.

CONCLUSION

Council endorses the recommendations of this report.



File: FI-230.01.547 Doc: IC19/717

ITEM 17

TENDER T19/31 - CONCRETE LINING WORKS OF BATTER SLOPE AND CASCADE DRAIN AT WOLLONGONG WASTE AND RESOURCE RECOVERY PARK, REDDALLS ROAD, KEMBLA GRANGE

This report recommends acceptance of a tender for concreting works of drainage infrastructure at the Wollongong Waste and Resource Recovery Park, located off Reddalls Road, Kembla Grange, in accordance with the requirements of the Local Government Act 1993 and the Local Government (General) Regulation 2005.

The project comprises concreting works to maintain the service life of two trunk drainage lines diverting stormwater around active landfill cells. These drains reduce the amount of leachate required to be collected, stored, treated and discharged from the site by minimising the amount of stormwater contacting waste. The scope includes concreting works to reduce the risk of erosion and scouring during operation of the 'Cascade Drain' and 'Southern Perimeter Drain' batter slope.

RECOMMENDATION

- In accordance with clause 178(1)(a) of the Local Government (General) Regulation 2005, Council accept the tender of Dynamic Civil Pty Ltd for Concrete Lining Works of Batter Slope and Cascade Drain at Wollongong Waste and Resource Recovery Park, in the sum of \$517,702, 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: Glenn Whittaker, Manager Project Delivery

Authorised by: Andrew Carfield, Director Infrastructure + Works - Connectivity Assets + Liveable City

ATTACHMENTS

1 Locality Plan

BACKGROUND

Two trunk drainage lines currently in service at Wollongong Waste and Resource Recovery Park require upgrade works to maintain their serviceable life. The two trunk drainage lines serve a critical function of diverting clean stormwater around two active landfill cells. By diverting clean stormwater away from active landfill cells, the amount of leachate generated is reduced and therefore the volume of leachate that is required to be collected, stored, treated and discharged from the site is less. The scope of upgrade works includes but is not limited to the following:

- Site establishment, including erecting and maintaining environmental controls
- Southern Perimeter Drain batter slope:
 - stripping of vegetation and top soil layer
 - o preparation of substrate, including placement of cement stabilised sand
 - placement of steel fibre reinforced shotcrete across an area of approximately 900m²
 - demolition of a temporary access ramp



Cascade Drain:

- o preparation of subgrade
- formwork and reinforcing steel fixing
- placement of cast insitu concrete within a trapezoidal channel of approximate surface area of 800m²
- o installation of step irons
- o installation of panel drains

Tenders were invited for this project by the open tender method with a close of tenders of 10.00 am on 22 October 2019.

Five 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, Open Space + Environment and Governance + 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

Assessable Criteria

- 1 Cost to Council 40%
- 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 15%
- 4 Staff qualifications and experience 5%
- 5 Proposed sub-contractors 5%
- 6 Project Schedule 5%
- 7 Demonstrated strengthening of local economic capacity 5%
- 8 Workplace Health and Safety Management System 5%
- 9 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
Dynamic Civil Pty Ltd	1
The Civil Experts Pty Ltd trading as TCE Contracting	2
The Rix Group Pty Ltd	3
Ledacon Pty Ltd	NON-CONFORMING
Ormond Civil Pty Ltd	NON-CONFORMING

PROPOSAL

Council should authorise the engagement of Dynamic 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.

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 1 "We value and protect our environment".

It specifically delivers on core business activities as detailed in the Waste and Resource Recovery Strategy 2022.

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.

FINANCIAL IMPLICATIONS

It is proposed that the total project be funded from the following source/s as identified in the Annual Plan –

2019/20 Capital Budget

CONCLUSION

The recommended tenderer has submitted an acceptable tender for this project and Council should endorse the recommendations of this report.







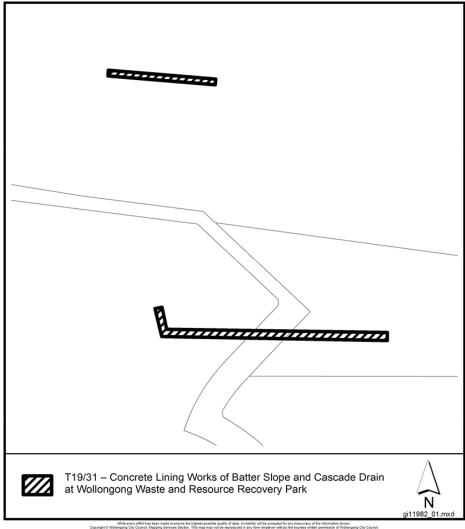
T19/31 – Concrete Lining Works of Batter Slope and Cascade Drain at Wollongong Waste and Resource Recovery Park



White every effort has been made to ensure the highest possible quality of data, no liability will be accepted for any inaccuracy of the information shown.

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File: FI-230.01.549 Doc: IC19/744

ITEM 18

TENDER T19/33 - RECONSTRUCTION OF THE BRICK ARCH CULVERT AT 20 CHELLOW DENE AVENUE, STANWELL PARK

This report recommends acceptance of a tender for the reconstruction of a brick arch culvert adjacent to 20 Chellow Dene Avenue, Stanwell Park in accordance with the requirements of the Local Government Act 1993 and the Local Government (General) Regulation 2005.

The embankment and brick arch culvert opposite 20 Chellow Dene Avenue, Stanwell Park requires remediation works to address its current condition and to ensure long-term stability. The works include slope stabilisation, grout injected foundation improvements, structural relining of the culvert, new headwall construction and scour protection.

RECOMMENDATION

- In accordance with clause 178(1)(a) of the Local Government (General) Regulation 2005, Council accept the tender of Cadifern Pty Ltd to rehabilitate a brick arch culvert on Hargrave Creek Catchment adjacent to 20 Chellow Dene Avenue, Stanwell Park, in the sum of \$835,199.61, 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: Glenn Whittaker, Manager Project Delivery

Authorised by: Andrew Carfield, Director Infrastructure + Works - Connectivity Assets + Liveable City

ATTACHMENTS

1 Location Plan

BACKGROUND

The existing brick arch culvert adjacent to 20 Chellow Dene Avenue, Stanwell Park was constructed in the late 1800s and is over 125 years old. Council has undertaken a detailed assessment of the embankment and culvert which has determined that, due to the current condition of the asset, rehabilitation works are required to ensure the short-term and long-term stability of the embankment.

The project has unique circumstances due to the irregular shape of the culvert, its depth under the roadway of approximately 8m, its close proximity to private property and that the culvert being only accessible from one side. Subsequently, the structural rehabilitation process of the culvert is using a specialised process to spiral wind a structural lining into the culvert and then fill the remaining voids with a grout annulus. Works also include:

- Grout injection under the culvert base
- Construction of a new headwall with brick facade and scour protection works at the culvert outlet
- Stabilisation of the embankment with soil anchors and mesh

Tenders were invited for this project by the open tender method with a close of tenders of 10.00 am on 7 November 2019.

Three (3) 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, Finance 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 Attendance at the site inspection

Assessable Criteria

- 1 Cost to Council 35%
- 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 10%
- 4 Staff qualifications and experience 5%
- 5 Proposed sub-contractors 10%
- 6 Project Schedule 5%
- 7 Demonstrated strengthening of local economic capacity 5%
- 8 Workplace Health and Safety Management System 5%
- 9 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
Cadifern Pty Ltd trading as Cadifern Civil	1
Interflow Pty Limited	2
Downer Pipetech	NON-CONFORMING

PROPOSAL

Council should authorise the engagement of Cadifern Pty Ltd to carry out the brick arch culvert reconstruction adjacent to 20 Chellow Dene Avenue, Stanwell Park 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 2018-2021	Operational Plan 2019-20
Strategy	3 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	5.5.1.2.2 Review Council's Asset Management Plans: Buildings, Recreation, Stormwater, Plant and Vehicles, Transport

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.

FINANCIAL IMPLICATIONS

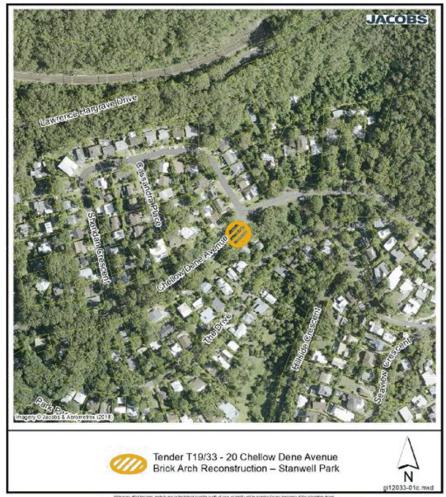
It is proposed that the total project be funded from the following source/s as identified in the Annual Plan –

Capital Budget 2019/20

CONCLUSION

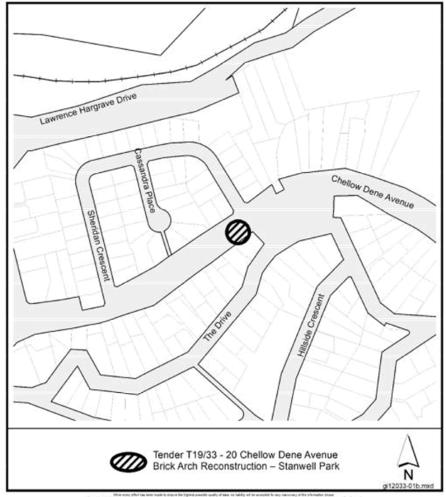
The recommended tenderer has submitted an acceptable tender for this project and Council should endorse the recommendations of this report.





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File: FI-230.01.552 Doc: IC19/747

ITEM 19

TENDER T19/36 - PROPOSED UPGRADE TO LIGHTING FOR COURTS 1 AND 2, LAKESIDE LEISURE CENTRE, KANAHOOKA

This report recommends acceptance of a tender for Tennis Court Lighting at Lakeside Leisure Centre, Kanahooka Road, Kanahooka in accordance with the requirements of the Local Government Act 1993 and the Local Government (General) Regulation 2005.

Council has 43 locations in the City where sportsfield lighting has been installed to cater for the increased sporting demands of the community. The proposed works will replace the existing failing infrastructure with new Light Emitting Diode (LED) Lighting to Courts 1 and 2 at Lakeside Leisure Centre, Kanahooka.

RECOMMENDATION

- In accordance with clause 178(1)(a) of the Local Government (General) Regulation 2005, Council accept the tender of Stowe Australia Pty Ltd for lighting installation to Lakeside Leisure Centre (Courts 1 and 2), in the sum of \$124,180, 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: Glenn Whittaker, Manager Project Delivery

Authorised by: Andrew Carfield, Director Infrastructure + Works - Connectivity Assets + Liveable City

ATTACHMENTS

1 Location Plan

BACKGROUND

Council's Sports Ground and Sporting Facilities Strategy (2017-2021) identifies 'lighting at sports grounds' as one of the most significant assets that require upgrading to meet the increasing demand and use from existing sporting clubs. The existing lighting infrastructure at Lakeside Leisure Centre has failing poles, consists of inefficient and outdated metal halide lighting systems and is at the end of its usable life. Some of the existing poles have already been removed due to their poor condition. Installing new lighting at existing sports grounds provides greater opportunities for users of the facility to train and play at night and encourages greater participation in community sporting events. New lighting increases the standard of the existing facility and allows a broader demographic of users in the community to access the site at extended hours.

Utilising the Council's Sports Ground and Sporting Facilities Strategy recommendation, the replacement lighting installation at Lakeside Leisure Centre is proposed to continue to meet the demands of the centre. The scope of works includes the decommissioning of existing infrastructure and installation of new, energy efficient LED lighting for Courts 1 and 2.

Tenders were invited for this project by the open tender method with a close of tenders of 10.00 am on 14 November 2019.

Two (2) 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, Property and Recreation, Finance 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

Assessable Criteria and Weightings

- 1 Cost to Council 45%
- 2 Appreciation of scope of works and construction methodology 15%
- 3 Experience and satisfactory performance in undertaking projects of similar size, scope and risk profile 10%
- 4 Staff qualifications and experience 5 %
- 5 Proposed Subcontractors 5%
- 6 Project Schedule 5%
- 7 Demonstrated strengthening of local economic capacity 5%
- 8 Workplace Health and Safety Management System 5%
- 9 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
Stowe Australia Pty Ltd	1
Central West Electrical Contractors Pty Ltd	2

PROPOSAL

Council should authorise the engagement of Stowe Australia 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.

wollongong city of innovation

CONSULTATION AND COMMUNICATION

- 1 Members of the Tender Assessment Panel
- 2 Nominated Referees
- 3 External Consultants Paul Anthony Electrical Pty Ltd

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 goal 4 "We are a connected and engaged community". It specifically delivers on core business activities as detailed in the Asset Management Plans Service Plan 2019-2020.

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 low based upon Council's risk assessment matrix and appropriate risk management strategies will be implemented.

FINANCIAL IMPLICATIONS

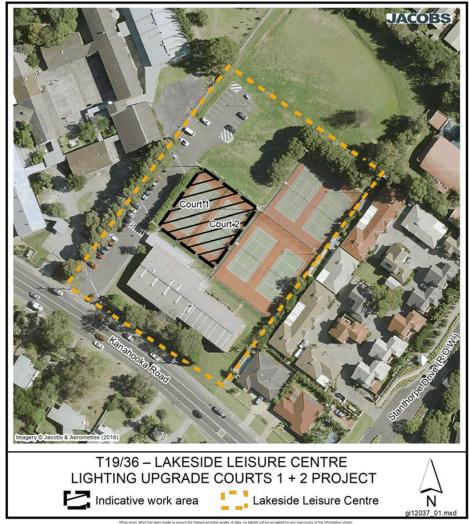
It is proposed that the total project be funded from the following source/s as identified in the Annual Plan –

2019/20 Capital Budget

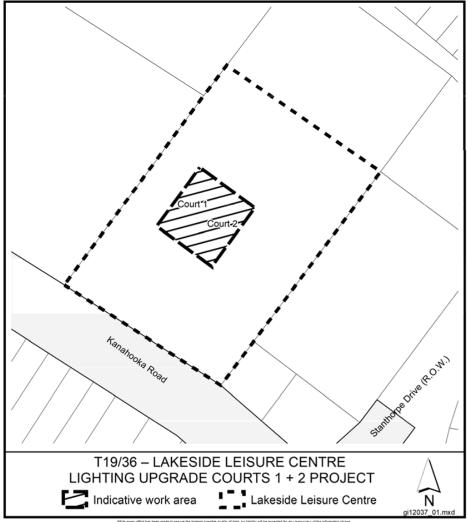
CONCLUSION

The recommended tenderer has submitted an acceptable tender for this project and Council should endorse the recommendations of this report.









