

AGENDA

of the

ENVIRONMENT AND SUSTAINABILITY COMMITTEE

Held in the Council Chambers 8th floor – 1 Nicholas Street IPSWICH QLD 4305

On Thursday, 2 September 2021
At 10 minutes after the conclusion of the Economic and Industry Development

Committee

Councillor Russell Milligan (Chairperson)
Councillor Andrew Fechner (Deputy Chairperson)

Mayor Teresa Harding Councillor Jacob Madsen Councillor Kate Kunzelmann

ENVIRONMENT AND SUSTAINABILITY COMMITTEE AGENDA

10 minutes after the conclusion of the Economic and Industry
Development Committee on **Thursday**, 2 September 2021
Council Chambers

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^{**} Item includes confidential papers

ENVIRONMENT AND SUSTAINABILITY COMMITTEE NO. 8

2 SEPTEMBER 2021

AGENDA

DECLARATIONS OF INTEREST IN MATTERS ON THE AGENDA

BUSINESS OUTSTANDING

CONFIRMATION OF MINUTES

1. <u>CONFIRMATION OF MINUTES OF THE ENVIRONMENT AND SUSTAINABILITY</u> <u>COMMITTEE NO. 2021(07) OF 5 AUGUST 2021</u>

RECOMMENDATION

That the Minutes of the Meeting held on 5 August 2021 be confirmed.

OFFICERS' REPORTS

2. TRADITIONAL OWNER REFERENCE GROUP

This is a report concerning the establishment of the Traditional Owner Reference Group and its subsequent role, relationship and responsibilities with Ipswich City Council (Council) and the Native Title Party.

RECOMMENDATION

- A. That Council endorse the formation of the Traditional Owner Reference Group as detailed in the Draft Terms of Reference outlined in Attachment 1.
- B. That Council endorse the proposed structure of the roles, relationships and responsibilities for the Traditional Owner Reference Group, Council and the Native Title Party as defined in Attachment 3.

3. IPSWICH RIVERS IMPROVEMENT TRUST 2021-2022 ANNUAL PRECEPT

This is a report is concerning the 2021-2022 annual precept for the Ipswich Rivers Improvement Trust (IRIT), as per Part 6 Division 2 section 14(1) of the *River Improvement Trust Act 1940*.

Council is liable to contribute to the trust each year the sum prescribed in the precept.

RECOMMENDATION

- A. That Council negotiate with the Ipswich Rivers Improvement Trust to agree on an alternative sum for their 2021-2022 Precept for a reduced works program this year.
- B. That Council work in partnership with the Ipswich Rivers Improvement Trust to develop an agreed 3-5 year works program and funding model.

4. <u>NATURAL ENVIRONMENT POLICY</u>

This is a report concerning Ipswich City Council's Natural Environment Policy. The policy has been developed to fill a policy gap. Extensive internal and external consultation was undertaken when developing the policy.

RECOMMENDATION

That the policy titled 'Natural Environment Policy' as detailed in Attachment 1 be adopted.

5. IPSWICH PLATYPUS E-DNA MONITORING REPORT FOR 2020-2021

This is a report concerning the results of Ipswich City Council's 2020-2021 platypus eDNA (environmental DNA) monitoring program. This sampling represents the fifth and most extensive platypus monitoring event council has undertaken across the city's waterways.

RECOMMENDATION

- A. That the platypus eDNA monitoring program be continued annually to monitor the city's existing populations, as well as transient individuals moving throughout systems.
- B. That habitat protection and improvement be conducted around key strongholds such as the Woogaroo, Sandy and Opossum Creek catchments to ensure the long-term sustainability of these populations.
- C. That detailed habitat assessments be undertaken to identify areas of high-quality habitat and better understand key threats to platypus sustainability.

6. STORMWATER QUALITY OFFSET PROGRAM ANNUAL REPORT

This is a report concerning the Stormwater Quality Offset's Program status from commencement until June 2021. It consists of an overview of the program's rules, list of water quality improvement projects delivered to date including expenditure, liability, efficiency and most recent implementation plan review.

RECOMMENDATION

That the Ipswich City Council Stormwater Quality Offset Program Annual update report be received and the contents noted.

7. <u>DISABILITY INCLUSIVE DISASTER RISK REDUCTION PROJECT</u>

This is a report concerning the Disability Inclusive Disaster Risk Reduction Project undertaken by Council throughout 2020-2021.

RECOMMENDATION

That the report be received and the contents noted.

8. GET READY QUEENSLAND WEEK 2021

This is a report concerning Get Ready Queensland Week in October 2021 and the community education, awareness, and engagement activities that council will carry out in support of the initiative.

RECOMMENDATION

That the report be received and the contents noted.

9. <u>DEPUTY CHAIRPERSONS FOR THE LOCAL DISASTER MANAGEMENT GROUP AND THE</u> LOCAL RECOVERY AND RESILIENCE GROUP

This is a report concerning the appointment of an additional Deputy Chairperson to the City of Ipswich Local Disaster Management Group and a Deputy Chairperson to the City of Ipswich Local Recovery and Resilience Group.

RECOMMENDATION

- A. That Council appoint one (1) of its Councillors as the secondary Deputy Chairperson of the City of Ipswich Local Disaster Management Group.
- B. That Council appoint one (1) of its Councillors as the Deputy Chairperson of the City of Ipswich Local Recovery and Resilience Group.

NOTICES OF MOTION

MATTERS ARISING

ENVIRONMENT AND SUSTAINABILITY COMMITTEE NO. 2021(07)

5 AUGUST 2021

MINUTES

<u>COUNCILLORS' ATTENDANCE:</u> Councillor Russell Milligan (Chairperson); Councillors

Andrew Fechner (Deputy Chairperson), Mayor Teresa

Harding, Jacob Madsen and Kate Kunzelmann

COUNCILLOR'S APOLOGIES: Nil

OFFICERS' ATTENDANCE: Acting Chief Executive Officer (Sonia Cooper), Acting

General Manager Infrastructure and Environment (Sean Madigan), General Manager Planning and Regulatory Services (Peter Tabulo), General Manager Community, Cultural and Economic Development (Ben Pole), Acting General Manager Coordination and Performance (Barbara Dart), Waterway Health Officer (Jack McCann), Natural Environment and Land Manager (Phil Smith), Executive Services Manager (Wade Wilson) and Theatre and

Production Supervisor (Nicholas Burke)

This meeting was held virtually and streamed publicly in accordance with the COVID provisions of sections 277 B, C and D of the *Local Government Regulation 2012*.

DECLARATIONS OF INTEREST IN MATTERS ON THE AGENDA

Nil

BUSINESS OUTSTANDING

Nil

CONFIRMATION OF MINUTES

1. <u>CONFIRMATION OF MINUTES OF THE ENVIRONMENT AND SUSTAINABILITY</u> COMMITTEE NO. 2021(06) OF 8 JULY 2021

RECOMMENDATION

Moved by Councillor Jacob Madsen: Seconded by Councillor Kate Kunzelmann:

That the minutes of the Environment and Sustainability Committee No. 2021(06) held on 8 July 2021 be confirmed.

AFFIRMATIVE NEGATIVE
Councillors: Councillors:
Milligan Nil

Fechner Harding Madsen Kunzelmann

The motion was put and carried.

OFFICERS' REPORTS

2. BREMER RIVER SHOPPING TROLLEY CLEAN UP PROGRAM REPORT FOR 2020-2021

This is a report concerning Council's 2020-2021 shopping trolley removal program for the Bremer River. Having been recently completed, Council has received a summary report of the key findings and recommendations for the program from the contractor, Healthy Land and Water, which forms the basis of this report.

RECOMMENDATION

- A. That Council continue to schedule the removal of dumped shopping trolleys on a 3-monthly basis with funding through the waterway health program.
- B. That Council undertake further investigations to identify the primary source(s) of dumped shopping trolleys and develop mitigation plans in partnership with key retailers of Riverlink to reduce the incidence of trolley dumping into the river.
- C. That additional deterrent measures be investigated to discourage behaviours leading to the dumping of trolleys in the Bremer River.

Councillor Andrew Fechner proposed the following as Recommendation D.

D. That Council write to the retailers listed in the report seeking financial assistance for future shopping trolley clean-up programs initiated by Ipswich City Council.

RECOMMENDATION

Moved by Councillor Andrew Fechner: Seconded by Councillor Kate Kunzelmann:

- A. That Council continue to schedule the removal of dumped shopping trolleys on a 3-monthly basis with funding through the waterway health program.
- B. That Council undertake further investigations to identify the primary source(s) of dumped shopping trolleys and develop mitigation plans in partnership with

key retailers of Riverlink to reduce the incidence of trolley dumping into the river.

- C. That additional deterrent measures be investigated to discourage behaviours leading to the dumping of trolleys in the Bremer River.
- D. That Council write to the retailers listed in the report seeking financial assistance for future shopping trolley clean-up programs initiated by Ipswich City Council.

AFFIRMATIVE NEGATIVE
Councillors: Councillors:
Milligan Nil

Fechner Harding Madsen Kunzelmann

The motion was put and carried.

NOTICES OF MOTION

Nil

MATTERS ARISING

Nil

PROCEDURAL MOTIONS AND FORMAL MATTERS

The meeting commenced at 10.44 am.

The meeting closed at 11.01 am.