While every effort has been made to ensure the highest possible quality of data, no liability will be accepted for any inaccuracy of the information shown.

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File: FI-914.05.001w Doc: IC19/726

ITEM 20 OCTOBER 2019 FINANCIALS

The financial results and commentary presented in this report include the adjustments proposed at the September Quarterly Review. Actual results for October compared to phased budget are generally favourable over most of the key performance indicators. The Operating Result [pre capital] and the Funds Available from Operations show favourable variances of \$3.4M and \$0.9M respectively while the Funds Result shows a minor unfavourable variance of less than \$0.1M.

The balance sheet at the end of the period indicates that there is sufficient cash to support external restrictions.

Council has expended \$27.9M on its capital works program representing 29% of the annual budget. The year to date budget for the same period was \$31.0M.

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 2019
- 2 Capital Project Report October 2019
- 3 Balance Sheet October 2019
- 4 Cash Flow Statement October 2019

BACKGROUND

This report presents the Income and Expense Statement, Balance Sheet and Cash Flow Statement for October 2019. Council's current budget has a Net Funding (cash) deficit of \$13.9M, an Operating Deficit [pre capital] of \$14.0M and a capital expenditure of \$96.8M.

The following table provides a summary view of the organisation's overall financial results for the year to date.

FORECAST POSITION	Original Budget	Current Budget	YTD Forecast	YTD Actual	Variation
	\$M	\$M	\$M	\$M	\$M
KEY MOVEMENTS	1-Jul	25-Oct	25-Oct	25-Oct	
Operating Revenue	273.0	270.2	88.2	87.9	(0.3)
Operating Costs	(282.4)	(284.2)	(92.3)	(88.6)	3.7
Operating Result [Pre Capital]	(9.4)	(14.0)	(4.2)	(0.8)	3.4
Capital Grants & Contributions	42.9	42.9	11.7	7.5	(4.2)
Operating Result	33.5	28.9	7.5	6.8	(0.7)
Funds Available from Operations	56.7	55.7	16.3	17.2	0.9
Capital Works	99.8	96.8	31.0	27.9	3.1
Contributed Assets	6.7	6.7	-	-	-
Transfer to Restricted Cash	1.4	5.4	0.5	0.5	(0.0)
Borrowings Repaid	7.9	7.9	1.2	1.2	-
Funded from:					
- Operational Funds	56.7	55.7	15.1	15.9	0.9
- Other Funding	49.5	47.3	13.0	8.9	(4.1)
Total Funds Surplus/(Deficit)	(9.7)	(13.9)	(3.4)	(3.5)	(0.1)

Financial Performance

Ordinary Meeting of Council

The October 2019 Operating Result [pre capital] shows a favourable variance compared to phased budget of \$3.4M that is largely due to progress of funded operational projects \$1.5M, lower depreciation expenditure \$1.9M, and generally under expenditure trends across a range of areas. These positive variations are partially offset by lower level of operational labour applied to capital that reflects as an under recovery of internal charges of \$1.4M. These variances are discussed in more detail through this report.

The Operating Result shows a negative variance of \$0.7M compared to budget. This includes the net variation above as well as a lower level of capital income of \$4.2M. This is mainly due to lower developer contributions income at West Dapto.

The Funds Available from Operations indicates a favourable variation of \$0.9M. This result excludes the impact of non-cash items such as depreciation (\$1.9M), impact of funded operational projects (\$1.5M), and timing impacts of grants and contributions that are transferred to restricted cash. This result includes the variation in accrued leave payment of \$0.4M.

Funds Result

The Total Funds result as at 25 October 2019 shows an unfavourable variance of \$0.1M compared to phased budget. This includes the favourable Funds Available from Operations variation of \$0.9M that is offset by increased net expenditure on capital works compared to budget of \$1.0M.

Capital Budget

At the end of October, the capital program shows an expenditure of \$27.9M compared to a phased budget of \$31.0M. Funding associated with this expenditure is \$8.9M compared to a phased budget of \$13.0M resulting in a net unfavourable impact of \$1.0M.

Through the adoption of the Operational Plan 2019-2020, Council approved a capital budget for 2019-2020 of \$98.8M. The revised projections at October 2019 recommend a reduction of \$0.8M that is offset by a similar decrease in funding. The reduction is primarily due to re-phasing of construction projects which are supported by external funding or restricted cash. Details of these changes are provided in the Capital Project reports and commentary (attachment 2).

Available Cash

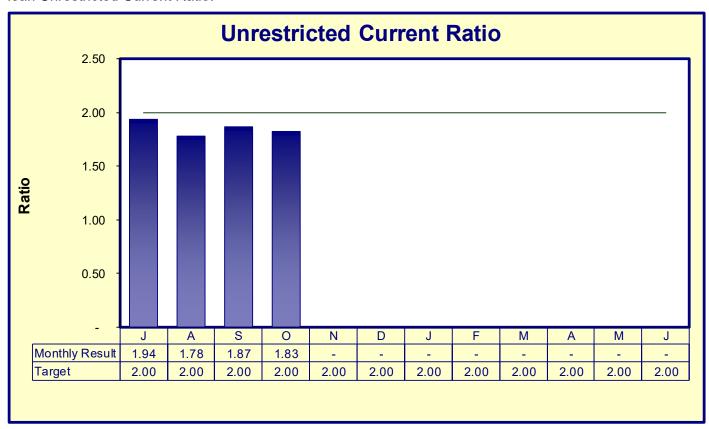
CASH, INVESTMENTS & AVAILABLE FUNDS							
	Actual 2018/19 \$M	Original Budget 2019/20 \$M	September QR 2019/20 \$M	Actual Ytd October 2019 \$M			
Total Cash and Investments	154.8	130.0	147.6	148.0			
Less Restrictions: External Internal Total Restrictions Available Cash	77.7 61.2 138.9 16.0	78.0 46.7 124.7 5.3	89.1 54.2 143.3 4.3	80.6 61.0 141.6 6.4			
Adjusted for : Payables Receivables Other Net Payables & Receivables Available Funds	(35.0) 36.6 11.9 13.5 29.4	(25.4) 24.6 11.2 10.5 15.7	(25.6) 24.4 12.2 11.1 15.4	(38.2) 43.2 14.7 19.7 26.0			
Available i ulius	25.4	15.7	15.4	26.0			



Council's cash and investments decreased during October to holdings of \$148M compared to \$157.9M at the end of September 2019. This reflects normal trends for this time of the year.

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.

The Unrestricted Current Ratio measures the cash/liquidity position of an organisation. This 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 is below the Local Government Benchmark of >2:1, with the strategy being to maximise the use of available funds for asset renewal by targeting a lean Unrestricted Current Ratio.



Receivables

Receivables are the amount of money owed to Council or funds that Council has paid in advance. At October 2019, receivables totalled \$43.2M compared to receivables of \$35.1M at October 2018. The increase in level of receivables compared to the same period last year relates predominantly to outstanding grant payments associated with West Dapto projects that are funded though the National Stronger Regions and Restart NSW programs.

Payables

Payables (the amount of money owed to suppliers) of \$38.2M were owed at October 2019 compared to payables of \$34.9M in October 2018. The difference in payables relates largely to goods and services delivered but not yet paid for.

Debt

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 currently has borrowings through an interest free loan and the subsidised Local Government Infrastructure Renewal Scheme (LIRS). In 2009-2010, Council borrowed \$26M interest free to assist in the delivery of the West Dapto Access Plan. Council has also been successful in securing subsidies for loans under the three rounds of the LIRS program and has entered into loans of \$20M in 2012-2013 for Round 1, \$4.3M in 2013-2014 for Round 2 and \$20.5M for Round 3. The LIRS program provides a loan subsidy of 4% for Round 1 and 3% for the subsequent rounds. Loan funds have been used to accelerate the Citywide Footpaths, Shared Path Renewal, Missing Links Construction Program, building refurbishment works for Berkeley Community Centre, Corrimal Library and Community Centre, Thirroul Pavilion and Kiosk and to support the West Dapto Access – Fowlers Road project respectively.

Council's Debt Service Ratio forecast for 2019-2020 is a target of <4% and remains low in comparison to the Local Government's benchmark ratio of <10%. It is noted that non-cash interest expense relating to the amortisation of the income recognised on the West Dapto Access Plan Loan is not included when calculating the Debt Service Ratio.

Assets

The Balance Sheet shows that \$2.6B of assets are controlled and managed by Council for the community as at 25 October 2019. The 2019-2020 capital works program includes projects such as the West Dapto Access strategy, civil asset renewals including roads, car parks and buildings and purchase of library books. Council has expended \$27.9M on its capital works program representing 29% of the annual budget. The year to date budget for the same period was \$31.0M.

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 2018-2021 3 Year Action		Operational Plan 2019-20 Operational Plan Actions
4.3.2	technology, assets and	4.3.2.1	financial management	Monitor and review achievement of Financial Strategy
	people) are effectively managed to ensure long term financial sustainability	nsure long term	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 are positive across the leading indicators and it is expected Council will achieve the forecast annual result.



	2019/2020	25 October 201 2019/2020	2019/2020	2019/2020	2019/2020
	2019/2020 Original Budget \$'000	2019/2020 Current Budget \$'000	2019/2020 YTD Budget \$'000	2019/2020 Actual YTD \$'000	2019/2020 Variance \$'000
	Income	Statement			
Income From Continuing Operations					
Revenue:					_
Rates and Annual Charges User Charges and Fees	202,991 33,665	202,991 33,634	64,891 10,259	64,895 : 10,085 :	5 (174)
Interest and Investment Revenues	4,882	3,688	1,179	1,302	123
Other Revenues	10,598	10,653	3,344	3,309	(35)
Grants & Contributions provided for Operating Purposes	20,840	21,954	8,496	8,303	(193)
Grants & Contributions provided for Capital Purposes	42,927	42,927	11,651	7,534	(4,117)
Profit/Loss on Disposal of Assets	0	(2,700)	(0)	(3)	(3)
Total Income from Continuing Operations	315,903	313,148	99,819	95,425	(4,394)
Expenses From Continuing Operations					
Frankrica Costs	404.740	100 000	40,000	40.040	040
Employee Costs Borrowing Costs	134,742	136,309 3,012	43,922 963	43,313 1,026	610 (63)
Materials, Contracts & Other Expenses	97,916	99,770	31,960	29,267	2,693
Depreciation, Amortisation + Impairment	66,276	64,776	21,769	19,883	1,886
Internal Charges (labour)	(17,558)	(17,957)	(5,740)	(4,309)	(1,431)
Internal Charges (not labour)	(1,694)	(1,694)	(541)	(541)	(1)
Total Expenses From Continuing Operations	282,404	284,217	92,333	88,638	3,694
Operating Results From Continuing Operations	33,499	28,931	7,487	6,787	(700)
	1.0				
Net Operating Result for the Year	33,499	28,931	7,487	6,787	(700)
Net Operating Result for the Year before Grants &	(0.420)	(42.005)	(4.464)	(747)	2.447
Contributions provided for Capital Purposes NET SURPLUS (DEFICIT) [Pre capital] %	(9,429) 10.6%	(13,996) 9.2%	(4,164) 7.5%	(747) 7.1%	3,417 15.9%
		•		•	
	Funding	Statement			
					(===)
Net Operating Result for the Year	33,499	28,931	7,487	6,787	(700)
Add back :					
- Non-cash Operating Transactions	84,272	85,932	27,669	25,788	(1,881)
 Restricted cash used for operations 					
	16,491	19,460	6,273	4,814	(1,459)
- Income transferred to Restricted Cash	(63,420)	(64,283)	(20,531)	(16,043)	4,488
- Income transferred to Restricted Cash - Payment of Accrued Leave Entitlements	(63,420) (14,162)	(64,283) (14,331)			
 Income transferred to Restricted Cash Payment of Accrued Leave Entitlements Payment of Carbon Contributions 	(63,420)	(64,283)	(20,531) (4,581)	(16,043) (4,163)	4,488 418
- Income transferred to Restricted Cash - Payment of Accrued Leave Entitlements - Payment of Carbon Contributions Net Share Joint Venture using Equity Method	(63,420) (14,162)	(64,283) (14,331)	(20,531) (4,581)	(16,043) (4,163)	4,488 418
- Income transferred to Restricted Cash - Payment of Accrued Leave Entitlements	(63,420) (14,162) 0	(64,283) (14,331) 0	(20,531) (4,581) 0	(16,043) (4,163) 0	4,488 418 0 867
- Income transferred to Restricted Cash - Payment of Accrued Leave Entitlements - Payment of Carbon Contributions Net Share Joint Venture using Equity Method Funds Available from Operations	(63,420) (14,162) 0	(64,283) (14,331) 0	(20,531) (4,581) 0	(16,043) (4,163) 0	4,488 418 0
- Income transferred to Restricted Cash - Payment of Accrued Leave Entitlements - Payment of Carbon Contributions Net Share Joint Venture using Equity Method Funds Available from Operations Borrowings repaid	(63,420) (14,162) 0 56,680 (7,913)	(64,283) (14,331) 0 55,708	(20,531) (4,581) 0 16,316 (1,237)	(16,043) (4,163) 0 17,183 (1,237)	4,488 418 0 867 (0)
- Income transferred to Restricted Cash - Payment of Accrued Leave Entitlements - Payment of Carbon Contributions Net Share Joint Venture using Equity Method Funds Available from Operations Borrowings repaid Advances (made by) / repaid to Council Operational Funds Available for Capital Budget	(63,420) (14,162) 0 56,680 (7,913)	(64,283) (14,331) 0 55,708 (7,913)	(20,531) (4,581) 0 16,316 (1,237) 0	(16,043) (4,163) 0 17,183 (1,237)	4,488 418 0 867 (0)
- Income transferred to Restricted Cash - Payment of Accrued Leave Entitlements - Payment of Carbon Contributions Net Share Joint Venture using Equity Method Funds Available from Operations Borrowings repaid Advances (made by) / repaid to Council Operational Funds Available for Capital Budget CAPITAL BUDGET	(63,420) (14,162) 0 56,680 (7,913)	(64,283) (14,331) 0 55,708 (7,913)	(20,531) (4,581) 0 16,316 (1,237) 0	(16,043) (4,163) 0 17,183 (1,237)	4,488 418 0 867 (0)
- Income transferred to Restricted Cash - Payment of Accrued Leave Entitlements - Payment of Carbon Contributions Net Share Joint Venture using Equity Method Funds Available from Operations Borrowings repaid Advances (made by) / repaid to Council Operational Funds Available for Capital Budget CAPITAL BUDGET Assets Acquired	(63,420) (14,162) 0 56,680 (7,913) 0 48,767	(64,283) (14,331) 0 55,708 (7,913) 0	(20,531) (4,581) 0 16,316 (1,237) 0	(16,043) (4,163) 0 17,183 (1,237) 0	4,488 418 0 867 (0) 0
- Income transferred to Restricted Cash - Payment of Accrued Leave Entitlements - Payment of Carbon Contributions Net Share Joint Venture using Equity Method Funds Available from Operations Borrowings repaid Advances (made by) / repaid to Council Operational Funds Available for Capital Budget CAPITAL BUDGET Assets Acquired	(63,420) (14,162) 0 56,680 (7,913) 0 48,767	(64,283) (14,331) 0 55,708 (7,913) 0 47,795	(20,531) (4,581) 0 16,316 (1,237) 0 15,079	(16,043) (4,163) 0 17,183 (1,237) 0 15,945	4,488 418 0 867 (0) 0 866
- Income transferred to Restricted Cash - Payment of Accrued Leave Entitlements - Payment of Carbon Contributions Net Share Joint Venture using Equity Method Funds Available from Operations Borrowings repaid Advances (made by) / repaid to Council Operational Funds Available for Capital Budget CAPITAL BUDGET Assets Acquired Contributed Assets Transfers to Restricted Cash Funded From:-	(63,420) (14,162) 0 56,680 (7,913) 0 48,767 (99,795) (6,726) (1,431)	(64,283) (14,331) 0 55,708 (7,913) 0 47,795 (96,801) (6,726) (5,431)	(20,531) (4,581) 0 16,316 (1,237) 0 15,079 (30,971) 0 (463)	(16,043) (4,163) 0 17,183 (1,237) 0 15,945 (27,855) 0 (477)	4,488 418 0 867 (0) 0 866 3,116 0 (14)
- Income transferred to Restricted Cash - Payment of Accrued Leave Entitlements - Payment of Carbon Contributions Net Share Joint Venture using Equity Method Funds Available from Operations Borrowings repaid Advances (made by) / repaid to Council Operational Funds Available for Capital Budget CAPITAL BUDGET Assets Acquired Contributed Assets Transfers to Restricted Cash Funded From: - Operational Funds	(63,420) (14,162) 0 56,680 (7,913) 0 48,767 (99,795) (6,726) (1,431)	(64,283) (14,331) 0 55,708 (7,913) 0 47,795 (96,801) (6,726) (5,431)	(20,531) (4,581) 0 16,316 (1,237) 0 15,079 (30,971) 0 (463)	(16,043) (4,163) 0 17,183 (1,237) 0 15,945 (27,855) 0 (477)	4,488 418 0 867 (0) 0 866 3,116 0 (14)
- Income transferred to Restricted Cash - Payment of Accrued Leave Entitlements - Payment of Carbon Contributions Net Share Joint Venture using Equity Method Funds Available from Operations Borrowings repaid Advances (made by) / repaid to Council Operational Funds Available for Capital Budget CAPITAL BUDGET Assets Acquired Contributed Assets Transfers to Restricted Cash Funded From: - Operational Funds - Sale of Assets	(63,420) (14,162) 0 56,680 (7,913) 0 48,767 (99,795) (6,726) (1,431) 48,767 1,292	(64,283) (14,331) 0 55,708 (7,913) 0 47,795 (96,801) (6,726) (5,431) 47,795 1,292	(20,531) (4,581) 0 16,316 (1,237) 0 15,079 (30,971) 0 (463) 15,079 141	(16,043) (4,163) 0 17,183 (1,237) 0 15,945 (27,855) 0 (477)	4,488 418 0 867 (0) 0 866 3,116 0 (14)
- Income transferred to Restricted Cash - Payment of Accrued Leave Entitlements - Payment of Carbon Contributions Net Share Joint Venture using Equity Method Funds Available from Operations Borrowings repaid Advances (made by) / repaid to Council Operational Funds Available for Capital Budget CAPITAL BUDGET Assets Acquired Contributed Assets Transfers to Restricted Cash Funded From: - Operational Funds - Sale of Assets - Internally Restricted Cash	(63,420) (14,162) 0 56,680 (7,913) 0 48,767 (99,795) (6,726) (1,431) 48,767 1,292 14,029	(64,283) (14,331) 0 55,708 (7,913) 0 47,795 (96,801) (6,726) (5,431) 47,795 1,292 11,075	(20,531) (4,581) 0 16,316 (1,237) 0 15,079 (30,971) 0 (463) 15,079 141 970	(16,043) (4,163) 0 17,183 (1,237) 0 15,945 (27,855) 0 (477) 15,945 0 898	4,488 418 0 867 (0) 0 866 3,116 0 (14) 866 (141)
- Income transferred to Restricted Cash - Payment of Accrued Leave Entitlements - Payment of Carbon Contributions Net Share Joint Venture using Equity Method Funds Available from Operations Borrowings repaid Advances (made by) / repaid to Council Operational Funds Available for Capital Budget CAPITAL BUDGET Assets Acquired Contributed Assets Transfers to Restricted Cash Funded From : - Operational Funds - Sale of Assets - Internally Restricted Cash - Borrowings	(63,420) (14,162) 0 56,680 (7,913) 0 48,767 (99,795) (6,726) (1,431) 48,767 1,292 14,029 0	(64,283) (14,331) 0 55,708 (7,913) 0 47,795 (96,801) (6,726) (5,431) 47,795 1,292 11,075 0	(20,531) (4,581) 0 16,316 (1,237) 0 15,079 (30,971) 0 (463) 15,079 141 970 0	(16,043) (4,163) 0 17,183 (1,237) 0 15,945 (27,855) 0 (477) 15,945 0 898	4,488 418 0 867 (0) 0 866 3,116 0 (14) 866 (141) (72)
- Income transferred to Restricted Cash - Payment of Accrued Leave Entitlements - Payment of Carbon Contributions Net Share Joint Venture using Equity Method Funds Available from Operations Borrowings repaid Advances (made by) / repaid to Council Operational Funds Available for Capital Budget CAPITAL BUDGET Assets Acquired Contributed Assets Transfers to Restricted Cash Funded From : Operational Funds - Sale of Assets - Internally Restricted Cash - Borrowings - Capital Grants	(63,420) (14,162) 0 56,680 (7,913) 0 48,767 (99,795) (6,726) (1,431) 48,767 1,292 14,029 0 7,353	(64,283) (14,331) 0 55,708 (7,913) 0 47,795 (96,801) (6,726) (5,431) 47,795 1,292 11,075 0 8,275	(20,531) (4,581) 0 16,316 (1,237) 0 15,079 (30,971) 0 (463) 15,079 141 970 0 3,436	(16,043) (4,163) 0 17,183 (1,237) 0 15,945 (27,855) 0 (477) 15,945 0 898 0 5,564	4,488 418 0 867 (0) 0 866 3,116 0 (14) 866 (141) (72) 0
- Income transferred to Restricted Cash - Payment of Accrued Leave Entitlements - Payment of Carbon Contributions Net Share Joint Venture using Equity Method Funds Available from Operations Borrowings repaid Advances (made by) / repaid to Council Operational Funds Available for Capital Budget CAPITAL BUDGET Assets Acquired Contributed Assets Transfers to Restricted Cash Funded From : Operational Funds - Sale of Assets - Internally Restricted Cash - Borrowings - Capital Grants - Developer Contributions (Section 94)	(63,420) (14,162) 0 56,680 (7,913) 0 48,767 (99,795) (6,726) (1,431) 48,767 1,292 14,029 0 7,353 16,867	(64,283) (14,331) 0 55,708 (7,913) 0 47,795 (96,801) (6,726) (5,431) 47,795 1,292 11,075 0	(20,531) (4,581) 0 16,316 (1,237) 0 15,079 (30,971) 0 (463) 15,079 141 970 0	(16,043) (4,163) 0 17,183 (1,237) 0 15,945 (27,855) 0 (477) 15,945 0 898 0 5,564 1,030	4,488 418 0 867 (0) 0 866 3,116 0 (14) 866 (141) (72) 0 2,128 (4,194)
- Income transferred to Restricted Cash - Payment of Accrued Leave Entitlements - Payment of Carbon Contributions Net Share Joint Venture using Equity Method Funds Available from Operations Borrowings repaid Advances (made by) / repaid to Council Operational Funds Available for Capital Budget CAPITAL BUDGET Assets Acquired Contributed Assets Transfers to Restricted Cash Funded From : Operational Funds - Sale of Assets - Internally Restricted Cash - Borrowings - Capital Grants	(63,420) (14,162) 0 56,680 (7,913) 0 48,767 (99,795) (6,726) (1,431) 48,767 1,292 14,029 0 7,353	(64,283) (14,331) 0 55,708 (7,913) 0 47,795 (96,801) (6,726) (5,431) 47,795 1,292 11,075 0 8,275 16,596	(20,531) (4,581) 0 16,316 (1,237) 0 15,079 (30,971) 0 (463) 15,079 141 970 0 3,436 5,223	(16,043) (4,163) 0 17,183 (1,237) 0 15,945 (27,855) 0 (477) 15,945 0 898 0 5,564	4,488 418 0 867 (0) 0 866 3,116 0 (14) 866 (141) (72) 0 2,128



			PROJECT iod ended 25 0		Т		
	\$'000		\$'000			\$000	
	CURRENT	BUDGET	WORKING BUDGET			VARIATION	
ASSET CLASS PROGRAMME	EXPENDITURE	OTHER FUNDING	EXPENDITURE	OTHER FUNDING	YTD EXPENDITURE	EXPENDITURE	OTHER FUNDING
Roads And Related Assets							
Traffic Facilities	2,220	(330)	3,427	(1,287)	992	1,207	(957)
Public Transport Facilities	430	(50)	380	0	46	(50)	50
Roadworks Bridges, Boardwalks and Jetties	14,872 1,895	(2,605)	14,779 1,895	(2,512)	5,647 182	(93)	93
TOTAL Roads And Related Assets	19,417	(2,985)	20,481	(3,799)	6,867	1,064	(814)
West Dapto							
West Dapto Infrastructure Expansion	16,739	(16,739)	16,739	(16,739)	7,078	0	(0)
TOTAL West Dapto	16,739	(16,739)	16,739	(16,739)	7,078	0	(0)
Footpaths And Cycleways							
Footpaths	8,735	(3,743)	8,735	(3,743)	2,683	0	(0)
Cycle/Shared Paths	3,065	(1,165)	3,065	(1,165)	785	(0)	0
Commercial Centre Upgrades - Footpaths and Cyclewa	3,250	(40)	3,250	(40)	452	(0)	(0)
TOTAL Footpaths And Cycleways	15,050	(4,948)	15,050	(4,948)	3,920	0	(0)
Carparks							
Carpark Construction/Formalising	550	(190)	550	(190)	184	0	0
Carpark Reconstruction or Upgrading	1,477	(7)	1,477	(7)	290	(0)	0
TOTAL Carparks	2,027	(197)	2,027	(197)	474	0	0
Stormwater And Floodplain Manageme	ent						
Floodplain Management	1,414	(160)	1,414	(160)	105	(0)	0
Stormwater Management	4,274	(380)	4,274	(380)	1,471	(0)	0
Stormwater Treatment Devices TOTAL Stormwater And Floodplain N	786 6,474	(250)	786 6,474	(250)	1,978	(0)	(0)
TOTAL Stormwater And Ptoodptain N	0,474	(790)	0,474	(790)	1,976	(0)	0
Buildings							
Cultural Centres (IPAC, Gallery, Townhall)	1,998	0	1,998	0		0	0
Administration Buildings Community Buildings	1,771 6,146	(50) (349)	1,771 6,096	(50)	123 1,148	(0)	0 (0)
Public Facilities (Shelters, Toilets etc.)	420	0	420	0		(0)	0
Carbon Abatement	0	0	0	0	0	0	0
TOTAL Buildings	10,335	(399)	10,285	(399)	1,492	(50)	(0)
Commercial Operations							
Tourist Park - Upgrades and Renewal	1,390	0	1,440	0	496	50	0
Crematorium/Cemetery - Upgrades and Renewal	265	0	265	0		(0)	0
Leisure Centres & RVGC	280	0	280	0		(0)	0
TOTAL Commercial Operations	1,935	0	1,985	0	531	50	0
Parks Gardens And Sportfields							
Play Facilities	1,365	(325)	1,365	(325)	305	0	0
Recreation Facilities	401	(136)	401	(136)	23 341	0	0
Sporting Facilities Lake Illawarra Foreshore	2,824 10	(865)	2,824 10	(865)	0	0	(0)
TOTAL Parks Gardens And Sportfield	4,600	(1,326)	4,600	(1,326)	670	0	(0)