Doc ID No: A7209982

ITEM: 2

SUBJECT: TRADITIONAL OWNER REFERENCE GROUP

AUTHOR: NATIVE TITLE AND CULTURAL HERITAGE OFFICER

DATE: 20 AUGUST 2021

EXECUTIVE SUMMARY

This is a report concerning the establishment of the Traditional Owner Reference Group and its subsequent role, relationship and responsibilities with Ipswich City Council (Council) and the Native Title Party.

RECOMMENDATIONS

- A. That Council endorse the formation of the Traditional Owner Reference Group as detailed in the Draft Terms of Reference outlined in Attachment 1.
- B. That Council endorse the proposed structure of the roles, relationships and responsibilities for the Traditional Owner Reference Group, Council and the Native Title Party as defined in Attachment 3.

RELATED PARTIES

- Ipswich City Council
- Yuggera Ugarapul Native Title Party (YUP Native Title Claim)
- Indigenous Respondents of YUP Native Title Claim

There may be a "perceived" conflict of interest in the formation of the Traditional Owner Reference Group by the Native Title & Cultural Heritage Officer in so far as identifying as being a descendent of the Jagera people (Apical Ancestor – Roger Bell).

This has been managed by using an external advice in relation to Traditional Owner determination and eligibility to ensure the members of the group have been objectivity selected.

IFUTURE THEME

Safe, Inclusive and Creative

PURPOSE OF REPORT/BACKGROUND

The formation of a Traditional Owner Reference Group is an action item of the Ipswich City Council Indigenous ACCORD 2020 – 2025.

As per ACCORD Action Item 2.1.1 - a governance and collaboration framework is to be implemented with Traditional Owners to support an ongoing working relationship and dialogue through the establishment of a Traditional Owner Representative Steering Committee (referred to Traditional Owner Reference Group to align with the naming convention of Council's other reference groups). It is proposed that this Traditional Owners Reference Group would serve to meet the requirements of that action.

Traditional Owners are the descendants of the original Aboriginal inhabitants of the area and have ongoing spiritual and cultural ties to the land and waters where their apical ancestors lived. Ipswich City Council Local Government Area (Ipswich LGA) sits within the cultural landscape boundaries of the Yagera/Yugara Language Group.

Council respectfully acknowledges all persons who identify as being a part of the Yagera/Yugara Language group and who asserts cultural and spiritual connection to the lands and waters within the Ipswich LGA. It is acknowledged there is currently a registered Native Title Claim (Yuggera Ugarapul People Native Title Claim) with registered Indigenous Respondents attached to the Claim process. It should be noted that Council is not in a position to pass judgement on the legitimacy of any one claim group over another in order to be culturally inclusive and ensure compliance with the below listed legislative provisions.

In constituting the membership of the Traditional Owner Reference Group, Council will consider expressions of interest from descendants of the Apical Ancestors listed below; as taken from YUP Native Title Claim – Form 1 and registered Indigenous Respondents (refer Attachment 2):

YUP Native Title Claim Apical Ancestors

- Harry Thompson (son of Janie/Janey Billie/Billy)
- Daisy Moreton (nee Thompson) (daughter of Janie/Janey Billie/Billy)
- Amy Turner (daughter of Billy Turner)
- Robert Anderson Snr (social son of Emily Harvey & Thomas Duggandan; social grandson of Jackey Harvey)
- Jimmy Edwards Jnr (son of Topsy of Ipswich)
- Elsie Richards (daughter of Ted Myer/Meyers/Myers and Molly Myers (nee Crow))

Indigenous Respondents Apical Ancestors

- Roger Bell (son of Jamie/James/Jimmy Bell)
- Stanley Bell (son of Jamie/James/Jimmy Bell)

The proposed Terms of Reference for the Traditional Owner Reference Group is detailed in Attachment 1.

The proposed roles, relationship and responsibilities structure between Traditional Owner Reference Group, Council and the Native Title Party is detailed in Attachment 3.

This may change if Native Title is determined in the future.

LEGAL/POLICY BASIS

This report and its recommendations are consistent with the following legislative provisions:

- Native Title Act, 1993
- Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 1999
- Signing of the United Nations Declaration on the Rights of Indigenous Peoples (3 April 2009)
- International Covenant on Economic, Social and Cultural Rights (10 December 1975)
- Human Rights Act, 2019 Sections 27 & 28
- Queensland Local Government Act 2009
- Ipswich City Council Indigenous ACCORD 2020 2025
- iFuture Corporate Plan 2021 2026
- Councils 5 Year Corporate Plan 2017 2022 "Making it Happen" (under review)
- Councils Operational Plan 2018 2019 "Staying on Track" (under review)

RISK MANAGEMENT IMPLICATIONS

Council could be at risk of breaching the above listed legislative provisions if approval is not granted for the formation of the Traditional Owner Reference Group as proposed in Attachment 3.

HUMAN RIGHTS IMPLICATIONS

HUMAN RIGHTS IMPACTS					
OTHER DECISION					
(a) What is the Act/Decision being made?	Recommendations A and B state that Council endorse the formation of the Traditional Owner Reference Group and the proposed structure of the roles, relationships and responsibilities for the Traditional Owner Reference Group, Council and Native Title Party.				
(b) What human rights are affected?	Cultural rights				
(c) How are the human rights limited?	s 27 & 28 of the <i>Human Rights Act 2019</i> are rights directed towards ensuring the survival and continued development of culture and the right to enjoy culture, religion and language. Moreover, protecting the right to live life as an Aboriginal or Torres Strait Islander who is free to practice their culture.				

	The Traditional Owner Reference Group as proposed in the
	Report by the Native Title & Cultural Heritage will ensure these
	legislative provisions are adhered to.
(d) Is there a good	Not application
reason for limiting	
the relevant rights?	
Is the limitation fair	
and reasonable?	
(e) Conclusion	The decision is consistent with human rights.

FINANCIAL/RESOURCE IMPLICATIONS

There are minimal financial/resource implications if the Traditional Owner Reference Group is governed similarly to Council's other Community Reference Groups, which are voluntary community reference groups, whereby all community members participating in the group are doing so in an entirely voluntary capacity. The exemption in comparison to the other Community Reference Groups is the proposal to include budget for catering.

COMMUNITY AND OTHER CONSULTATION

Extensive internal and external stakeholder engagement was undertaken during the ACCORD Indigenous community consultation process, the subsequent drafting and formal endorsement of the Ipswich City Council Indigenous ACCORD 2020 – 2025.

CONCLUSION

Council has made a commitment to form the Traditional Owner Reference Group as an action item of the recently endorsed Ipswich City Council Indigenous ACCORD 2020 - 2025. Approving the formation of the Traditional Owner Reference Group as constituted in Terms of Reference (Attachment 1) will ensure Council complies with the legislative and strategic responsibilities listed above (refer Attachments 4 - 6).

ATTACHMENTS AND CONFIDENTIAL BACKGROUND PAPERS

- 1. Terms of Reference TORG 🗓 🖺
- 2. YUP NNTT Application J. Table 2.
- 3. Proposed Roles, Relationship and Responsibilities Structure 1
- 4. Burra Charter 🗓 🖫
- 5. International Covenant on Economic, Social and Cultural Rights 🗓 🖺
- 6. UN Declaration on the Rights of Indigenous Peoples 🗓 🖺

Tina Longford

NATIVE TITLE AND CULTURAL HERITAGE OFFICER

I concur with the recommendations contained in this report.

Phil A. Smith

NATURAL ENVIRONMENT AND LAND MANAGER

I concur with the recommendations contained in this report.

Kaye Cavanagh

MANAGER, ENVIRONMENT AND SUSTAINABILITY

I concur with the recommendations contained in this report.

Sean Madigan

ACTING GENERAL MANAGER - INFRASTRUCTURE AND ENVIRONMENT

"Together, we proudly enhance the quality of life for our community"

Terms of Reference

Traditional Owner Community Reference Group

INTRODUCTION

Ipswich City Council is committed to meaningful engagement with the community on issues affecting the city, and on local issues that significantly impact on the community. Public participation and engagement are the foundation of good decision-making and is mutually beneficial to the community and council.

One of the ways that council currently engages with the Ipswich community is through its five (5) Community Reference Groups, which align to the standing committees of council:

- 1. Economic Development (Economic and Industry Development Committee)
- 2. Resilient Communities (Community, Culture, Arts and Sport Committee)
- 3. Growth Management (Growth, Infrastructure and Waste Committee)
- 4. Environment (Environment and Sustainability Committee)
- 5. Transparent Governance (Governance and Transparency Committee).

The formation of the Traditional Owner Reference Group is an action item of the Ipswich City Council Indigenous ACCORD 2020 – 2025. As per ACCORD Action item 2.1.1 – governance and collaboration framework be implemented with Traditional Owners to support an ongoing working relationship and dialogue through the establishment of a Traditional Owner Representative Steering Committed (now referred to as Traditional Owner Reference Group to align with the naming conventions of Councils other five reference groups).

All community members participating in the Community Reference Groups are doing so in an entirely voluntary capacity.

This draft Terms of Reference (TOR) sets out the proposed operating conditions for the Traditional Owner Community Reference Group including the purpose, structure and responsibilities of the group's members. Once the Traditional Owner Community Reference Group is formed, Council will table this draft TOR as one of the first agenda items for finalisation - to encourage a collaborative working relationship with the Traditional Owner Representatives. This TOR should be read in conjunction with the 'Guidelines for Community Reference Groups'.