CAPITAL PROJECT REPORT as at the period ended 25 October 2019							
	\$10	\$1000 \$1000				\$'000	
		CURRENT BUDGET WORKING BUDGET		VARIATION			
ASSET CLASS PROGRAMME	EXPENDITURE	OTHER FUNDING	EXPENDITURE	OTHER FUNDING	YTD EXPENDITURE	EXPENDITURE	OTHER FUNDING
Beaches And Pools							
Beach Facilities	384	0	384	0	26	(0)	0
Rock/Tidal Pools Treated Water Pools	3,030 1,653	0	3,030 1,653	0	1,755 1,155	(0)	0
TOTAL Beaches And Pools	5,067	0	5,067	0	2,936	(0)	0
Natural Areas							
Natural Area Management and Rehabilitation	50	0	50	0	0	(0)	0
TOTAL Natural Areas	50	0	50	0	0	(0)	0
Waste Facilities							
Whytes Gully New Cells	2,222	(2,222)	2,222	(2,222)	310	(0)	0
Whytes Gully Renewal Works Helensburgh Rehabilitation	1,335 506	(1,335) (506)	1,335 506	(1,335) (506)	214 72	(0) (0)	(0)
TOTAL Waste Facilities	4,063	(4,063)	4,063	(4,063)	596	(0)	0
Fleet							
Motor Vehicles	1,768	(517)	1,768	(517)	273	(0)	0
TOTAL Fleet	1,768	(517)	1,768	(517)	273	(0)	0
Plant And Equipment							
Portable Equipment (Mowers etc.)	125	(62)	125	(62)	(12)	(0)	0
Mobile Plant (trucks, backhoes etc.)	2,890	(737)	2,890	(737)	63	0	0
TOTAL Plant And Equipment	3,015	(800)	3,015	(800)	52	(0)	0
Information Technology							
Information Technology	1,005	(60)	1,005	(60)	72	0	0
TOTAL Information Technology	1,005	(60)	1,005	(60)	72	0	0
Library Books							
Library Books	1,221	0	1,221	0	642	(0)	0
TOTAL Library Books	1,221	0	1,221	0	642	(0)	0
Public Art							
Art Gallery Acquisitions	100	0	100	0	60	0	0
TOTAL Public Art	100	0	100	0	60	0	0
Emergency Services							
Emergency Services Plant and Equipment	52	0	60	0	60	8	0
TOTAL Emergency Services	52	0	60	0	60	8	0
Land Acquisitions							
Land Acquisitions	2,856	(2,556)	2,856	(2,556)	157	(0)	0
TOTAL Land Acquisitions	2,856	(2,556)	2,856	(2,556)	157	(0)	0
Non-Project Allocations							
Capital Project Contingency	1,007	0	749	0	0	(258)	0
Capital Project Plan TOTAL Non-Project Allocations	1,027	0	20 769	0	0		0
			709			(230)	
GRAND TOTAL	96,801	(35,381)	97,615	(36,195)	27,855	814	(814)



Manager Project Delivery Division

Commentary on October 2019 Capital Budget Report

On 24 June 2019, Council approved a Capital budget for 2019-2020 of \$98.8M. During the September Quarterly Review the approved Capital budget was adjusted to \$96.8M. During October 2019 the approved Capital Budget has been adjusted a further \$0.8M to \$97.6M due predominately to the re-phasing of dedicated funding for a number of construction projects. Council achieved expenditure at the end of October 2019 of \$27.9M compared to the phased budget expenditure of \$31.0M.

Program	Major Points of change to Capital Budget
Traffic Facilities	Reallocate budget from Contingency to Traffic Facilities Program
	Introduce Section 94 funding for Council contribution towards the cost of new roundabout on Northcliffe Drive adjacent to Bunnings development.
Public Transport Facilities	Re-phase parking fees income reserve funding.
Roadworks	Re-phase Roads to Recovery and Roads and Maritime Services Regional roads funding for existing projects
Community Buildings	Reallocate budget from Community Buildings Program to Tourist Parks - Upgrade and Renewal Program.
Tourist Parks - Upgrade and Renewal.	Reallocate budget from Community Buildings Program to Tourist Parks - Upgrade and Renewal Program.
Contingency	Reallocate budget from Capital Budget Contingency to Traffic Facilities Program.



WOLLONGONG CITY (COUNCI	L
	Actual 2019/20 \$'000	Actual 2018/19 \$'000
Balance Sheet		
Current Assets		
	[][
Cash Assets	24,385	25,187
Investment Securities	115,618 43,202	114,579 36,620
Receivables Inventories	43,202	337
Other	14,760	11,879
Total Current Assets	198,371	188,602
Non-Current Assets		
	[
Non Current Cash Assets Non Current Investment Securities	8,000	15,000 56
Non-Current Inventories	5,948	5,948
Property, Plant and Equipment	2,572,172	2,565,095
Investment Properties	5,000	5,000
Westpool Equity Contribution	2,931	2,931
Intangible Assets	378	440
Total Non-Current Assets	2,594,484	2,594,470
TOTAL ASSETS	2,792,855	2,783,072
Current Liabilities		
Current Payables	38,161	35,020
Current Provisions payable < 12 months	15,466	14,697
Current Provisions payable > 12 months	43,517	43,517
Current Interest Bearing Liabilities	7,934	7,934
Total Current Liabilities	105,078	101,168
Non-Current Liabilities		
Non Current Payables	0	385
Non Current Interest Bearing Liabilities	16,327	17,497
Non Current Provisions	47,700	47,054
Total Non-Current Liabilities	64,027	64,936
TOTAL LIABILITIES	169,105	166,104
NET ASSETS	2,623,750	2,616,968
Equity		
Accumulated Surplus	1,329,009	1,324,990
Asset Revaluation Reserve	1,153,123	1,153,123
Restricted Assets	141,618	138,856
TOTAL FOLLITY	0.000.755	2.640.000
TOTAL EQUITY	2,623,750	2,616,968



WOLLONGONG CITY COUNCIL CASH FLOW STATEMENT as at 25 October 2019 YTD Actual Actual 2019/20 2018/19 \$ '000 \$ '000 **CASH FLOWS FROM OPERATING ACTIVITIES** Receipts: Rates & Annual Charges 198,536 59.814 User Charges & Fees 21,696 35,009 Interest & Interest Received 1,505 4,859 Grants & Contributions 15,120 74,808 Other 1,699 28,663 Payments: Employee Benefits & On-costs (116,018) (36,026) Materials & Contracts (18,033) (76,382)**Borrowing Costs** (669) (1,096) (15,884) Other (34,751) Net Cash provided (or used in) Operating Activities 29,223 113,628 CASH FLOWS FROM INVESTING ACTIVITIES Sale of Infrastructure, Property, Plant & Equipment 1,920 Deferred Debtors Receipts Payments: Purchase of Investments Purchase of Investment Property Purchase of Infrastructure, Property, Plant & Equipment (34,780) (110,976) Purchase of Interests in Joint Ventures & Associates (2) Net Cash provided (or used in) Investing Activities (34,780) (109,056) CASH FLOWS FROM FINANCING ACTIVITIES Receipts: Proceeds from Borrowings & Advances Payments: Repayment of Borrowings & Advances (1,204) (7,715) Repayment of Finance Lease Liabilities Other Financing Activity Payments Net Cash Flow provided (used in) Financing Activities (1,204)(7,715) Net Increase/(Decrease) in Cash & Cash Equivalents (6,761) (1,304)154,822 156,126 plus: Cash & Cash Equivalents and Investments - beginning of year Cash & Cash Equivalents and Investments - year to date 148,061 154,822

WOLLONGONG CITY CASH FLOW STATEME as at 25 October 2019	NT	IL
	YTD Actual 2019/20 \$ '000	Actual 2018/19 \$ '000
Total Cash & Cash Equivalents and Investments - year to date	148,061	154,82
Attributable to:		
External Restrictions (refer below)	80,634	77,6
Internal Restrictions (refer below)	60,984	61,2
Unrestricted	6,443	15,9
	148,061	154,82
External Restrictions	,,	-
Developer Contributions	37,703	36,7
RMS Contributions	45	
Specific Purpose Unexpended Grants	4,442	3.3
Special Rates Lew Wollongong Mall	173	1
Special Rates Lew Wollongong City Centre	40	
Local Infrastructure Renewal Scheme	1,880	1,8
Unexpended Loans	3,215	3,4
Domestic Waste Management	14,269	13,7
Private Subsidies	5,887	5,7
West Dapto Home Deposit Assistance Program	10,862	10,7
Stormwater Management Service Charge	2,119	1,6
West Dapto Home Deposits Issued	-	
Carbon Price		
Total External Restrictions	80,634	77,6
Internal Restrictions		
Property Investment Fund	8,476	8,4
Strategic Projects	42,255	44,0
Sports Priority Program	829	6
Car Parking Stategy	1,829	1,6
MacCabe Park Development	1,340	1,2
Darcy Wentworth Park	171	1
Garbage Disposal Facility	86	(6
West Dapto Development Additional Rates	5,435	5,0
Southern Phone Natural Areas	230	2
Lake Illawarra Estuary Management Fund	333	3



File: FI-914.05.001 Doc: IC19/727

ITEM 21 STATEMENT OF INVESTMENT - OCTOBER 2019

This report provides an overview of Council's investment portfolio performance for the month of October 2019.

Council's average weighted return for October 2019 was 1.97% which was above the benchmark return of 1.04%. These results were primarily due to the positive marked to market valuation of the aggregated Floating Rates Notes (FRN), and NSW TCorp Hourglass facilities in Council's portfolio. 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

1 Council receive the Statement of Investment for October 2019.

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 2019
- 2 Investment Income Compared to Budget 2019-2020

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 25 October 2019 were \$147,765,489 (Statement of Investment attached) [26 October 2018 \$155,664,268].

Council's average weighted return for October 2019 was 1.97% which was above the benchmark return of 1.04%. These results were primarily due to the positive marked to market valuation of the aggregated Floating Rates Notes (FRN), and NSW TCorp Hourglass facilities in Council's portfolio. 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.

At 25 October 2019, year to date interest and investment revenue of \$1,145,107 was recognised compared to the year to date budget of \$970,975.

Council's 24 floating rate notes had a net increase in value of \$6,159 for October 2019.

Council holds two Mortgaged Backed Securities (MBS) that recorded a net increase in value of \$3,293 for October 2019. 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 increase in value of \$8,994 and the Cash Fund recorded a net increase in value of \$9,552 in October 2019. The fluctuation in the Long-Term Growth Facility is a reflection of the current share market volatility both domestically and internationally, whereas the Cash Fund provides relatively stable returns with low potential for capital loss while maintaining high levels of liquidity, similar to an at call account. The fund only invests in Australian cash and fixed interests.

At the October 2019 RBA meeting, the official cash rate was cut by 25 basis points down to a record low of 0.75%. This remained unchanged during the November 2019 meeting. The RBA has advised that it 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 inflation rate is quite low and below target.

Council's Investment Policy includes counterparty limits to spread the institutional risk applied at the time of investment. Review of the Members Equity Bank percentages, currently at 12%, has concluded that the percentage at purchase was actually 11% and therefore marginally above Council's Investment Policy limit of 10%. Corrective action on this operational error is in action, with updated process and increased vigilance by staff and advisor to ensure that investment limits are in compliance with Council's Investment Policy. 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 'We are a connected and engaged community'. It specifically delivers on the following:

	Community Strategic Plan Strategy	<u> </u>		Operational Plan 2019-20 Operational Plan Actions
4.3.2	Resources (finance, technology, assets and	4.3.2.1	Effective and transparent financial management	Monitor and review achievement of Financial Strategy
	people) are effectively managed to ensure long term financial sustainability	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 investments for October 2019 have performed favourably compared to the year to date budget and the portfolio recorded an average weighted return above the annualised Bloomberg Bank Bill Index Benchmark.



WOLLONGONG CITY COUNCIL STATEMENT OF INVESTMENT 25 October 2019

On Call & Term Deposits

010	COT	ESTN	-

Investment Body	Rating	Purchase Price \$	Fair Value of Holding \$	Security	Purchase Date	Maturity Date	Interest / Coupoi Rate
NAB Professional Maximiser	A1+	-	12,949,022	Prof Fund A/c	25/10/2019	25/10/2019	1.15%
NAB General Fund	A1+	-	1,110,938	General A/c	25/10/2019	25/10/2019	
National Bank of Australia	S&P AA-	1,030,000	1,030,000	T/Deposit	19/06/2018	19/11/2019	2.80%
Member Equity Bank	S&P BBB	2,000,000	2,000,000	T/Deposit	24/08/2018	22/11/2019	2.80%
IMB Bank	S&P BBB	2,000,000	2,000,000	T/Deposit	24/08/2018	25/11/2019	2.80%
Westpac Banking Corporation	S&P AA-	2,000,000	2,000,000	T/Deposit	01/12/2017	02/12/2019	2.68%
Member Equity Bank	S&P BBB	4,000,000	4,000,000	T/Deposit	07/12/2018	09/12/2019	2.75%
IMB Bank	S&P BBB	3,000,000	3,000,000	T/Deposit	07/12/2018	09/12/2019	2.70%
IMB Bank	S&P BBB	3,000,000	3,000,000	T/Deposit	22/12/2017	20/12/2019	2.65%
Westpac Banking Corporation	S&P AA-	5,000,000	5,000,000	T/Deposit	22/12/2017	23/12/2019	2.77%
Member Equity Bank	S&P BBB	3,000,000	3,000,000	T/Deposit	04/01/2018	06/01/2020	2.75%
Member Equity Bank	S&P ST A2	5,000,000	5,000,000	T/Deposit	14/03/2019	14/01/2020	2.65%
Bank of Queensland Limited	Moodys STP-2	2,000,000	2,000,000	T/Deposit	24/06/2019	24/01/2020	2.10%
Bank of Queensland Limited	Moodys A3	2,000,000	2,000,000	T/Deposit	19/02/2018	10/02/2020	2.88%
Suncorp Group Limited	S&P ST A1	3,000,000	3,000,000	T/Deposit	13/09/2019	10/02/2020	1.72%
Commonwealth Bank of Australia	S&P ST A1+	3,000,000	3,000,000	T/Deposit	30/08/2019	25/02/2020	1.61%
Bank of Queensland Limited	Moodys STP-2	2,000,000	2,000,000	T/Deposit	04/06/2019	05/03/2020	2.15%
Westpac Banking Corporation	S&P AA-	2,000,000	2,000,000	T/Deposit	06/11/2018	06/03/2020	2.78%
Suncorp Group Limited	S&P ST A1	2,000,000	2,000,000	T/Deposit	28/06/2019	24/03/2020	1.85%
IMB Bank	S&P BBB	2,000,000	2,000,000	T/Deposit	29/03/2018	27/03/2020	2.85%
Bendigo & Adelaide Bank Ltd.	Moodys ST P-2	3,000,000	3,000,000	T/Deposit	06/09/2019	03/04/2020	1.62%
Bank of Queensland Limited	Moodys A3	2,000,000	2,000,000	T/Deposit	14/03/2019	14/05/2020	2.71%
Bank of Queensland Limited	Moodys A3	3,000,000	3,000,000	T/Deposit	06/03/2019	03/06/2020	2.70%
Bank of Queensland Limited	Moodys STP-2	1,000,000	1,000,000	T/Deposit	06/09/2019	06/07/2020	1.65%
Bendigo & Adelaide Bank Ltd.	Moodys A3	2,000,000	2,000,000	T/Deposit	14/03/2019	14/07/2020	2.60%
Bank of Queensland Limited	Moodys A3	3,000,000	3,000,000	T/Deposit	24/08/2018	24/08/2020	3.00%
Commonwealth Bank of Australia	S&P ST A1+	5,000,000	5,000,000	T/Deposit	13/09/2019	07/09/2020	1.63%
Member Equity Bank	S&P BBB	2,000,000	2,000,000	T/Deposit	14/09/2018	14/09/2020	2.82%
Bank of Queensland Limited	Moodys A3	3,000,000	3,000,000	T/Deposit	14/03/2019	14/12/2020	2.73%
Bank of Queensland Limited	Moodys A3	3,000,000	3,000,000	T/Deposit	21/02/2019	19/02/2021	2.80%
Westpac Banking Corporation	S&P AA-	2,000,000	2,000,000	T/Deposit	06/03/2019	06/03/2024	2.83%
Total			91,089,960				



WOLLONGONG CITY COUNCIL STATEMENT OF INVESTMENT 25 October 2019 continued

Bond and Floating Rate Note Securities

DIRECT INVESTMENTS							
Investment Body	Rating	Purchase Price \$	Fair Value of Holding \$	Security	Purchase Date	Maturity Date	Interest / Coupon Rate
Bendigo & Adelaide Bank Ltd.	Fitch A-	2,000,000	2,011,940	FRN	21/11/2016	21/02/2020	2.08%
Credit Union Australia Limited	S&P BBB	2,000,000	2,011,580	FRN	20/03/2017	20/03/2020	2.22%
Member Equity Bank	S&P BBB	2,000,000	2,007,500	FRN	06/04/2017	06/04/2020	2.09%
National Bank of Australia	S&P AA-	3,000,000	3,016,980	FRN	24/06/2015	03/06/2020	1.76%
Bendigo & Adelaide Bank Ltd.	Fitch A-	2,000,000	2,017,740	FRN	18/08/2015	18/08/2020	2.07%
Suncorp Group Limited	S&P A+	1,500,000	1,512,615	FRN	20/10/2015	20/10/2020	2.14%
National Bank of Australia	S&P AA-	1,000,000	1,012,160	FRN	05/11/2015	05/11/2020	2.07%
Newcastle Permanent Building Society	S&P BBB	500,000	503,905	FRN	26/02/2019	26/02/2021	2.06%
Suncorp Group Limited	S&P A+	2,000,000	2,026,500	FRN	12/04/2016	12/04/2021	2.24%
AMP Limited	S&P BBB+	2,000,000	2,011,740	FRN	24/05/2016	24/05/2021	2.31%
Westpac Banking Corporation	S&P AA-	3,000,000	3,043,620	FRN	03/06/2016	03/06/2021	2.13%
Australia and New Zealand Banking Group	S&P AA-	2,000,000	2,031,800	FRN	16/08/2016	16/08/2021	2.09%
Credit Union Australia Limited	S&P BBB	1,200,000	1,213,896	FRN	06/09/2018	06/09/2021	2.25%
AMP Limited	S&P BBB+	1,500,000	1,500,510	FRN	10/09/2018	10/09/2021	2.09%
Westpac Banking Corporation	S&P AA-	1,500,000	1,507,125	FRN	16/11/2018	25/10/2021	1.61%
Credit Union Australia Limited	Moodys Baa1	1,000,000	1,011,950	FRN	04/03/2019	04/03/2022	2.21%
AMP Limited	S&P BBB+	3,000,000	2,981,040	FRN	30/03/2017	30/03/2022	2.00%
Suncorp Group Limited	S&P A+	1,500,000	1,517,610	FRN	30/08/2017	16/08/2022	1.94%
Australia and New Zealand Banking Group	S&P AA-	1,000,000	1,011,900	FRN	09/05/2018	09/05/2023	1.87%
National Bank of Australia	S&P AA-	3,000,000	3,030,990	FRN	26/09/2018	26/09/2023	1.88%
Westpac Banking Corporation	S&P AA-	1,500,000	1,519,725	FRN	16/11/2018	16/11/2023	1.92%
Australia and New Zealand Banking Group	S&P AA-	2,000,000	2,031,140	FRN	06/12/2018	06/12/2023	2.03%
National Bank of Australia	S&P AA-	2,000,000	2,020,060	FRN	12/06/2019	19/06/2024	1.89%
EMERALD A Mortgage Backed Security *	S&P AAA	575,423	427,280	M/Bac	17/07/2006	21/08/2051	1.43%
EMERALD B Mortgage Backed Security *	Fitch AA	2,000,000	1,236,180	M/Bac	17/07/2006	21/08/2056	1.73%
Total			44,217,486				

Managed Funds & Other

Manageu runus & Other						
MANAGED FUNDS						
Investment Body	Rating	Purchase Price \$	Fair Value of Holding \$	Purchase Date	Monthly Return (Actual)	FYTD (Actual)
TcorpIM Cash Fund Facility	N/A	10,031,593	10,031,593	28/06/2019	0.10%	0.44%
Tcorp Long Term Growth Facility Trust	N/A	1,773,197	2,370,949	13/06/2007	0.38%	2.92%
Total			12,402,542			

Investment Body		Purchase Price \$	Fair Value	Purchase Date	Security
Southern Phone Company- Ordinary share **	N/A	1	55,500	22/10/2002	unlisted shares
Southern Phone Company-Preference share **	N/A	1	1	22/10/2002	unlisted shares
Total			55,501		

TOTAL INVESTMENTS \$ 147,765,489

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.

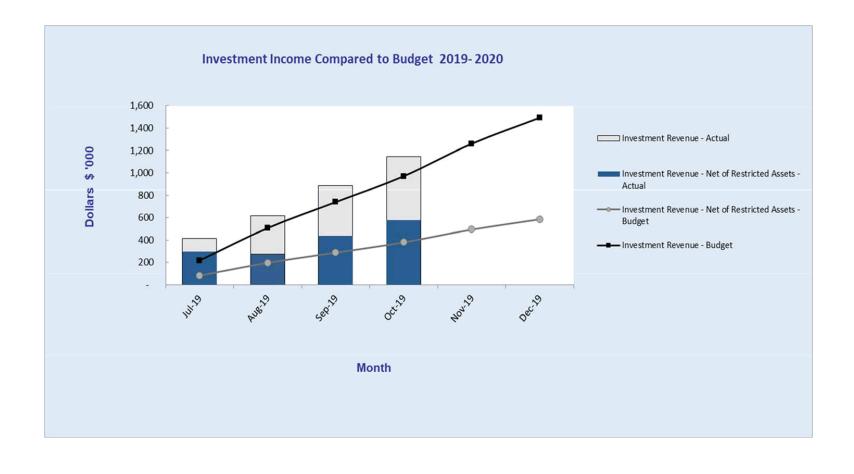
Brian Jenkins

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.

^{**} Southern Phone Company ordinary and preference shares are valued annually.







File: IW-911.01.193 Doc: IC19/725
CITY OF WOLLONGONG TRAFFIC COMMITTEE MINUTES OF ELECTRONIC MEETING

HELD 13 NOVEMBER 2019

The City of Wollongong Traffic Committee Electronic Meeting was held on 13 November 2019. Items listed in Section 2 are to be adopted by Council through delegated authority. The items listed in Section 3 must be determined by Council and 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 the powers delegated to Council, the Minutes and Recommendations of the City of Wollongong Traffic Committee Electronic Meeting held on 13 November 2019 in relation to Regulation of Traffic be adopted.

REPORT AUTHORISATIONS

Report of: Mike Dowd, Manager Infrastructure Strategy + Planning

Authorised by: Andrew Carfield, Director Infrastructure + Works - Connectivity Assets + Liveable City

ATTACHMENTS

- 1 Standard Conditions for Road Closures
- 2 Standard Conditions for Street Parties
- 3 Central Road Unanderra, Level Crossing Road Closure

BACKGROUND

1 BULLI – Ward 1 (Item 3.1 Wollongong Traffic Committee Minutes of Meeting)

Callows Road, Road Closure

Background

Council has received a request from a resident for a Street Christmas Party on Callows Road Bulli between Cradle Drive and Wallbank Way. The closure is to take place from 3 pm to 8 pm on Saturday 21 December 2019.

The applicant has also provided evidence from adjoining residents that there is no objection to the road closure taking place for this event.

Consultation

Consultation with the community is required as a condition of approval for this road closure.

PROPOSAL SUPPORTED UNANIMOUSLY

The proposed road closure be approved subject to Council's Standard Conditions for Street Parties attached.

2 CORRIMAL – Ward 1 (Item 3.2 Wollongong Traffic Committee Minutes of Meeting)

Angel Street, Road Closure

Background

Council has received a request from a resident for a Street Christmas Party on Angel Street Corrimal between Yuill Avenue and St Andrews Place. The closure is to take place from 3 pm to 7 pm on Sunday 15 December 2019, and as there is a simple detour around the closure via Tarrawanna Road, the effect on the road network will be minimal.

The applicant has also provided evidence from adjoining residents that there is no objection to the road closure taking place for this event.



Consultation

Consultation with the community is required as a condition of approval for this road closure.

PROPOSAL SUPPORTED UNANIMOUSLY

The proposed road closure be approved subject to Council's Standard Conditions for Street Parties attached.

3 HAYWARDS BAY – Ward 3 (Item 3.3 Wollongong Traffic Committee Minutes of Meeting)

Eastpoint Avenue, Haywards Bay

Background

Council has received a request from a resident for a Street Christmas Party on Eastpoint Avenue Haywards Bay to be held on Saturday 28 December 2019 from 2 pm to 7 pm. The closure will affect the full length of Eastpoint Avenue.

The applicant has also provided evidence from adjoining residents that there is no objection to the road closure taking place for this event.

Consultation

Consultation with the community is required as a condition of approval for this road closure.

PROPOSAL SUPPORTED UNANIMOUSLY

The proposed road closure be approved subject to Council's Standard Conditions for Street Parties attached.

4 UNANDERRA – Ward 3 (Item 3.4 Wollongong Traffic Committee Minutes of Meeting)

Central Road, Level Crossing Closure

Background

The company which manages the railway line between Unanderra and the Dendrobium Mine at Mount Kembla has requested a weekend road closure of the level crossing to allow important construction work to be undertaken. The road closure is to take effect from 6 am on Saturday 18 January 2020 until 6 am Monday 20 January 2020. Council officers and the Railway Manager have previously agreed that the work be undertaken in school holidays and preferably over the weekend so that the impact on the road network will be minimized.

There is a detour available via Derribong Drive, Booreea Boulevarde and Cordeaux Road. Sufficient notice is available for the bus routes to be rescheduled during this weekend.

Consultation

Consultation is required as a condition of approval for this road closure.

PROPOSAL SUPPORTED UNANIMOUSLY

The proposed road closure from 6 am Saturday 18 January 2020 to 6 am Monday 20 January 2020 be approved subject to the submitted Traffic Management Plan CJS0727 and Council's Standard Conditions for Road Closures.

5 KEMBLA GRANGE – Ward 3 (Item 3.5 Wollongong Traffic Committee Minutes of Meeting)

Darkes Road, Road Closure Extension

Background

The subdivision company involved with the Sanctuary Views project at Kembla Grange has previously been given approval to close Darkes Road until mid-December 2019, between West Dapto Road and Council's Integral Energy Park. It is understood some of the work associated with new services to the



subdivision project have delayed the main drainage works. The subdivision manager has requested an extension to Darkes Road closure until 28 February 2020. In the event the work can be completed sooner, Darkes Road will be opened once construction work has been completed in the road reserve.

The traffic management plans for the work have not changed and therefore a new submission of plans was not required.

Consultation

Consultation is required as a condition of approval for this road closure.

PROPOSAL SUPPORTED UNANIMOUSLY

An extension from 16 December 2019 until 28 February 2020 to the existing road closure for Darkes Road Kembla Grange be approved subject to the previously approved Traffic Management Plans and Council's Standard Conditions for Road Closures.

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 core business activities as detailed in the Service Plan 2019-20.



Attachment 1 - Standard Conditions for Road Closures

Standard Conditions for Road Closures

For Special Events and Work Related activities Within Council Road Reserves.

Following approval by Wollongong City Council, road closures are subject to the additional Council conditions:

- The Applicant must complete the Council form 'Application to Open and Occupy or Underbore a Roadway or Footpath' (Refer to Checklist below – relates to Section 138 of the Roads Act.)
- NSW Police Approval: The Applicant must obtain written approval from NSW Police, where required under the Roads Act.
- If the Road Closure is within 100m of any traffic control signals or on a 'State Classified Road' the Applicant must obtain a Road Occupancy Licence (ROL) from NSW Roads & Maritime Services (RMS).
- 4. The Applicant must advise all affected residents and business owners within the closure area of the date/s and times for the closure, at least 7 days prior to the intended date of works.
- 5. The Applicant must advise Emergency Services: Ambulance, Fire Brigade and Police, Taxi and Bus Companies of the closure dates and times in writing, 7 days prior to the intended date of works. The Applicant must endeavour to minimise the impact on bus services during the closure.
- Traffic Management Plan: The closure must be set up in accordance with the approved Traffic Management Plan (TMP) prepared by an appropriately qualified traffic controller; a copy of whose qualifications must be included with the submitted TMP.
- Traffic Management Plan Setup: The Traffic Management Plan must be set up by appropriately qualified traffic control persons or the NSW Police.
- Access to properties affected by the road closure must be maintained where possible. Where
 direct access cannot be achieved, an alternative arrangement must be agreed to by both the
 applicant and the affected person/s.
- Public Notice Advertisement: The Applicant must advertise the road closure in the Public Notices section of the local paper, detailing closure date/s and times at least 7 days prior to the closure.
- 10. Public Liability Policy: The Applicant must provide Council with a copy of their current insurance policy to a value of no less than \$20 million dollars to cover Wollongong City Council from any claims arising from the closure.

Checklist:

Completed Council Form: 'Application to Open and Occupy or Underbore a Roadway or Footpath'.

Required information as shown below MUST be attached:

- $\ensuremath{\square}$ A copy of the letter from the Traffic Committee authorising the closure
- $\ oxdot$ The Traffic Management Plan (TMP)
- ☑ The Road Occupancy Licence (ROL) if required
- ☑ Written approval from NSW Police
- ☑ Public Liability Insurance

Applications may be lodged in the Customer Service Centre located on the Ground Floor of Council's Administration Building, 41 Burelli Street Wollongong between 8.30am and 5pm Monday to Friday.