PURPOSE, SCOPE AND OBJECTIVES

The purpose of the Traditional Owner Community Reference Group is to provide a shared platform where the Traditional Owner community representatives can provide information, advice and views to council on matters relating to core business functions as well as a forum where Traditional Owner representatives can raise matters relevant to the Traditional Owner community for Council consideration and discussion.

The scope of the Traditional Owner Community Reference Group is limited to the following:

- Operational matters and day to day contact
 - Eg. Community groups and school enquiries
 - information for Council projects (i.e. interp signage)
- Ipswich City Council Indigenous ACCORD 2020 2025 outcomes and action items
- Platform for Traditional Owners to table for discussion any concerns &/or aspirations
- Shared forum to discuss and propose ideas for future (new) policies, programs and strategies
 - Signage Policy, Welcome to Country policy
 - Cultural protocol and processes for Traditional Welcome to Country, Traditional Dance, Didgeridoo, Smoking Ceremonies requests
 - Cultural Interp Walks and Talks
 - Indigenous Rangers
 - Cultural Education programs
 - Cultural Education and Resource Centre/Safe Keeping Place
 - o Understanding the views of the Traditional Owner stakeholders and communities
 - Generating support for action (Traditional Owner consultation)
 - Developing 'fees for service' governance structure (i.e for specialist knowledge, Welcome to Country etc)
- · Develop a 'code of conduct' for all members to endorse

The objectives of the Traditional Owner Community Reference Group are:

- To provide a deliberative forum for members to discuss issues of Traditional Owner community interest related to matters
 within the scope of the Traditional Owner Community Reference Group;
- To draw on cultural knowledge and enhance the Traditional Owner community voice in decision making processes and
 outcomes related to matters within the scope of the Traditional Owner Community Reference Group; and
- To build the Traditional Owner community understanding of council's core business functions and specific projects or activities
 related to matters within the scope of the Traditional Owner Community Reference Group.

Exclusions to the Traditional Owner Reference Group are:

- Native Title Compliance Processes
- Aboriginal Cultural Heritage Clearance Processes

Note: these legislative responsibilities are between Council and the registered Native Title Party (YUP Native Title Party) as per the provisions of each respective legislation (Native Title Act 1993 and Cultural Heritage Act 2003).

MEMBERSHIP

The Traditional Owner Community Reference Group will consist of:

- Two representatives (a male and a female representative) from each decent line of the below listed Apical Ancestors (as listed
 on the registered YUP Native Title Claim Form 1 and the registered Indigenous Respondents) all of whom are appointed
 through an Expression of Interest process (see 'Guidelines for Community Reference Groups') and have a letter of
 recommendation from their respective Elders Committee:
 - o Harry Thompson (son of Janie/Janey Billie/Billy)
 - Daisy Moreton (daughter of Janie/Janey Billie/Billy)
 - o Amy Turner (daughter of Billy Turner)
 - o Robert Anderson Snr (social son of Emily Harvey & Thomas Duggandan; social grandson of Jackey Harvey)
 - o Jimmy Edwards Jnr (son of Topsy of Ipswich)
 - o Elsie Richards (daughter of Ted Myer/Meyers/Myers and Molly Myers (nee Crow)
 - Roger Bell
 - o Stanley Bell
- A Chairperson, as nominated by the Environment Committee;
- A Deputy Chair, as nominated by the Environment Committee;
- A Facilitator, being the General Manager from the Infrastructure and Environment Department (or their delegate) assisted by Council Officer from the Infrastructure and Environment Department.
- Councillors who are members of the Environment Committee may also attend at their discretion as observers of the Traditional Owner Reference Group proceedings.
- Subject matter experts from council may also be invited to attend a meeting/s from time-to-time, if required, for particular projects or issues.

Term

The term of membership is: -

- two (2) years, subject to compliance with these Terms of Reference; or
- when the YUP Native Title Claim court processes have been completed (ie. Consent determination, withdrawn, dismissed etc).

Note: whichever comes first.

The Facilitator (supported by Community Engagement Branch) is responsible for implementing another public EOI process at the end of each term. Members may submit another EOI at the end of their two-year term however priority may be afforded to new applicants in the assessment process to ensure evolution of Traditional Owner community participation is possible.

Vacancy

In the event of a member vacancy, replacement shall be appointed by council's Chief Executive Officer (CEO) by revisiting unsuccessful EOI applications.

Termination

A member will be removed from the Traditional Owner Community Reference Group if they are absent from three (3) consecutive meetings. Members may also be removed, by decision of the Facilitator, if they breach these Terms of Reference and/or Code of Conduct. The Facilitator will formally notify the member in writing if their removal is required.

Members may terminate their membership at any time. Notice of membership termination must be provided in writing to the Facilitator.

Elections

During election periods (whether federal, state or local government elections), members who are considering or intending to stand for elections should remain aware of any conflicts of interest that may arise as a result of being a member of the Traditional Owner Community Reference Group and declare this at meetings (see discussion of 'Agendas and minutes'). Further, upon formal notification or announcement of a members candidacy for election, that member will be automatically suspended from the Traditional Community Owner Reference Group until after the relevant election is held. Any successful candidates will no longer be eligible to be a member of the Traditional Owner Community Reference Group and unsuccessful candidates will be reinstated as a member.

Members are at all times to be aware of their conduct obligations (see discussion of 'Conduct')

POWERS OF THE TRADITIONAL OWNER COMMUNITY REFERENCE GROUP

The Traditional Owner Community Reference Group provides information, advice and views and, where sought, recommendations to Council. Any information, advice, views and recommendations will be recorded in the minutes. The

group has opportunity to influence council decision making, however, does not have decision-making authority. This remains the function of council.

ROLES AND RESPONSIBILITIES

Ipswich City Council

The Chair and Deputy Chair of the Traditional Owner Community Reference Group is as nominated by the Environment Committee.

The Facilitator, which is the General Manager from the Infrastructure and Environment Department (or their delegate) will oversee the governance and coordination of the Traditional Owner Community Reference Group, including:

- Participating in meetings and adhering to the Terms of Reference;
- Ensure group adherence to the Terms of Reference;
- Coordinate the agendas, minutes and other documentation;
- Undertake a review of the Terms of Reference and group's efficacy every two years;
- Report to the relevant council standing committee; and
- Notify the relevant council standing committee of any changes to group membership.

The Facilitator will be supported by Council Officer's including minute taking, agenda preparation, filing, coordinating correspondence and communication, meeting preparation and logistics and information disclosure.

Subject-matter experts from council may also be invited to attend a meeting/s from time-to-time, if required, for particular projects or issues.

Members

Members of the Traditional Owner Community Reference Group are required to:

- Attend and participate in meetings;
- · Adhere to the Terms of Reference;
- Adhere to the Code of Conduct; and
- Represent the Traditional Owner community views and provide information and advice to council on items related to the group's purpose, scope and objectives.
- Deliver information back to the Traditional Owner family group (decent line) they represent
- Provide proposed agenda items to Facilitator no later than two weeks prior to `next meeting.

MEETINGS

Frequency

The Traditional Owner Reference Group will meet, at a minimum, bi-monthly for approximately two hours at a location in central Ipswich. Depending on the agenda and discussion, meeting run times may be shortened or lengthened.

Agendas and minutes

The Facilitator will finalise the agenda and circulate to the group at least one week prior to the meeting. Traditional Owner member representatives are encouraged to table agenda items for discussion. All proposed agenda items must be provided to the Facilitator no later than two weeks prior to the next meeting. Members will deliberate based on the set agenda items. The agenda and any accompanying documents will be circulated to members at least one week prior to the meeting. Minutes will be recorded and will be circulated to members within two weeks of the meeting. The final minutes will be uploaded onto council's website within three weeks of the meeting. Minutes are to be appropriately filed.

Conduct

Members are required to:

- · Act with honesty, good faith and integrity;
- Abide by the Terms of Reference;
- Actively participate in meetings;
- Declare any actual or perceived conflicts of interest at the commencement of the meeting;
- · Represent the interests of the Traditional Owner community rather than individual interests or issues; and
- Abide by the 'code of conduct' as developed by the Traditional Owner Reference Group
- Maintain confidentiality of discussions declared to be confidential within meetings (excluding general
 information that is required to be relayed back to the family group/decent line represented).
- Members are not permitted to liaise with the media and represent either the opinions of council or the group.

In particular, members are required not to use the Traditional Owner Reference Group for any public lobbying or political purposes, including use of social media to promote specific campaigns or strategies.

Any material breach of this code of conduct may result in immediate termination of membership.

Any member charged with any offence as defined in section 153 of the *Local Government Act 2009* (being treason, electoral or integrity offences) shall be automatically suspended until the matter has been resolved. Any person convicted of an offence as defined in section 153 of the *Local Government Act 2009* shall not be eligible for membership of any Community Reference Group.

Voting

The role and format of the Traditional Owner Community Reference Group in providing information, advice and views means that voting will not occur.

Information

Members will not use any information disclosed at meetings for personal purposes or gains for either themselves or others (including financial gains) and maintain confidentiality of all information provided.

RECORD KEEPING

Council will manage record keeping of the group's activities in council's internal filing system, including:

- Member details as provided on the EOI application (personal details will be managed confidentially, in accordance with council's privacy standards);
- EOI applications and other selection process documentation;
- Register of when meetings were held;
- Terms of Reference:
- Agendas and minutes for each meeting; and
- Any other related correspondence or information.