Attachment 2 - Standard Conditions for Street Parties

Standard Conditions for Street Parties

- 1 Each road affected by the closure approval shall be restored to full and uninterrupted traffic flow prior to the end of the closure.
- The road shall be cleared sufficiently to allow an emergency vehicle access to a property within the closure area. For this reason, no barbeques, heavy tables or other heavy equipment is to be set up on the road pavement.
- 3 You are required to advertise the road closure in the local newspaper

(eg) Temporary Road Closure - Owen Street, Bulli

Date: 6 December 2014 Time: 2 pm – 7 pm Event: Street Party

- 4 Council will notify emergency services and the Police Service.
- 5 NSW Police Service directions are to be strictly adhered to.
- See attached typical road closure set up for a street party note that vehicles will be required to be parked across the roadway at each closure point.

Council will endeavour to make available to you the following equipment

Regular Street Equipment Requirements	Cul - De - Sac Street Equipment Requirements
6 Barrier legs	3 Barrier legs
12 Road Barriers	6 Road Barriers
2 Road Closed Signs	1 Road Closed Signs
4 Flashing Lights	2 Flashing Lights

It should be noted that Council does not supply 9 volt batteries for flashing lights, but these can be obtained at a modest cost from hardware stores. The flashing lights must be fixed to the barriers and operating prior to sunset.

It is your responsibility to collect this equipment from Council's Works Depot Store, Montague Street, North Wollongong, prior to 2.00 pm on the last working day prior to your proposed road closure, and return same on the next working day following the closure. Please ensure you sign a receipt when collecting and returning this equipment.

Equipment, which is returned damaged beyond use or not returned at all, will be replaced at your cost.

A sufficient number of people (at least 2), together with a vehicle suitable for the purpose of transporting the relevant equipment, are to be provided by the organisers for the loading and unloading of this equipment at the Depot.

- 7 You are requested to contact Lee Cramer, Council's Events and Functions Coordinator on 42 277104 two weeks prior to pick-up to ensure availability of the equipment.
- If Council's Store does not have sufficient equipment to lend, you are to obtain equipment from another source (e.g. hire firm) at your expense.

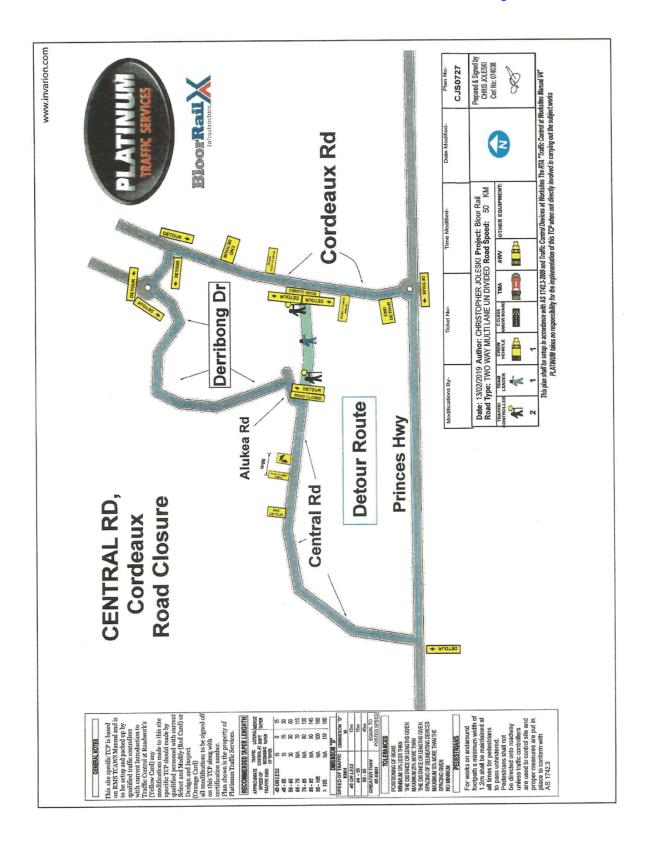


TYPICAL ROAD CLOSURE SET UP FOR STREET PARTIES One or more vehicles should be parked across the roadway at each closure point. The maximum gaps between vehicles to be 1.2 m TYPICAL BARRIER BOARD

Attachment 2 - Standard Conditions for Street Parties



Attachment 3 - Plan 1 CJS0727 - Central Road Unanderra, Level Crossing Road Closure





File: GCS-80.06.02.01.022 Doc: IC19/394

ITEM 23

BI-MONTHLY RETURNS OF DISCLOSURES OF PECUNIARY INTERESTS AND OTHER MATTERS - DECEMBER 2019

The Model Code of Conduct requires the General Manager to table all Returns of Disclosures of Interest lodged by persons nominated as designated persons. Returns are submitted to Council on a bi-monthly basis.

RECOMMENDATION

Council note the tabling of the Returns of Disclosures of Interest as required by Part 4 of the Model Code of Conduct.

REPORT AUTHORISATIONS

Report of: Todd Hopwood, Manager Governance and Customer Service

Authorised by: Renee Campbell, Director Corporate Services - Connected + Engaged City

ATTACHMENTS

1 Returns of Disclosures of Interests (to be tabled)

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.



File: FI-230.01.540 Doc: IC19/745

ITEM 24 TENDER

TENDER T19/25 AFFORDABLE HOUSING PROGRAM

This report recommends acceptance of a tender for provision of affordable housing services in accordance with the Council resolution of 10 December 2018, Minute 178. A total of nine tenders were received with four tenders shortlisted for stage 2. This report recommends Council accept the tender submitted by Illawarra Community Housing Trust Ltd trading as Housing Trust (Housing Trust).

RECOMMENDATION

- 1 This item be considered in Closed Session under Section 10A 2(d(iii)) of the Local Government Act 1993 as the report contains commercial information of a confidential nature that would, if disclosed, reveal a trade secret.
- 2 On balance, the public interest in preserving the confidentiality of the information supplied outweighs the public interest in openness and transparency in Council decision-making by discussing the matter in open meeting.
- In accordance with clause 178(1)(a) of the Local Government (General) Regulation 2005, Council accept in principle the tender of the Illawarra Community Housing Trust Ltd trading as Housing Trust for the delivery of affordable housing, in the sum of \$4,340,000 excluding GST.
- 4 The General Manager be delegated the power to finalise contract terms with the Illawarra Community Housing Trust Ltd, being terms that are consistent with the items identified in the invitation to tender.
- 5 Council be provided with a further report on completion of the contract finalisation process for Council's consideration prior to execution of any contract.

REPORT AUTHORISATIONS

Report of: Sue Savage, Director Community Services - Creative + Innovative City (Acting)

Authorised by: Greg Doyle, General Manager

ATTACHMENTS

There are no attachments for this report

BACKGROUND

In 2013, Council established the West Dapto Home Deposit Scheme to assist persons into home ownership through Council funding part of the deposit, under a Commonwealth grant through the 'Building Better Regional Cities' program. The scheme was not as successful as hoped, due to rapidly rising land prices in relation to statutory personal income limits specified by the grant. In October 2017, Council entered into a memorandum of understanding with the Federal Government to allow the reallocation of the balance of the funds, currently \$10.4M, to assist with the improvement of affordable housing in the region.

Following a review of options as to how the funds should be used, Council's resolution of 10 December 2018 (Minute 178) outlined a range of options including that the balance of the Commonwealth grant be committed to two delivery areas, of equal sums being: 3a an expression of interest process whereby not-for-profit organisations are requested to provide affordable housing schemes for consideration of funding and, 3b an affordable home-ownership scheme for low to moderate income earners. This report outlines outcomes for the tender process for part 3a. The parameters around delivery of part 3a included:

• Delivery areas in 3a (and 3b) be limited to schemes delivering homes in the Wollongong Local Government Area (LGA).



- That schemes exhibiting innovation and new ways of delivering services are encouraged.
- That schemes targeting, but not limited to single women aged over 50 are encouraged.
- That schemes constructed so as to return an income stream such that they can be continued or expanded beyond the initial funding, are encouraged.

Expressions of interest for the tender were invited by an open expression of interest method on 23 July 2019.

Expressions of interest were judged on the following criteria:

Mandatory Criteria - must be addressed for a submission to be considered

- Registration as a not-for-profit Community Housing Provider with the National Regulatory System Community Housing [NRSCH].
- Demonstrated experience in the delivery of affordable housing products and services.
- Must be delivered in the Wollongong LGA.

Accessible criteria and weighting

- Identify new affordable housing options to very low to moderate income earners in the Wollongong LGA, including, but not limited to, single women aged over 50. The options must specify proposed location, target group and delivery model (20%).
- Demonstrate the extent to which the proposal exhibits innovation and new ways of delivering services to very low to moderate income earners seeking affordable housing (20%).
- Outline how any funding provided by Council will be leveraged/supplemented to enhance the affordable housing outcome (10%).
- Demonstrate how the proposal meets the needs of the target group (5%).
- Outline any opportunity for the proposal to return an income stream such that the scheme can be continued or expanded beyond the initial funding (10%).
- Provide a detailed estimate including timeline for the proposal (10%).
- Demonstrated capacity to maintain the financial viability of the proposal and outline this in a business plan (10%).
- Demonstrated appropriate governance structures in place to ensure project delivery (10%).
- Demonstrated strengthening of local economic capacity (5%).

Expressions of interests were scrutinised and assessed by a Tender Assessment Panel constituted in accordance with Council's Procurement Policies and Procedures and comprising representatives of the Governance and Information, Community Cultural and Economic Development, Development Assessment and Compliance and Property and Recreation Divisions.

From this process, four expressions of interest were deemed appropriate for the requirements of Council and were subsequently invited to make a presentation to Councillors (30 September 2019) and to provide a final submission by close of tenders 10am, Tuesday, 29 October 2019.

Four tenders were received by the final close of tenders and all tenders have been scrutinised and assessed by a Tender Assessment Panel.

The Tender Assessment Panel assessed all tenders in accordance with the assessment criteria (above) as set out in the formal tender documents.

The Tender Assessment Panel utilised a weighted scoring method for the assessment of tenders which allocates a numerical score out of five 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



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.

The following table summarises the results of the tender assessment and the ranking of tenders.

Tenderer	Rank of Tender
Housing Trust (1 Combined)	1
Housing Trust (2 Bellambi)	2
Housing Trust (3 Unanderra)	3
IRT Foundation trading as Illawarra Retirement Trust	4

PROPOSAL

It is proposed that Council award the Housing Trust to deliver the Affordable Housing Project 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.

CONSULTATION AND COMMUNICATION

Public information session 8 August 2019

Presentation to Councillors of shortlisted applicants 30 September 2019

Members of the Tender Assessment Panel

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 goal 'We are a healthy community in a liveable city. It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2018-2021	Operational Plan 2019-20
Strategy	3 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)

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.

FINANCIAL IMPLICATIONS

It is proposed that the program be delivered from the identified budget previously known as West Dapto Home Deposit Scheme.

CONCLUSION

Council endorses the recommendations of this report.



File: IW-075.150.04.011 Doc: IC19/743

ITEM 3 EMISSIONS REDUCTION TARGET - GLOBAL COVENANT OF MAYORS

Wollongong City Council is one of 26 Councils in Australia to commit to greenhouse gas reduction through the Global Covenant of Mayors for Climate and Energy (GCoM). Under the GCoM initiative Council is required to adopt a science-derived emissions reduction target on behalf of the City of Wollongong.

At its meeting on 23 September 2019, Council considered a report on a proposed target of *net zero emissions by 2050*. Council resolved to defer a decision on the target until after a period of public consultation.

Engagement with the community, businesses and industry was undertaken between 14 October and 8 November 2019. In response, a total of 18 written submissions and 426 online comments were received. Feedback supported the *net zero emissions by 2050* target, however a significant proportion of respondents have urged Council to set a more ambitious target to achieve net zero emissions sooner.

This report proposes that Council adopt an emissions reduction target for the City of Wollongong of *zero emissions by 2050*, consistent with a significant number of other councils, government agencies and corporations across Australia and the world.

In addition, it is proposed a more ambitious "aspirational" emissions reduction target be adopted for Council operations of *net zero emissions by 2030*. This organisational target will demonstrate leadership and support Council's recent recognition that we are in a State of Climate Emergency that requires urgent action by all levels of government. Working towards an aspirational 2030 target would requirement a whole of Council commitment in potential offset costs depending on the success of Council initiatives.

Following adoption of a target and under the auspice of the GCoM framework, Council is required to develop an action plan to reduce emissions through an investigation and consultation process. The action plan will include a range of actions to reduce Council and the City's emissions. To assist Council through this process and meeting its commitments under the GCoM it is further proposed to join the Cities Power Partnership Program.

RECOMMENDATION

- A science-derived greenhouse gas emissions reduction target of *net zero emissions by 2050* for the City of Wollongong be submitted to the Global Covenant of Mayors secretariat. Noting that Council is submitting this target on behalf of the community, for the benefit of the entire community and that Council is not solely responsible for the implementation of actions to achieve this target.
- 2 That Council work towards an aspirational greenhouse gas emissions reduction target of *net zero emissions by 2030* for organisational operations and that this commitment be reviewed in five (5) years to enable consideration of progress towards the target.
- 3 That Council develop a Climate Change Mitigation Action Plan in collaboration with key stakeholders to assist all sectors of the community achieve the emissions reduction target for the Wollongong local government area.
- 4 That Council join the Cities Power Partnership Program.

REPORT AUTHORISATIONS

Report of: Chris Stewart, Manager City Strategy

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

ATTACHMENTS

- 1 City of Wollongong Science Derived Targets for Greenhouse Gas Emmissions Report
- 2 Emissions Reduction Target Engagement Report
- 3 Australian Global Covenant of Mayors Councils Targets



BACKGROUND

In August 2017 Council became a signatory to the GCoM initiative. The GCoM is an international alliance of cities and local governments with a shared long-term vision of promoting and supporting voluntary action to combat climate change and move to a low emission, resilient society.

The GCoM commits Council to respond to the risks and opportunities presented by climate change. The science-derived emissions reduction target must be calculated according to specific protocols derived from the Intergovernmental Panel for Climate Change by an accredited consultant. Wollongong Council's Science-Derived Target for Greenhouse Gas Emissions Report has been completed (Attachment 1).

At its meeting on 23 September 2019, Council considered a report on a proposed emissions reduction target of *net zero emissions by 2050*. Council resolved:

This Item be deferred until after a period of public consultation on the attached reports.