DISCLOSURE

The following information will be published on council's public website:

- Names of the members;
- The Guidelines and Terms of Reference; and
- Agendas and minutes of each meeting.

REVIEW

The Facilitator will undertake a review of the efficacy of the Traditional Owner Community Reference Group every two years. This includes reviewing the TOR document, suitability of meeting frequency and the efficacy of the group in meeting the objectives and working to the TOR.

Version #	Date
1	
2	



Extract from Schedule of Native Title **Applications**

Application Reference: Federal Court number: QUD213/2017

NNTT number: QC2017/005

Margaret McCarthy & Ors on behalf of the Yuggera Ugarapul People and State Application Name:

of Queensland & Ors (Yuggera Ugarapul People)

Application Type: Claimant

Application filed with: Federal Court of Australia

Date application filed: 07/04/2017

Current stage(s): Notification Complete

Registration information: Please refer to the Register of Native Title Claims/National Native Title Register (as

appropriate) for registered details of this application.

Date claim entered on Register of Native Title Claims: 04/08/2017

Registration decision status: Accepted for registration Registration history: Registered from 4/08/2017

Margaret McCarthy, John Anderson, Narrella Simpson, Lynda Maybanks, Samantha Carr, Faye Carr, Wade Thompson, Sonya Coghill, David Conlon Applicants:

Address(es) for Service: Ted Besley

Just Us Lawyers 238 Kelvin Grove Road **KELVIN GROVE QLD 4059** Phone: 07 3369 7145

Additional Information

Not applicable

Persons claiming to hold native title:

Those persons who are descendants of the following Apical Ancestors and who identify and are recognised under the traditional laws and customs of the Yuggera Ugarapul People as Yuggera

National Native Title Tribunal

Page 1 of 3

Extract from Schedule of Native Title Applications

QUD213/2017

Extract Created: 09/04/2021 23:04 (WST)

Ugarapul:

- · Janie/Janey Billie/Billy (mother of Harry Thompson and Daisy Moreton (nee Thompson);
- · Billy Turner (father of Amy Turner);
- · Jackey Harvey (father of Emily Harvey the social mother of Robert Anderson Snr);
- Thomas Duggandan/Anderson (social father of Robert Anderson Snr);
- Topsy of Ipswich (mother of Jimmy Edwards Jnr);
- Ted Myer/Meyers/Myers (father of Elsie Richards);
- · Molly Myers (nee Crow) (mother of Elsie Richards).

Native title rights and interests claimed:

- 1. Where claimable, including where sections 47, 47A or 47B of the *Native Title Act* 1993 (Cth) applies to an area, the right to possess, occupy, use and enjoy the land and waters covered by the application to the exclusion of all others
- 2. Over areas where a claim to exclusive possession cannot be recognised, the following non-exclusive native title rights and interests are claimed:
- a. access, be present on, move about on and travel over the area;
- b. camp on the area, and for that purpose erect temporary shelters on the area;
- c. hunt, fish and gather on the land and waters of the area for personal, domestic and non- commercial communal purposes;
- d. take, use and share Natural Resources from the land and waters of the area for personal, domestic and non-commercial communal purposes;
- e. take and use the Water of the area for personal, domestic and non-commercial communal purposes;
- f. participate in cultural activities on the area;
- g. hold meetings on the area;
- h. maintain places of importance and areas of significance to the native title holders under their traditional laws and customs and to protect those places and areas from physical harm;
- i. teach on the area the physical and spiritual attributes of the area;
- j. light fires on the area for domestic purposes including cooking, but not for the purpose of hunting or clearing vegetation:
- k. be buried and bury native title holders within the area.

Application Area: State/Territory: Queensland

Brief Location: Area west of Brisbane, South East Queensland Primary RATSIB Area: Southern and Western Queensland Region

Approximate size: 6165.7912 sq km

(Note: There may be areas within the external boundary of the application that are not

claimed.)

Does Area Include Sea: No

Area covered by the claim (as detailed in the application):

- 1. The boundaries of the area covered by the application area are shown on the map attached and marked "Attachment C" and a written description of the boundaries of the area covered by the application is attached and marked "Attachment B".
- 2. Subject to paragraphs 4 and 5, the areas of land and waters within the boundaries referred to in 1 above that are not covered by the application are:
- a. any area that is or has been subject to any of the following:
- scheduled interest;
- ii. a freehold estate;
- iii. a commercial lease that is neither an agricultural lease nor a pastoral lease;
- iv. an exclusive agricultural lease or an exclusive pastoral lease;
- v. a residential lease;
- vi. a community purpose lease;
- vii. a lease dissected from a mining lease and referred to in s.23B(2)(c)(vii) of the Native Title Act 1993 (Cth);
- viii. any lease (other than a mining lease) that confers a right of exclusive possession over particular land or waters; which was validly granted or vested on or before 23 December 1996.
- b. any other area in relation to which native title rights and interests have otherwise been wholly extinguished.

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Extract from Schedule of Native Title Applications

QUD213/2017

Extract Created: 09/04/2021 23:04 (WST)

Further information: National Native Title Tribunal 1800 640 501

- 3. Subject to paragraphs 4 and 5, the land and waters the subject of the application do not include any land or waters covered by the valid construction or establishment of any public work (as defined by the Native Title Act 1993 (Cth)), where the construction or establishment of the public work commenced on or before 23 December 1996.
- 4. Subject to paragraph 6, where the act specified in paragraphs 2 or 3 falls within the provision of:
- a. s.23B(9) Exclusion of acts benefiting Aboriginal Peoples or Torres Strait Islanders;
- b. s.23B(9A) Establishment of a national park or state park;
- c. s.23B(9B) Acts where legislation provides for non-extinguishment; and
- d. s.23B(10) Exclusion by regulation

the land and waters covered by the act are not excluded from the application.

- 5. Where an act specified in paragraphs 2 or 3 affects or affected land and waters referred to in:
- a. s.47 Pastoral leases held by or on behalf or [sic], or as trustee for any of the native title claim group;
- b. s.47A Reserves etc. covered by the claimant application; and
- c. s.47B Vacant Crown land covered by the claimant application

the land or waters covered by the act are not excluded from the application.

6. Where there is any discrepancy between the map provided at "Attachment C" and the written description contained here and in "Attachment B", the latter shall prevail.

Attachments: 1. External Boundary Description, Attachment B of the Application, 4 pages - A4,

07/04/2017

2. Map of the Application Area, Attachment C of the Application, 1 page - A4,

07/04/2017

National Native Title Tribunal **NNTT Contact Details** Address:

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End of Extract

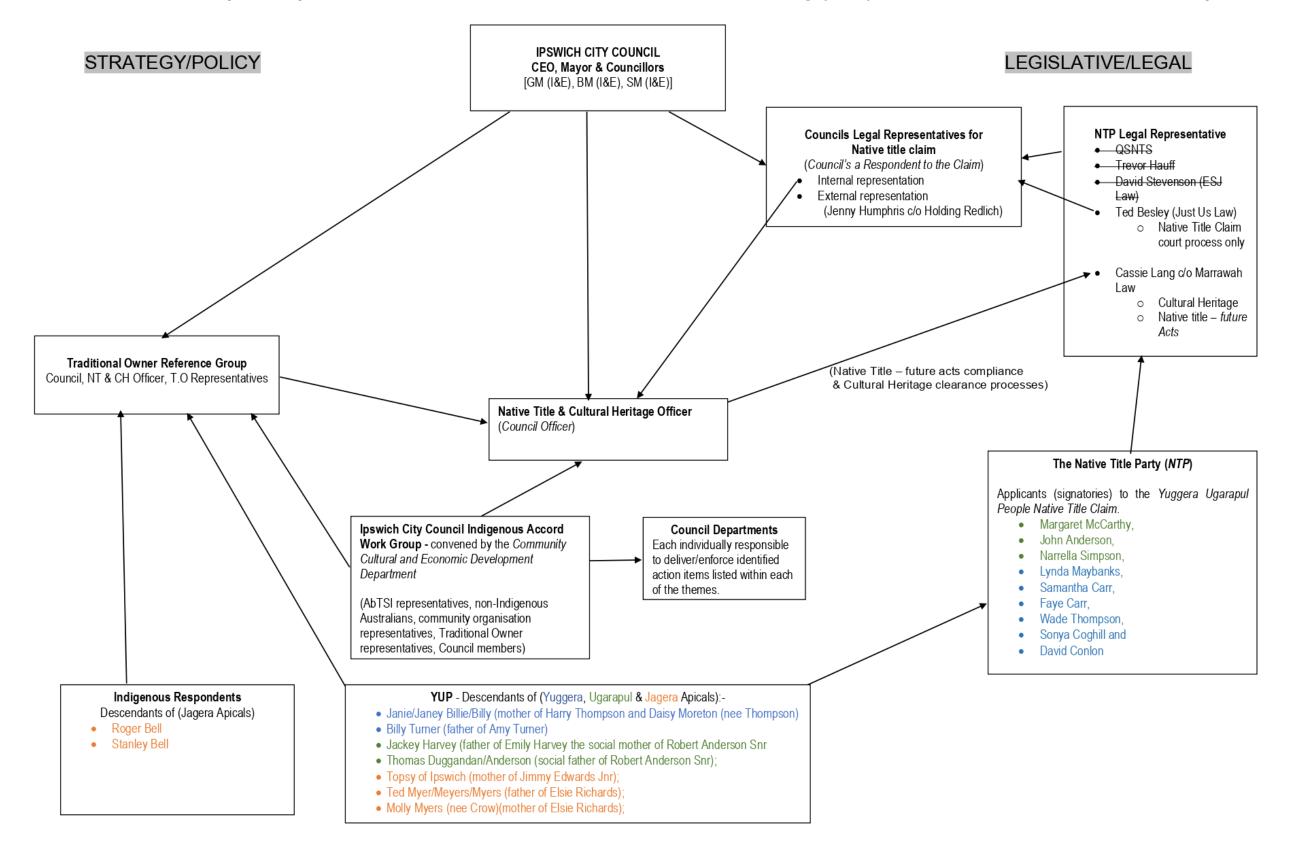
National Native Title Tribunal

QUD213/2017 Further information: National Native Title Tribunal 1800 640 501

Extract from Schedule of Native Title Applications

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Roles, Relationship & Responsibilities Structure between Council, Native Title Party (YUP) & Traditional Owner Reference Group