This report presents the outcomes of this consultation and recommends a science-derived greenhouse gas emissions reduction target for consideration by Council.

PROPOSAL

Emissions Reduction Target for the City of Wollongong

As a result of the community consultation work it is proposed that a target of net zero emission by 2050 be set for the community of Wollongong. The proposed target will -

- Incorporate an initial reduction target to extend the carbon budget to 2050
- Beyond 2050 the target will be adjusted to net zero emissions.

The initial reduction target equates to a linear reduction of approximately 2.7% or 74,251 tonnes per year. By 2050 a net zero community emissions target is proposed on behalf of and for the benefit of the Wollongong community. The proposed emissions reduction target is expressed in Table 1 below -

Table 1 – Wollongong's carbon budget and proposed community emissions reduction target

Carbon Budget (t CO ₂ -e)	49,200,000	
Pre 2050 target		
Rate of reduction (pa)	2.7%	
Annual reduction (t CO ₂ -e)	74,251	
Post 2050 target		
Annual reduction (t CO ₂ -e)	Net zero emissions	

The proposed target is consistent with all Australian state government targets (with the exception of Western Australia and the Northern Territory). It is also consistent with a growing number of other councils and cities across the world including the City of Sydney and City of Adelaide. A list of the emission targets proposed by other Australian GCoM Councils is provided as Attachment 3.

Under the GCoM framework Council will re-inventory its emissions every two years, this will also provide Council with the opportunity to review and update its target in response to progress and emerging technology.

In order to leverage actions, which yield the highest emission reductions, Council will need to work in partnership with major industry, business and the community. In this regard Council is likely to be responsible for actions associated with advocacy, stewardship, education and engagement for emissions reduction for these sectors, such as supporting the establishment of neighbourhood collaboratives.



Emissions Reduction Target for Council Operations

A significant proportion of community submissions advocated for Council to set a more aggressive emissions reduction target either for the City or Council operations. The percentage breakdown of Council emissions is depicted in Figure 1.

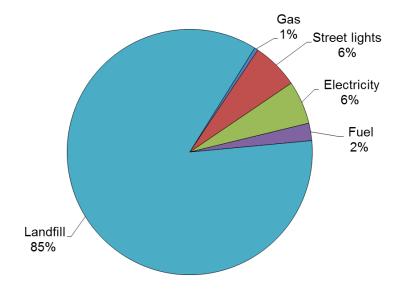


Figure 1 - Percentage breakdown of Council's operational emissions by source

A range of activities are proposed or have the potential to be pursued by Council over the next ten years to reduce its operational emissions, including landfill gas capture, FOGO and conversion to LED street lights. The forecast emissions reductions envisaged by these actions are presented in Table 2.

Table 2 - Forecast emissions reductions for planned and proposed activities.

Planned/proposed activity	Projected Emissions reduction (t CO2-e)	Percentage reduction of Council emissions	Project residual emissions (t CO2-e)
Renewable Energy Facility (1MW power station) Whytes Gully	47,000	32%	
FOGO collection across the City	17,000	12%	
LED street lighting initial roll out	1,488	1%	
Total Planned	65,488	45%	~81,000
Additional 1MW power unit for Whytes Gully	47,000	32%	
Additional LED lighting (planned when technology is available)	4,500	3%	
Purchase of renewable energy (based on residual electricity need if all above are implemented)	17,181w	8%	
Alternate Fuel Vehicles (eg EVs)	Difficult to quantify at this stage		
Increased Solar PV on buildings	Difficult to quantify at this stage		
Total for planned and potential actions	134,169	88%	~18,000
Planned Propos	ed by Council staff	Potential Expansion	n Ontions

Planned Proposed by Council staff

Potential Expansion Options



Based on these projections Council will achieve a 45% emissions reduction over the next ten years, through the implementation of planned activities. This does not factor in the possibility of a second 1MW renewable energy unit at Whytes Gully, replacement of high wattage street lighting, increased solar panels on Council buildings, alternate fuel vehicles in Council's passenger and heavy vehicle fleet and other technological evolution. When these proposed activities and the potential for purchase of a renewable energy (through a mechanism such as a Power Purchase Agreement) are considered Council is project to achieve an 88% reduction in its emissions profile.

Despite Council's commitment and future efforts in emissions reduction for its operations, technology does not currently exist to eliminate all emissions from Council operations, for example there will be residual emissions from landfill. Therefore, in order to achieve net zero emissions Council may wish to invest in carbon offsets. Australian offset schemes currently offer offsets for ~\$3.75 per t CO2-e. The projected residual emissions following implementation of planned activities and planned plus proposed activities are shown in Table 2 above. The cost to offset these residual emissions, based on the current minimum market rate for offset activities in Australia, would be around \$300,000.00 p.a and \$66,000 p.a respectively. It should be noted that Council is not obligated to undertake offsetting. Council may also consider other net positive initiatives to offset residual emissions as they emerge and are validated.

It is recommended that Council work towards an aspirational emissions reduction target for Council operations of *net zero emissions by 2030* to demonstrate leadership and support Council's recent declaration of a State of Climate Emergency. Progress towards this target would be monitored and continuing commitment to the 2030 target could be reviewed in five (5) years.

Climate Change Mitigation Plan and Cities Power Partnership Program

Following adoption of a target and under the auspice of the GCoM framework, Council is required to develop an action plan to reduce emissions through an investigation and consultation process. The action plan will include a range of initiatives to reduce Council's and the City's emissions. To assist Council through this process and in meeting its commitments under the GCoM it is further proposed to join the Cities Power Partnership (CPP) Program.

CPP is administrated by the Climate Council, a climate change communications organisation. It is a network of local government organisations working together to transition to a clean energy future. Participating councils who join the partnership have six months to select five key actions from 39 potential partnership pledges focused around renewable energy, efficiency, transport and advocacy. Many of the pledges involve actions that Council is already committed to progressing such as adopting an emissions reduction target.

The benefits and opportunities offered through the program include -

- Collaboration, knowledge and experience sharing with other councils
- Access to information and international experts in clean energy
- Access to funding, grants and incentives
- Promotion of Council's activities and achievements through media, awards ceremonies and community events
- Access to tailored monitoring tools.

There is nil cost to join CPP and currently 115 councils across Australia are a part of the program including Shellharbour, Shoalhaven, Kiama and Wingecarribee Councils. CPP membership will enable us to work with our fellow ISJO councils on partnership projects for example, a power purchase agreement under the same auspicing program and potentially access to funding for these initiatives.

CONSULTATION AND COMMUNICATION

The methodology, activities and outcomes of the public consultation are represented in the Emissions Reduction Target - Engagement Report (Attachment 2). Direct contact was made with the Illawarra



Business Chamber, i3net and BlueScope Steel, however no formal submissions were received. Council also specifically wrote to 151 organisations, groups and individuals.

In total 444 submissions were received, comprising of 18 written and 426 online submissions. Feedback overwhelmingly supported the *net zero emissions by 2050* target. Only three comments were received objecting to a target.

There was a significant proportion of comments (75%) urging Council to set a more aggressive target of *net zero emissions by 2030* for emissions from the Community and Council operations to support its declaration of a State of Climate Emergency. While an aspirational 2030 target is recommended for Council operations in response to submissions, a Community target of 2050 is considered to be appropriate as it is more realistic and consistent with the targets set by other jurisdictions.

A submission was received from the University of Wollongong, who have offered assistance to Council in achieving the target through the Sustainable Buildings Research Centre and the Smart Infrastructure Facility. South 32 Colliery advised that they are committed to their Climate Strategy, which sets a target of *net zero emissions by 2050*. Healthy Cities Illawarra and the Wilderness Society have urged Council to set a more aggressive target, such as 2030 or 2040 as supported by the latest scientific data.

Feedback was also sought on suggested actions to reduce emissions within the City. An online ideas board was used to enable community members to post ideas for actions to reduce emissions, comment on and vote for other's suggestions.

A large number of ideas for actions to reduce emissions were provided, including renewable energy sources for Council operations, businesses and the community, sustainable transport options, waste and FOGO, trees and Council demonstrating leadership in relation to climate change. These thoughts and suggestions will be used to inform the development of the Climate Change Mitigation Plan and Adaptation Plan.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2028 Goal 1 – 'We value and protect our natural environment', Goal 2 – 'We have an innovative and sustainable economy', Goal 6 – 'We have sustainable, affordable and accessible transport'. It specifically delivers on the following objectives -

- Objective 1.1 Our natural environment, waterways and terrestrial areas are protected, managed and improved
- Objective 1.2 We practice sustainable living and reduce our ecological footprint
- Objective 1.5 Set targets and reduce our greenhouse gas emissions through our participation in the Global Covenant of Mayors for Climate and Energy.
- Objective 2.2 The regions industry base is diversified

It specifically delivers on the following Strategies and Actions –



Community Strategic Plan	Delivery Program 2018-2021	Operational Plan 2019/20 Operational Plan Actions	
Strategy	5 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	1.2.1.1.1 Coordinate community environmental programs including: Rise and Shine, Clean Up Australia Day, World Environment Day, National Recycling Week, International Composting Week and other waste education activities	
	1.2.1.3 Methods to reduce emissions are investigated and utilised	 1.2.1.3.3 Monitor and report on organisational water, energy and greenhouse gas emissions trends 1.2.1.3.4 Implement and review annual water and energy saving actions 	

Community Strategic Plan	Delivery Program 2018-2021	Operational Plan 2019/20	
Strategy	5 Year Action	Operational Plan Actions	
1.2.2 Government and community work together to mitigate 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	1.2.2.1.3 Develop a project and work with partners to further explore the United Nations Sustainable Development Goals and how they align to the community's goals with funding to be considered through the business proposal process	
		1.2.2.1.4 Implement resourced priority actions from the Environmental Sustainability Strategy 2014-22	
		1.2.2.1.5 Review the Environmental Sustainability Strategy	
1.5.1 Participate in the Global Covenant of Mayors and set	1.5.1.1 Set an emissions reduction target and	1.5.1.1.1 Complete a Climate Change Vulnerability assessment	
emissions reduction targets for the City	carry out actions to reduce greenhouse gas emissions through the Global Covenant of Mayors	1.5.1.1.2 Set an emissions reduction target that is in alignment with the Global Covenant of Mayors compliance requirements	
		1.5.1.1.3 Develop a Climate Change Adaptation Action Plan and an Emissions Reduction Action 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	2.2.1.1.1 Seek out opportunities to incorporate green technologies in Council's projects and contracts	

Reducing greenhouse emissions is also a priority in the Environmental Sustainability Strategy 2014-2022 -

- Focus Area 2 Reducing our ecological footprint Reducing emissions from Council operations
- Focus Area 5 Demonstrating Sustainable Leadership and Governance Complying with Global Covenant of Mayors requirements, which includes setting emissions reduction targets and developing an action plan to achieve the target.



The adoption of an emissions reduction target will support the achievement of the following United Nations Sustainable Development Goals -



Ecological Sustainability

Compliance with the GCoM requirements will mean that Wollongong is contributing to avert the impacts of climate change. These impacts will significantly affect vulnerable communities, infrastructure and asset viability and management, biodiversity and water availability. Setting an emissions reduction target for Wollongong will support Council's August 2019 Climate Emergency Declaration.

RISK ASSESSMENT

There will be significant environmental and social risks associated with not addressing climate change. Council is the owner of significant assets including roads, bridges, coastal infrastructure, buildings and facilities that will be affected by the impacts of climate change.

There is a reputational risk if Council does not adopt an emissions reduction target following the recent Climate Emergency declaration. Council will also be non-compliant with the GCoM requirements and will need to reconsider its commitment to the GCoM.

FINANCIAL IMPLICATIONS

Whilst there is nil cost associated with adopting an emissions reduction target, the cost of implementing actions to reduce emissions is yet to be determined. Council is only directly responsible for 5% of community emissions and therefore the role of Council in achieving a target for the City is mainly one of advocacy, stewardship, education and engagement. Efforts to secure grant funding will be a focus of Council staff in collaboration with ISJO councils, particularly through the CPP Program, should Council become a member.

Funds will be required to deliver on actions associated with emissions reductions for Council operations regardless of whether Council adopts an emissions reduction target specific to its operations or chooses to just be a part of the City-wide target. A range of emissions actions have already been identified for implementation through the current Delivery Program, such as gasfire capture at Whytes Gully landfill. These actions are likely to result in cost savings to the organisation associated with reduced energy consumption and associated costs and there is the opportunity to reinvest these savings into further emission reduction actions.

CONCLUSION

Adoption of a science-derived greenhouse gas emissions reduction target on behalf of the City of Wollongong is a requirement for the GCoM. Public consultation has been undertaken seeking feedback on a proposed emissions reduction target of *net zero emissions by 2050*. As a result of the consultation

444 submissions were received communicating overwhelming support for the target in addition to urging Council to consider setting a more aggressive target.

Based on the Paris Accord and GCoM protocols it is proposed that Council, on behalf of and for the benefit of the Wollongong community, set an emissions reduction target of net zero emissions by 2050. Noting that achieving the target is not the sole responsibly of Council. It is further proposed to set an emissions reduction target of net zero emissions by 2030 for Council operations. The adoption of the proposed targets will demonstrate leadership and support Council's recent declaration of a State of Climate Emergency.

Should Council resolve to adopt a target, Council staff will proceed to action the subsequent commitments associated with the GCoM, which includes the development of a Climate Change Mitigation Plan in consultation with key stakeholders. In this regard it is recommended that Council join the Cities Power Partnership Program to assist Council and the City in achieving the emissions reduction targets.





City of Wollongong Science-Derived Targets for Greenhouse Gas Emissions





Prepared for

Wollongong City Council

Version	Author	Date	Description of changes
V0a	Hannah Snape	20/05/2019	First draft
V0b	Alexi Lynch	25/05/2019	Review
V1a	Hannah Snape	31/05/2019	Final report for Council
V1b	Hannah Snape	30/09/2019	Revised report for Council

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About Ironbark Sustainability

Ironbark Sustainability is a specialist consultancy that works with government and business around Australia by assisting them to reduce energy and water usage through sustainable asset and data management and on-the-ground implementation.

Ironbark has been operating since 2005 and brings together a wealth of technical and financial analysis, maintenance and implementation experience in the areas of building energy and water efficiency, public lighting and data management. We pride ourselves on supporting our clients to achieve real action regarding the sustainable management of their operations.

Our Mission

The Ironbark mission is to achieve real action on sustainability for councils and their communities.