Roles, Relationship & Responsibilities Structure between Council, Native Title Party (YUP) & Traditional Owner Reference Group

INDIVIDUAL ROLES & RESPONSIBILITIES

Native Title & Cultural Heritage Officer – ALL legislative & strategic (refer page 3)

- Coordinate implementation of Aboriginal Cultural Heritage Clearances as per the Aboriginal Cultural Heritage Act, 2003
- Coordinate implementation of Native Title (future acts) Compliance as per the Native Title Act, 1993
- Coordinate Implementation of action items as per the ACCORD 2020 2025 that fall under the responsibility of the Infrastructure & Environment Department
- Provide practical assistance to the parties in developing and implementing policies and programs in collaboration with the *Traditional Owner Reference Group*
- Coordination of the Traditional Owner Reference Group Agendas, Minutes & Action items
- Organising Welcome to Country, Traditional Dance, Didgeridoo & Smoking Ceremonies for Council events
- Internal Role key responsibilities as per Position Description
- Council Member on the Ipswich City Council Indigenous Accord Working Group
- Council Member on the Traditional Owner Reference Group
- Council Member on the Heritage & Monuments Committee

Native Title Party (YUP Applicants) – legislative ONLY [legislation 1 & 2 (refer page 3)]

- Respond to Councils Native title (future acts) Compliance Notifications
- Respond to Councils Cultural Heritage Compliance Notifications

Traditional Owner Reference Group – strategic & legislative (legislation 3 – 6 and strategic 1 – 5 (refer page 3))

- For operational matters and day to day contact (i.e. redirect Community members to; information for interp signage etc)
- Responsibilities/strategies as per the Ipswich City Council Indigenous ACCORD 2020 2025
- Platform to discuss any issues &/or aspirations
- Forum to discuss and propose ideas for future (new) policies, programs and strategies (i.e. Traditional land access policy, Signage Policy, Welcome to Country policy etc)
- Assist Council with requests for Traditional Welcome to Country, Traditional Dance, didgeridoo, smoking ceremonies etc (network channel to T.O members).

Note - T.O Representative Members = two from each descent line that asserts cultural connection to Ipswich (Registered YUP NT Claim & Indigenous Respondents)

Ipswich City Council Indigenous Accord Work Group - strategic

- Council called for nominations from community members AbTSI peoples, non-Indigenous Australians, community organisation representatives and Traditional Owners to be part of an Advisory Working Group to review the 2015 2018 Accord with the intent of developing an Accord that will be an active working document of Council from 2019 2022.
- The Ipswich City Council Indigenous Accord Working Group is convened by the Community Cultural and Economic Development Department, Community and Cultural Services Branch, where Council is represented at meetings by the Community Development Coordinator (Chair), Indigenous Australians Community Development Officer and the Native Title & Cultural Heritage Officer.

Jenny Humphries c/o Holding Redlich (external representation) - legislative

- Representing Council throughout the Native Title Claim process (as Council is a Respondent to the claim).
- Receives direction from Council and provides Council with regular 'updates' on the progression of the Yuggera Ugarapul People Native Title Claim.
- Holding Redlich receives Attorney General funding for representing Local Government in Native Title Claims (they reapply at the end of each funding period).
- Liaise directly with Councils internal legal team

Roles, Relationship & Responsibilities Structure between Council, Native Title Party (YUP) & Traditional Owner Reference Group

COUNCILS RESPONSIBILITIES

<u>Legislative</u> [1 & 2 have 'penalties' attached for non-compliance]

- Native Title Act, 1993
 - Native Title (future acts) Compliance
- Cultural Heritage Act, 2003
 - Aboriginal Cultural Heritage Clearances
 - Duty of Care guidelines
 - Features

- 3. Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 1999
- 4. Signing of the United Nations Declaration on the Rights of Indigenous Peoples (3 April 2009)
- 5. International Covenant on Economic, Social and Cultural Rights (10 December 1975)
- 6. Human Rights Act, 2019 Sections 27 & 28

Strategic

- 1. iFuture Corporate Plan 2021 2026
 - Theme 2 Safe, Inclusive and Creative
 - Our community feels safe
 - Knowledge and learnings from our past are used to guide and be shared with future generations
 - o Our community lives together in harmony regardless of our backgrounds, cultures, abilities and religions.
 - Cultural landscapes landmarks and practices are acknowledged, protected and respected
 - The Ipswich brand is positive and inclusive
 - o The community feels heard and engaged and we close the loop with our consultation
 - We have a strong diverse arts scene for local and visiting artists that has created a strong creative economy
 - Theme 3 Natural and Sustainable
 - Our natural environment is managed to support the continuation of traditional cultural practices
- 2. 5 Year Corporate Plan ("Making it Happen") 2017 2022 and Operational Plan 2018 2019 ("Staying on Track") [under review]
 - Goal 2 (Managing Growth & Delivering Key Infrastructure)
 - Strategy 4 (conserve the city's heritage) Places of cultural heritage significance are identified, protected and used appropriately.
 - Goal 3 (Create a city that values its past & embraces opportunities to work together for the betterment of the community)
 - Strategy 1 Inform, educate and celebrate with the community those elements of our history that have shaped our identity
 - Goal 5 (Visionary & accessible leadership is provided that consults & communicates on key decisions & delivers sound financial management & good governance outcomes)
 - o Strategy 2 provide comprehensive and meaningful community engagement to inform Council decision making
- 3. Ipswich Planning Scheme 2019 [under review]
 - Conserves valuable features such as significant natural areas, habitat and vegetation, waterways, agriculturally produce land places and areas of historic character and cultural heritage significance including to the Traditional Owners (refer section 3.3 Valuable Features)
 - Section 3.3.3 Cultural Heritage
- 4. Ipswich City Council Indigenous Accord 2020-2025 (original ACCORD 1995)
 - The Accord is Councils strategic framework for Reconciliation and Community Governance with Aboriginal and Torres Strait Islander Peoples and their Communities. It sets the agenda for Cooperation, Collaboration and Partnership between Council and the Aboriginal and Torres Strait Islander Communities, as represented by the Ipswich City Council Indigenous Accord Working Group.
 - Purpose to provide an agreement between Council & AbTSI peoples and communities of Ipswich as to how to work together for the mutual benefit and empowerment of all members of the Ipswich community, in particular, the AbTSI community.
- Other Council Strategies
 - Arts and Cultural Strategy 2018 2023
 - Public Participation and Engagement Strategy (4 December 2018)
 - Natural Environment Policy (currently being drafted)

The Burra Charter

The Australia ICOMOS Charter for Places of Cultural Significance





THE BURRA CHARTER

The Australia ICOMOS Charter for Places of Cultural Significance 1999 with associated Guidelines and Code on the

Ethics of Co-existence



Australia ICOMOS Inc
International Council of Monuments and Sites

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ICOMOS

ICOMOS (International Council on Monuments and Sites) is a non-governmental professional organisation formed in 1965, with headquarters in Paris. ICOMOS is primarily concerned with the philosophy, terminology, methodology and techniques of cultural heritage conservation. It is closely linked to UNESCO, particularly in its role under the World Heritage Convention 1972 as UNESCO's principal adviser on cultural matters related to World Heritage. The 5,000 members of ICOMOS include architects, town planners, demographers, archaeologists, geographers, historians, conservators, anthropologists and heritage administrators. Members in the 84 countries belonging to ICOMOS are formed into National Committees and participate in a range of conservation projects, research work, intercultural exchanges and cooperative activities. ICOMOS also has a number of International Scientific Committees that focus on particular aspects of the conservation field. The members meet triennially in a General Assembly.

Australia ICOMOS Inc.

The Australian National Committee of ICOMOS (Australia ICOMOS Inc.) was formed in 1976. It elects an Executive Committee of 15 members, which is responsible for carrying out national programs and participating in decisions of ICOMOS as an international organisation. It provides expert advice as required by ICOMOS, especially in its relationship with the World heritage Committee. Australia ICOMOS acts as a national and international link between public authorities, institutions and individuals involved in the study and conservation of all places of cultural significance. Australia ICOMOS members participate in a range of conservation activities including site visits, training, conferences and meetings.

Revision of the Burra Charter

The Burra Charter was first adopted in 1979 at the historic South Australian mining town of Burra; minor revisions were made in 1981 and 1988. Following a five year review, more substantial changes were made resulting in this version which was adopted by Australia ICOMOS in November 1999. All Australia ICOMOS documents are regularly reviewed and Australia ICOMOS welcomes any comments.

This booklet also contains the three Guidelines to the Burra Charter and the Code on the Ethics of Co-existence. These have yet to be revised to accord with the 1999 Charter, but are included here for completeness. Australia ICOMOS plans to update them with the aim of completing a consistent suite of documents when the Charter itself is next reviewed.

To assist those familiar with previous versions of the Charter, this booklet also contains some notes explaining the key changes made and a conversion table relating articles in the 1999 Charter to those of the previous

Important Note

The 1988 version of the Burra Charter has now been superseded and joins the 1981 and 1979 versions as archival documents recording the development of conservation philosophy in Australia.

Citing the Burra Charter

The full reference is The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 1999.

Initial textual references should be in the form of the Australia ICOMOS Burra Charter, 1999 and later references in the short form (Burra Charter).

The Burra Charter

(The Australia ICOMOS Charter for Places of Cultural Significance)

Preamble

Considering the International Charter for the Conservation and Restoration of Monuments and Sites (Venice 1964), and the Resolutions of the 5th General Assembly of the International Council on Monuments and Sites (ICOMOS) (Moscow 1978), the Burra Charter was adopted by Australia ICOMOS (the Australian National Committee of ICOMOS) on 19 August 1979 at Burra, South Australia. Revisions were adopted on 23 February 1981, 23 April 1988 and 26 November 1999.

The Burra Charter provides guidance for the conservation and management of places of cultural significance (cultural heritage places), and is based on the knowledge and experience of Australia ICOMOS members.

Conservation is an integral part of the management of places of cultural significance and is an ongoing responsibility.

Who is the Charter for?

The Charter sets a standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance, including owners, managers and custodians.

Using the Charter

The Charter should be read as a whole. Many articles are interdependent. Articles in the Conservation Principles section are often further developed in the Conservation Processes and Conservation Practice sections. Headings have been included for ease of reading but do not form part of the Charter.

The Charter is self-contained, but aspects of its use and application are further explained in the following Australia ICOMOS documents:

 Guidelines to the Burra Charter: Cultural Significance;

- Guidelines to the Burra Charter: Conservation Policy;
- Guidelines to the Burra Charter: Procedures for Undertaking Studies and Reports;
- Code on the Ethics of Coexistence in Conserving Significant Places.

What places does the Charter apply to?

The Charter can be applied to all types of places of cultural significance including natural, indigenous and historic places with cultural values.

The standards of other organisations may also be relevant. These include the Australian Natural Heritage Charter and the Draft Guidelines for the Protection, Management and Use of Aboriginal and Torres Strait Islander Cultural Heritage Places.

Why conserve?

Places of cultural significance enrich people's lives, often providing a deep and inspirational sense of connection to community and landscape, to the past and to lived experiences. They are historical records, that are important as tangible expressions of Australian identity and experience. Places of cultural significance reflect the diversity of our communities, telling us about who we are and the past that has formed us and the Australian landscape. They are irreplaceable and precious.

These places of cultural significance must be conserved for present and future generations.

The Burra Charter advocates a cautious approach to change: do as much as necessary to care for the place and to make it useable, but otherwise change it as little as possible so that its cultural significance is retained.

The Burra Charter, 1999 Australia ICOMOS Inc 1

Articles

Article 1. Definitions

For the purposes of this Charter:

- 1.1 Place means site, area, land, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views.
- 1.2 Cultural significance means aesthetic, historic, scientific, social or spiritual value for past, present or future generations.
 - Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects.
 - Places may have a range of values for different individuals or groups.
- 1.3 Fabric means all the physical material of the place including components, fixtures, contents, and objects.
- 1.4 Conservation means all the processes of looking after a place so as to retain its cultural significance.
- 1.5 Maintenance means the continuous protective care of the fabric and setting of a place, and is to be distinguished from repair. Repair involves restoration or reconstruction.
- 1.6 Preservation means maintaining the fabric of a place in its existing state and retarding deterioration.
- 1.7 Restoration means returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material.
- 1.8 Reconstruction means returning a place to a known earlier state and is distinguished from restoration by the introduction of new material into the fabric.
- 1.9 Adaptation means modifying a place to suit the existing use or a proposed use.
- 1.10 *Use* means the functions of a place, as well as the activities and practices that may occur at the place.
- 1.11 Compatible use means a use which respects the cultural significance of a place. Such a use involves no, or minimal, impact on cultural significance.
- 1.12 Setting means the area around a place, which may include the visual catchment.
- 1.13 Related place means a place that contributes to the cultural significance of another place.

Explanatory Notes

The concept of place should be broadly interpreted. The elements described in Article 1.1 may include memorials, trees, gardens, parks, places of historical events, urban areas, towns, industrial places, archaeological sites and spiritual and religious places.

The term cultural significance is synonymous with heritage significance and cultural heritage value.

Cultural significance may change as a result of the continuing history of the place.

Understanding of cultural significance may change as a result of new information.

Fabric includes building interiors and subsurface remains, as well as excavated material.

Fabric may define spaces and these may be important elements of the significance of the place.

The distinctions referred to, for example in relation to roof gutters, are:

- maintenance regular inspection and cleaning of gutters;
- repair involving restoration returning of dislodged gutters;
- repair involving reconstruction replacing decayed gutters.

It is recognised that all places and their components change over time at varying

New material may include recycled material salvaged from other places. This should not be to the detriment of any place of cultural significance.

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The Burra Charter, 1999

Articles

- 1.14 Related object means an object that contributes to the cultural significance of a place but is not at the place.
- 1.15 Associations mean the special connections that exist between people and a place.
- 1.16 Meanings denote what a place signifies, indicates, evokes or expresses.
- 1.17 Interpretation means all the ways of presenting the cultural significance of a place.

Conservation Principles

Article 2. Conservation and management

- 2.1 Places of cultural significance should be conserved.
- 2.2 The aim of conservation is to retain the cultural significance of a place.
- 2.3 Conservation is an integral part of good management of places of cultural significance.
- 2.4 Places of cultural significance should be safeguarded and not put at risk or left in a vulnerable state.

Article 3. Cautious approach

- 3.1 Conservation is based on a respect for the existing fabric, use, associations and meanings. It requires a cautious approach of changing as much as necessary but as little as possible.
- 3.2 Changes to a place should not distort the physical or other evidence it provides, nor be based on conjecture.

Article 4. Knowledge, skills and techniques

- 4.1 Conservation should make use of all the knowledge, skills and disciplines which can contribute to the study and care of the place.
- 4.2 Traditional techniques and materials are preferred for the conservation of significant fabric. In some circumstances modern techniques and materials which offer substantial conservation benefits may be appropriate.

Explanatory Notes

Associations may include social or spiritual values and cultural responsibilities for a place.

Meanings generally relate to intangible aspects such as symbolic qualities and memories.

Interpretation may be a combination of the treatment of the fabric (e.g. maintenance, restoration, reconstruction); the use of and activities at the place; and the use of introduced explanatory material.

The traces of additions, alterations and earlier treatments to the fabric of a place are evidence of its history and uses which may be part of its significance. Conservation action should assist and not impede their understanding.

The use of modern materials and techniques must be supported by firm scientific evidence or by a body of experience.

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Article 5. Values

- 5.1 Conservation of a place should identify and take into consideration all aspects of cultural and natural significance without unwarranted emphasis on any one value at the expense of others.
- 5.2 Relative degrees of cultural significance may lead to different conservation actions at a place.

Article 6. Burra Charter process

- 6.1 The cultural significance of a place and other issues affecting its future are best understood by a sequence of collecting and analysing information before making decisions. Understanding cultural significance comes first, then development of policy and finally management of the place in accordance with the policy.
- 6.2 The policy for managing a place must be based on an understanding of its cultural significance.
- 6.3 Policy development should also include consideration of other factors affecting the future of a *place* such as the owner's needs, resources, external constraints and its physical condition.

Article 7. Use

- 7.1 Where the use of a place is of cultural significance it should be retained.
- 7.2 A place should have a compatible use.

Article 8. Setting

Conservation requires the retention of an appropriate visual setting and other relationships that contribute to the cultural significance of the place.

New construction, demolition, intrusions or other changes which would adversely affect the setting or relationships are not appropriate.

Explanatory Notes

Conservation of places with natural significance is explained in the Australian Natural Heritage Charter. This Charter defines natural significance to mean the importance of ecosystems, biological diversity and geodiversity for their existence value, or for present or future generations in terms of their scientific, social, aesthetic and lifesupport value.

A cautious approach is needed, as understanding of cultural significance may change. This article should not be used to justify actions which do not retain cultural significance.

The Burra Charter process, or sequence of investigations, decisions and actions, is illustrated in the accompanying flowchart.

The policy should identify a use or combination of uses or constraints on uses that retain the cultural significance of the place. New use of a place should involve minimal change, to significant fabric and use; should respect associations and meanings; and where appropriate should provide for continuation of practices which contribute to the cultural significance of the place.

Aspects of the visual setting may include use, siting, bulk, form, scale, character, colour, texture and materials.

Other relationships, such as historical connections, may contribute to interpretation, appreciation, enjoyment or experience of the place.