Ironbark are a certified B Corporation. We have been independently assessed as meeting the highest standards of verified social and environmental performance, public transparency, and legal accountability to balance profit and purpose.

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Background 1.

At the United Nations Framework Convention for Climate Change (UNFCCC) Paris Conference in 2015, the Australian Government signed an international agreement between 195 countries to keep any temperature rise "well below 2°C", and to drive efforts to keep warming below 1.5°C higher than pre-industrial levels. This Paris Agreement, entered into force on 4 November 2016, explicitly recognises and engages local and subnational governments and their critical role in supporting the transformation, including setting goals and strategies aligned with the science.

Climate science tells us that warming beyond 1.5°C threshold is likely to have increasingly severe social, economic and environmental impacts, especially on a water scarce continent like Australia. As of October 2018, the IPCC announced that there were no longer any scenarios for remaining within this temperature increase-range without the use of carbon removal technologies.

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In becoming a signatory to the Paris Agreement, Australia now has a limited, established carbon budget within which to operate in order to meet its commitment. The development of science-derived targets for councils enables us to understand the scale of action that is required at a municipal level to stay within this budget.

An emissions reduction target for an organisation, entity or community is considered "sciencederived" or "science-based" when it is aligned with the broader emissions reduction required to keep global temperature increase below 2°C compared to preindustrial temperatures, as described in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).

1.1 Role of Targets

In considering science-derived targets for reducing greenhouse gas (GHG) emissions at the community level, it is useful to explore their role and application. In application with carbon mitigation strategies, there are three key types of target:

Aspirational - a 'call to action'

The Aspirational Target is set according to political or other considerations and will typically involve something memorable or easy to communicate. It may not consider if this target is necessary, or what is needed to achieve the target. The primary motivation for this target is to establish a common rallying point and encourage all stakeholders to get motivated. An example of this type of target is, "We will achieve 20% carbon emissions reduction by 2020"

Top down - what needs to be achieved (Science-Derived Targets)

The Science-Derived Target is determined from an external requirement (in this instance, the recommendations of the IPCC to avoid catastrophic climate change). It may be better thought of as a limit, rather than a target. It is independent of political or other considerations and does not consider how difficult (or otherwise) the target will be to achieve. The primary motivation





for this target is to avoid some negative outcome. An example of this type of target from other fields is, "Do not descend below 8,000m otherwise the submarine will implode".

3. Bottom up - what we can achieve (Action-plan Based)

The *Action-plan Based Target* is one that is constructed from what can be achieved from the actions being considered in a council's action plan. It can be ambitious; however, its scope is directly derived from planned actions. An example of this type of target is, "Our factory will produce 10,000 widgets this quarter".





2. Methodology

2.1 Global Carbon Budget

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The IPCC, the leading authority on current climate change scientific knowledge, has developed long-term emission scenarios which show a range of potential emissions trajectories and impacts based on highly detailed and rigorous modelling. These scenarios indicate the maximum total emissions allowable to limit the increase in global average temperatures to 2°C, which is considered the threshold for avoiding dangerous climate change. The IPCC reports that for climate stabilisation to occur (2°C), industrialised countries need to reduce their greenhouse gas emissions by approximately 85% by 2050.

Based on the above, the world's "carbon budget" is the total volume of greenhouse gases that can be emitted while providing a degree of confidence that temperature rise will be limited to a relatively safe and manageable 2°C. The accepted global carbon budget established by the IPCC is 1,701 Gt CO₂-e for the period 2000-2050.

2.2 National Carbon Budget

There is no international agreement on the division of the global carbon budget between countries. In apportioning a national carbon budget, there are a number of approaches. The Australian Climate Change Authority (CCA) has used an approach that they consider fair and equitable. This approach ensures that:

- developing countries are initially allowed an increased per-capita carbon budget to allow for additional emissions whilst they grow their economy; and,
- high per-capita emitters (such as Australia) are allowed time to adjust to their reduced carbon budget, rather than setting them up to fail with an allowance that is considerably lower than their current emissions.

Based on this methodology, CCA recommended a national carbon budget of $10.1~Gt~CO_2$ -e for the period 2013-2050. As at September 2018, 7.26 Gt CO₂-e of this budget remains.

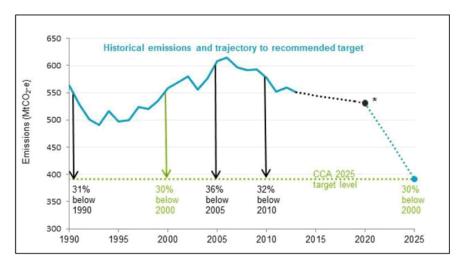


Australia's current targets for reducing greenhouse gas emissions are 26-28% reductions on 2005 levels by 2030. In its 2015 reports to the Minister for the Environment on Australia's future greenhouse gas emissions reduction targets, the CCA recommends Australia commit to the following science-based targets:

- a 2025 target of 30% below 2000 levels; and
- further reductions by 2030 of between 40 and 60% below 2000 levels.







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Figure 1: Historical emissions and trajectory to recommended target

Source: CCA 2015, Final Report on Australia's Future Emissions Reduction Targets, https://goo.gl/s4CYvb

2.3 Municipal Carbon Budget

In determining a municipal budget for greenhouse gas emissions, there are again a number of methodologies that can be employed. Most simply, it is possible to divide the national carbon budget according to population so that a municipality with a bigger population would be given a larger budget than a smaller municipality. However, this neglects a number of important factors that influence a municipality's ability to reduce emissions.

In developing a science-based target for Wollongong, Ironbark has applied the following considerations:

- 1. Australia's current carbon budget at September 2018 is calculated as 7.26 Gt CO_2 -e. This is the CCA's national carbon budget minus all emissions that have occurred since the budget was derived, per the National Greenhouse Gas Inventory.
- The carbon budget is adjusted to account for the sources considered in Wollongong's community emissions profile (stationary energy, transport, agriculture, solid waste and wastewater). This is done by applying the proportions of each sector from the most recent National Greenhouse Gas Inventory.
 - This means that sectors which have not yet been modelled (land use change and forestry, industrial processes and product use) are not included in the budget, but can easily be added as the data become available.
- This adjusted national carbon budget is then scaled down to the municipal-level based on the percentage of emissions for the included sector that occurred in Wollongong according to the most recent data.





2.4 Scaling the Budget

Greenhouse Gas Emmissions - Report

Once a total carbon budget for Wollongong was calculated, further scaling factors are applied. This is to ensure the allocation of budgets across Australian municipalities is fair and provides the greatest chance of success.

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2.4.1 SEIFA Scaling

The municipal carbon budget is scaled to account for socio-economic differences using the Socio-Economic Index for Areas (SEIFA) as follows:

- Municipalities with a higher than average SEIFA score are allocated a larger share of the national carbon budget.
- Municipalities with a lower than average SEIFA score are allocated a smaller share of the national carbon budget.
- This allows us to account for the fact that councils with a highly disadvantaged community are expected to find it more difficult to reduce emissions.

2.4.2 Scaling for Growth

The municipal carbon budget is then scaled to account for projected population growth as follows:

- Municipalities with a higher than average growth rate are allocated a larger share of the national carbon budget.
- Municipalities with a lower growth rate are allocated a smaller share of the national carbon budget.
- This accounts for the fact that councils experiencing higher growth rates are expected
 to find it more difficult to reduce emissions.





3. Targets

3.1 Science-Derived Target for Wollongong

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In October 2018 Wollongong's science-derived target was calculated by Ironbark. The outcomes are in Table 1.

Table 1: Scaled science-derived target for Wollongong, as calculated in October 2018

Remaining budget for Wollongong (kt CO ₂ -e)	49,185
Remaining years without change (years)	18.2
Required linear annual reduction (t CO2-e)	74,251
Required linear rate of reduction (p.a.)	2.7%

The Remaining budget for Wollongong is 49,815 kt CO2-e.

The *Remaining years without change* (18.2 years) calculates how long this carbon budget would last, based on the emissions released in the 2017/18 financial year.

The Required annual reduction and Required rate of reduction shows that Wollongong's emissions need to reduce by 74 kt CO2-e (2.7%) per year until 2050, if the carbon budget is to be used in a linear fashion over this time period. To give an idea of the scale of action required, Sunshine Coast Council's 15MW solar farm has saved just under 30 kt CO2-e in the 1.5 years since its installation.

When re-calculated in 2019, the remaining budget in tCO₂-e had changed. This is due to reductions in the overall budget available based on emissions released nationally drawing from the Australian carbon budget. It is also because of changes to data sources, data sets and methodologies. Ironbark is committed to ensuring methods are regularly updated to remain in line with best practice and to utilise the more relevant, accurate and transparent data available. These changes applied to all muncipalities.

Whilst the numbers for the carbon budget are quite different, the remaining years without change and % reduction required are similar. This is because the updates that have been applied to the calculation of the science-derived target also apply to the calculation of the Wollongong community emissions profile.





4. Next Steps

4.1 How to Use a Science-derived Target

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The methodology that Ironbark uses to develop science-derived targets has been designed to allow all municipalities the greatest possibility of success. Whilst the targets are challenging, they are targets that *must* be met in order to avoid catastrophic climate change and represent the true scale of action that is required within each community. This target should not be considered aspirational, rather it should be considered essential to avoiding the negative effects on Wollongong's community, environment and economy.

Whilst understanding the necessity of meeting this target, it is also important to understand Council's level of accountability. Reducing greenhouse gas emissions must be a whole of community effort and actions taken by state and federal governments and emissions intensive industries will be key in ensuring Australia stays within its national carbon budget. Council may advocate for and support these actions or engage in collaborative planning with key stakeholders, but ultimately is not solely responsible for meeting the full municipal emissions target.

In engaging with stakeholders, it is important that the communication of the science-derived target is undertaken strategically. Whilst aspirational targets have been used to educate and motivate for many years, the science-derived target can be most useful as a tool for climate planning and understanding relevant carbon budgets and timeframes.

4.2 Monitoring a Science-derived Target



Historically, success in achieving action towards targets may have been measured by the reduction of a municipal greenhouse gas profile. However, this is not the approach that we currently recommend, due to the potential fluctuation of the emissions profile related to factors entirely outside of Council's influence, such as the state electricity emissions factor. Instead, targeted monitoring on specific greenhouse gas mitigation activities can provide Council with a measure of success in the effectiveness of programs and greenhouse gas emissions reductions.

4.3 Action Planning for Community Emissions Mitigation

The community emissions profile previously developed by Ironbark Sustainability for Wollongong, coupled with the science-derived target presented in this report are important tools for climate planning. Used together, they allow Council to understand the scale of the impact of their municipality, the breakdown of sectors responsible for the emissions and the magnitude of the reductions needed. They provide the necessary foundation that advances and





enables Council to engage specific sectors or stakeholders in actions to reduce emissions and develop a plan to reduce emissions.

Item 3 - Attachment 1 - City of Wollongong Science Derived Targets for

When considering community emissions mitigation against a science-derived target, it is clear that the scale of reductions required is exceptionally high. For this reason, it's important for Council to carefully consider how best to leverage resources. Most often, direct action by Council will not be the most efficient way towards achieving the target. However, there are a number of ways that Council can engage and work with stakeholders and other levels of government to facilitate the required emissions reductions.

In Ironbark's experience, there are twelve key interventions that councils can employ to support the reduction of community emissions. These are:

- 1. Administration and strategy
- 2. Advocacy
- 3. Development of new policy or regulation
- 4. Education
- 5. Facilitation
- 6. Monitoring and reporting
- 7. New implementation of policy or regulation
- 8. Performance or supply contracting
- 9. Provision of incentive schemes or grants
- 10. Provision of loan schemes
- 11. Purchase and deployment
- 12. Strategic planning

4.3.1 Ironbark's Community Action Planning Tool

Ironbark has developed a Community Action Planning Tool (CAPT), which allows us to develop a list of actions that will target a specific emissions source and sector. CAPT is a natural extension to the work we have been doing to develop community emissions profiles and provides a more complete solution to the community-scale carbon management system. CAPT is capable of:

- Calculating the best action list for a specific municipality, down to the estimated spend (or in reverse, if councils have a predetermined budget, CAPT will be able to estimate how much abatement can be achieved)
- Representing uncertainty of outcome, a critical component for mutually aggregate
 actions that can have either a guaranteed outcome (such as installing solar on
 councils' own assets) to ones that cannot be certain at all (such as advocacy for
 closing down coal power plants). This uncertainty is represented in a "descending
 confidence" table, that maps the amount of carbon a program will mitigate against
 the probability of achieving success.





Grouping of all identified activities into "actions", which are activities that actively
reduce emissions, and "interventions", which are activities that a stakeholder
undertakes to effect the action. Examples of an action is "install EV charging
infrastructure in public-accessible locations", and corresponding interventions may be
"finance and deploy", and "facilitation".

CAPT is specifically designed for councils, and our intent is for the tool to quantify all the interventions currently being planned or implemented by councils across Australia. As we expand this resource, more and more of the initiatives we are seeing across the country will be available for objective comparison and application to your municipality. Please get in touch to find out more about how to be involved.

4.4 Further Resources

The following resources may also be useful in developing and assessing actions for Wollongong's community emissions mitigation planning:

- The Rocky Mountain Institute's website (<u>www.rmi.org</u>) has a number of useful resources, including The Carbon-Free City Handbook (2007), which reveals 22 actions and associated resources for cities globally to move toward climate-neutrality and see results within a year.
- The World Bank's CURB Tool is an interactive tool that is designed to help cities take
 action on climate by mapping out different action plans and evaluating their cost,
 feasibility, and impact. See https://bit.ly/1SeZoS2.
- Beyond Zero Emissions is an Australian think tank that has a number of publications covering municipal-wide emissions reduction solutions (https://bit.ly/2QDcoWz), as well as a Local Government Climate Review (2018).
- Energy Innovation LLC (<u>www.energyinnovation.org</u>) is an energy and environmental policy firm based in the United States with a number of useful resources on designing carbon solutions. Among other things, they have developed free online computer model to help design packages of policies to reduce carbon emissions (https://www.energypolicy.solutions/). Although it is not yet pre-populated with Australian data, the model provides a good visualization of key policy settings and their impacts in other regions like the US and Canada.
- The Global Covenant of Mayors is beginning to collate data on emissions, targets and actions at: https://www.globalcovenantofmayors.org/global-covenant-cities-data