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Articles

Explanatory Notes

Article 9. Location

- 9.1 The physical location of a place is part of its cultural significance. A building, work or other component of a place should remain in its historical location. Relocation is generally unacceptable unless this is the sole practical means of ensuring its survival.
- 9.2 Some buildings, works or other components of *places* were designed to be readily removable or already have a history of relocation. Provided such buildings, works or other components do not have significant links with their present location, removal may be appropriate.
- 9.3 If any building, work or other component is moved, it should be moved to an appropriate location and given an appropriate use. Such action should not be to the detriment of any place of cultural significance.

Article 10. Contents

Contents, fixtures and objects which contribute to the *cultural significance* of a *place* should be retained at that place. Their removal is unacceptable unless it is: the sole means of ensuring their security and *preservation*; on a temporary basis for treatment or exhibition; for cultural reasons; for health and safety; or to protect the place. Such contents, fixtures and objects should be returned where circumstances permit and it is culturally appropriate.

Article 11. Related places and objects

The contribution which *related places* and *related objects* make to the *cultural significance* of the *place* should be retained.

Article 12. Participation

Conservation, interpretation and management of a place should provide for the participation of people for whom the place has special associations and meanings, or who have social, spiritual or other cultural responsibilities for the place.

Article 13. Co-existence of cultural values

Co-existence of cultural values should be recognised, respected and encouraged, especially in cases where they conflict.

For some places, conflicting cultural values may affect policy development and management decisions. In this article, the term cultural values refers to those beliefs which are important to a cultural group, including but not limited to political, religious, spiritual and moral beliefs. This is broader than values associated with cultural significance.

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Conservation Processes

Article 14. Conservation processes

Conservation may, according to circumstance, include the processes of: retention or reintroduction of a use; retention of associations and meanings; maintenance, preservation, restoration, reconstruction, adaptation and interpretation; and will commonly include a combination of more than one of these.

Article 15. Change

- 15.1 Change may be necessary to retain cultural significance, but is undesirable where it reduces cultural significance. The amount of change to a place should be guided by the cultural significance of the place and its appropriate interpretation.
- 15.2 Changes which reduce cultural significance should be reversible, and be reversed when circumstances permit.
- 15.3 Demolition of significant fabric of a place is generally not acceptable. However, in some cases minor demolition may be appropriate as part of conservation. Removed significant fabric should be reinstated when circumstances permit.
- 15.4 The contributions of all aspects of cultural significance of a place should be respected. If a place includes fabric, uses, associations or meanings of different periods, or different aspects of cultural significance, emphasising or interpreting one period or aspect at the expense of another can only be justified when what is left out, removed or diminished is of slight cultural significance and that which is emphasised or interpreted is of much greater cultural significance.

Article 16. Maintenance

Maintenance is fundamental to conservation and should be undertaken where fabric is of cultural significance and its maintenance is necessary to retain that cultural significance.

Explanatory Notes

There may be circumstances where no action is required to achieve conservation.

When change is being considered, a range of options should be explored to seek the option which minimises the reduction of cultural significance.

Reversible changes should be considered temporary. Non-reversible change should only be used as a last resort and should not prevent future conservation action.

Australia ICOMOS Inc The Burra Charter, 1999

Articles

Article 17. Preservation

Preservation is appropriate where the existing fabric or its condition constitutes evidence of cultural significance, or where insufficient evidence is available to allow other conservation processes to be carried out.

Article 18. Restoration and reconstruction

Restoration and reconstruction should reveal culturally significant aspects of the place.

Article 19. Restoration

Restoration is appropriate only if there is sufficient evidence of an earlier state of the fabric.

Article 20. Reconstruction

- 20.1 Reconstruction is appropriate only where a place is incomplete through damage or alteration, and only where there is sufficient evidence to reproduce an earlier state of the fabric. In rare cases, reconstruction may also be appropriate as part of a use or practice that retains the cultural significance of the place.
- 20.2 Reconstruction should be identifiable on close inspection or through additional interpretation.

Article 21. Adaptation

- 21.1 Adaptation is acceptable only where the adaptation has minimal impact on the cultural significance of the place.
- 21.2 Adaptation should involve minimal change to significant fabric, achieved only after considering alternatives.

Article 22. New work

- 22.1 New work such as additions to the place may be acceptable where it does not distort or obscure the cultural significance of the place, or detract from its interpretation and appreciation.
- 22.2 New work should be readily identifiable as such.

Explanatory Notes

Preservation protects fabric without obscuring the evidence of its construction and use. The process should always be applied:

- where the evidence of the fabric is of such significance that it should not be altered:
- where insufficient investigation has been carried out to permit policy decisions to be taken in accord with Articles 26 to 28.

New work (e.g. stabilisation) may be carried out in association with preservation when its purpose is the physical protection of the fabric and when it is consistent with Article 22.

Adaptation may involve the introduction of new services, or a new use, or changes to safeguard the place.

New work may be sympathetic if its siting, bulk, form, scale, character, colour, texture and material are similar to the existing fabric, but imitation should be avoided.

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Articles

Article 23. Conserving use

Continuing, modifying or reinstating a significant use may be appropriate and preferred forms of conservation.

Article 24. Retaining associations and meanings

- 24.1 Significant associations between people and a place should be respected, retained and not obscured. Opportunities for the interpretation, commemoration and celebration of these associations should be investigated and implemented.
- 24.2 Significant meanings, including spiritual values, of a place should be respected. Opportunities for the continuation or revival of these meanings should be investigated and implemented.

Article 25. Interpretation

The *cultural significance* of many places is not readily apparent, and should be explained by *interpretation*. Interpretation should enhance understanding and enjoyment, and be culturally appropriate.

Conservation Practice

Article 26. Applying the Burra Charter process

- 26.1 Work on a place should be preceded by studies to understand the place which should include analysis of physical, documentary, oral and other evidence, drawing on appropriate knowledge, skills and disciplines.
- 26.2 Written statements of cultural significance and policy for the place should be prepared, justified and accompanied by supporting evidence. The statements of significance and policy should be incorporated into a management plan for the place.
- 26.3 Groups and individuals with associations with a place as well as those involved in its management should be provided with opportunities to contribute to and participate in understanding the cultural significance of the place. Where appropriate they should also have opportunities to participate in its conservation and management.

Article 27. Managing change

- 27.1 The impact of proposed changes on the cultural significance of a place should be analysed with reference to the statement of significance and the policy for managing the place. It may be necessary to modify proposed changes following analysis to better retain cultural significance.
- 27.2 Existing fabric, use, associations and meanings should be adequately recorded before any changes are made to the place.

Explanatory Notes

These may require changes to significant fabric but they should be minimised. In some cases, continuing a significant use or practice may involve substantial new work.

For many places associations will be linked to use.

The results of studies should be up to date, regularly reviewed and revised as necessary.

Statements of significance and policy should be kept up to date by regular review and revision as necessary. The management plan may deal with other matters related to the management of the place.

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Articles

Explanatory Notes

Article 28. Disturbance of fabric

- 28.1 Disturbance of significant fabric for study, or to obtain evidence, should be minimised. Study of a place by any disturbance of the fabric, including archaeological excavation, should only be undertaken to provide data essential for decisions on the conservation of the place, or to obtain important evidence about to be lost or made inaccessible.
- 28.2 Investigation of a place which requires disturbance of the fabric, apart from that necessary to make decisions, may be appropriate provided that it is consistent with the policy for the place. Such investigation should be based on important research questions which have potential to substantially add to knowledge, which cannot be answered in other ways and which minimises disturbance of significant fabric.

Article 29. Responsibility for decisions

The organisations and individuals responsible for management decisions should be named and specific responsibility taken for each such decision.

Article 30. Direction, supervision and implementation

Competent direction and supervision should be maintained at all stages, and any changes should be implemented by people with appropriate knowledge and skills.

Article 31. Documenting evidence and decisions

A log of new evidence and additional decisions should be kept.

Article 32. Records

- 32.1 The records associated with the conservation of a place should be placed in a permanent archive and made publicly available, subject to requirements of security and privacy, and where this is culturally appropriate.
- 32.2 Records about the history of a place should be protected and made publicly available, subject to requirements of security and privacy, and where this is culturally appropriate.

Article 33. Removed fabric

Significant *fabric* which has been removed from a *place* including contents, fixtures and objects, should be catalogued, and protected in accordance with its *cultural significance*.

Where possible and culturally appropriate, removed significant fabric including contents, fixtures and objects, should be kept at the place.

Article 34. Resources

Adequate resources should be provided for conservation.

Words in italics are defined in Article 1.

The Burra Charter, 1999

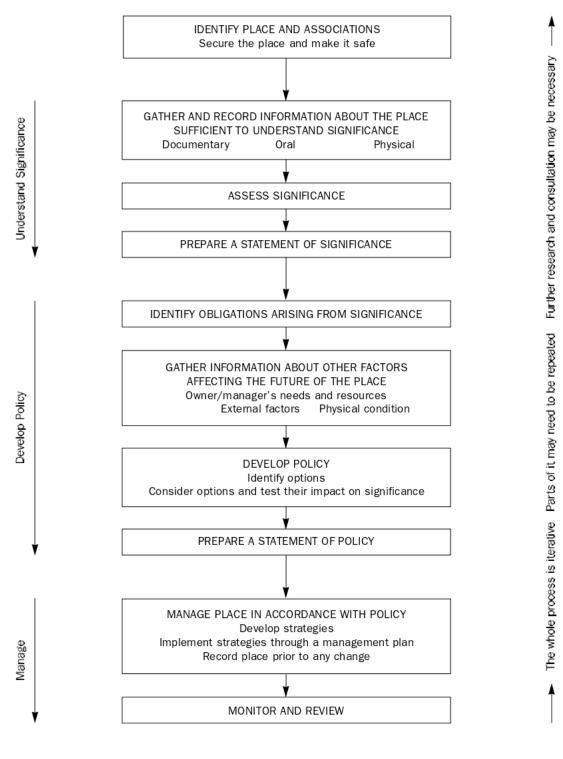
The best conservation often involves the least work and can be inexpensive.

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The Burra Charter Process

Sequence of investigations, decisions and actions



The Burra Charter, 1999

Guidelines to the Burra Charter: Cultural Significance

These guidelines for the establishment of cultural significance were adopted by the Australian national committee of the International Council on Monuments and Sites (Australia ICOMOS) on 14 April 1984 and revised on 23 April 1988. They should be read in conjunction with the Burra Charter.

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1.0 Preface

1.1 Intention of guidelines

These guidelines are intended to clarify the nature of professional work done within the terms of the Burra Charter. They recommend a methodical procedure for assessing the cultural significance of a place, for preparing a statement of cultural significance and for making such information publicly available.

1.2 Applicability

The guidelines apply to any place likely to be of cultural significance regardless of its type or size.

1.3 Need to establish cultural significance

The assessment of cultural significance and the preparation of a statement of cultural significance, embodied in a report as defined in section 4.0, are essential prerequisites to making decisions about the future of a place.

1.4 Skills required

In accordance with Article 4 of the Burra Charter, the study of a place should make use of all relevant disciplines. The professional skills required for such study are not common. It cannot be assumed that any one practitioner will have the full range of skills required to assess cultural significance and prepare a statement. Sometimes in the course of the task it will be necessary to engage additional practitioners with special expertise.

1.5 Issues not considered

The assessment of cultural significance and the preparation of a statement do not involve or take account of such issues as the necessity for conservation action, legal constraints, possible uses, structural stability or costs and returns. These issues will be dealt with in the development of a conservation policy.

Guidelines: Cultural Significance, 1988

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2.0 The Concept of Cultural Significance

2.1 Introduction

In the Burra Charter cultural significance means "aesthetic, historic, scientific or social value for past, present or future generations".

Cultural significance is a concept which helps in estimating the value of places. The places that are likely to be of significance are those which help an understanding of the past or enrich the present, and which will be of value to future generations.

Although there are a variety of adjectives used in definitions of cultural significance in Australia, the adjectives "aesthetic", "historic", "scientific" and "social", given alphabetically in the Burra Charter, can encompass all other values.

The meaning of these terms in the context of cultural significance is discussed below. It should be noted that they are not mutually exclusive, for example, architectural style has both historic and aesthetic aspects.

2.2 Aesthetic value

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria may include consideration of the form, scale, colour, texture and material of the fabric; the smells and sounds associated with the place and its use.

2.3 Historic value

Historic value encompasses the history of aesthetics, science and society, and therefore to a large extent underlies all of the terms set out in this section.

A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase or activity. It may also have historic value as the site of an important event. For any given place the significance will be greater where evidence of the association or event survives in situ, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment.

2.4 Scientific value

The scientific or research value of a place will depend on the importance of the data involved, on its rarity, quality or representativeness, and on the degree to which the place may contribute further substantial information.

2.5 Social value

Social value embraces the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiment to a majority or minority group.

2.6 Other approaches

The categorisation into aesthetic, historic, scientific and social values is one approach to understanding the concept of cultural significance. However, more precise categories may be developed as understanding of a particular place increases.

3.0 The Establishment of Cultural Significance

3.1 Introduction

In establishing the cultural significance of a place it is necessary to assess all the information relevant to an understanding of the place and its fabric. The task includes a report comprising written material and graphic material. The contents of the report should be arranged to suit the place and the limitations on the task, but it will generally be in two sections: first, the assessment of cultural significance (see 3.2 and 3.3) and second, the statement of cultural significance (see 3.4).

3.2 Collection of information

Information relevant to the assessment of cultural significance should be collected. Such information concerns:

- (a) the developmental sequence of the place and its relationship to the surviving fabric;
- (b) the existence and nature of lost or obliterated fabric;
- (c) the rarity and/or technical interest of all or any part of the place;
- (d) the functions of the place and its parts;
- (e) the relationship of the place and its parts with its setting;
- the cultural influences which have affected the form and fabric of the place;
- (g) the significance of the place to people who use or have used the place, or descendants of such people;
- (h) the historical content of the place with particular reference to the ways in which its fabric has been influenced by historical forces or has itself influenced the course of history;
- (i) the scientific or research potential of the place;
- the relationship of the place to other places, for example in respect of design, technology, use, locality or origin;
- (k) any other factor relevant to an understanding of the place.

Guidelines: Cultural Significance, 1988

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3.3 The assessment of cultural significance

The assessment of cultural significance follows the collection of information.

The validity of the judgements will depend upon the care with which the data is collected and the reasoning applied

In assessing cultural significance the practitioner should state conclusions. Unresolved aspects should be identified.

Whatever may be considered the principal significance of a place, all other aspects of significance should be given consideration.

3.3.1 Extent of recording

In assessing these matters a practitioner should record the place sufficiently to provide a basis for the necessary discussion of the facts. During such recording any obviously urgent problems endangering the place, such as stability and security, should be reported to the client.

3.3.2 Intervention in the fabric

Intervention in, or removal of, fabric at this stage should be strictly within the terms of the Burra Charter.

Hypotheses 3.3.3

Hypotheses, however expert or informed, should not be presented as established fact. Feasible or possible hypotheses should be set out, with the evidence for and against them, and the line of reasoning that has been followed. Any attempt which has been made to check a hypothesis should be recorded, so as to avoid repeating fruitless research.

3.4 Statement of cultural significance

The practitioner should prepare a succinct statement of cultural significance, supported by, or cross referenced to, sufficient graphic material to help identify the fabric of cultural significance.

It is essential that the statement be clear and pithy, expressing simply why the place is of value but not restating the physical or documentary evidence.

The Report

Content

The report will comprise written and graphic material and will present an assessment of cultural significance and a statement of cultural significance.

In order to avoid unnecessary bulk, only material directly relevant to the process of assessing cultural significance and to making a statement of cultural significance should be

See also Guidelines to the Burra Charter: Procedures for Undertaking Studies and Reports.

Written material 4.2

The text should be clearly set out and easy to follow. In addition to the assessment and statement of cultural significance as set out in 3.2, 3.3 and 3.4 it should include:

- (a) name of the client;
- (b) names of all the practitioners engaged in the task;
- (c) authorship of the report;
- (e) brief or outline of brief;
- (f) constraints on the task, for example, time, money, expertise;
- (g) sources (see 4.4).

Graphic material 4.3

Graphic material may include maps, plans, drawings, diagrams, sketches, photographs and tables, and should be reproduced with sufficient quality for the purposes of interpretation.

All components discussed in the report should be identified in the graphic material. Such components should be identified and described in a schedule.

Detailed drawings may not be necessary. A diagram may best assist the purpose of the report.

Graphic material which does not serve a specific purpose should not be included.

4.4 Sources

All sources used in the report must be cited with sufficient precision to enable others to locate them.

It is necessary for all sources consulted to be listed, even if

All major sources or collections not consulted, but believed to have potential usefulness in establishing cultural significance should be listed.

In respect of source material privately held the name and address of the owner should be given, but only with the owner's consent.

4.5 **Exhibition and adoption**

The report should be exhibited and the statement of cultural significance adopted in accordance with Guidelines to the Burra Charter: Procedures for Undertaking Studies and Reports.

Guidelines: Cultural Significance, 1988

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Guidelines to the Burra Charter: Conservation Policy

These guidelines, which cover the development of conservation policy and strategy for implementation of that policy, were adopted by the Australian national committee of the International Council on Monuments and Sites (Australia ICOMOS) on 25 May 1985 and revised on 23 April 1988. They should be read in conjunction with the Burra Charter.

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- 5.5 Exhibition and adoption

1.0 Preface

1.1 Intention of guidelines

These guidelines are intended to clarify the nature of professional work done within the terms of the Burra Charter. They recommend a methodical procedure for development of the conservation policy for a place, for the statement of conservation policy and for the strategy for the implementation of that policy.

1.2 Cultural significance

The establishment of cultural significance and the preparation of a statement of cultural significance are essential prerequisites to the development of a conservation policy (refer to Guidelines to the Burra Charter: Cultural Significance).

1.3 Need to develop conservation policy

The development of a conservation policy, embodied in a report as defined in Section 5.0, is an essential prerequisite to making decisions about the future of a place.

1.4 Skills required

In accordance with the Burra Charter, the study of a place should make use of all relevant disciplines. The professional skills required for such study are not common. It cannot be assumed that any one practitioner will have the full range of skills required to develop a conservation policy and prepare the appropriate report. In the course of the task it may be necessary to consult with other practitioners and organisations.

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Guidelines: Conservation Policy, 1988

2.0 The Scope of the Conservation Policy

2.1 Introduction

The purpose of the conservation policy is to state how the conservation of the place may best be achieved both in the long and short term. It will be specific to that place.

The conservation policy will include the issues listed below.

2.2 Fabric and setting

The conservation policy should identify the most appropriate way of caring for the fabric and setting of the place arising out of the statement of significance and other constraints. A specific combination of conservation actions should be identified. This may or may not involve changes to the fabric.

2.3 Use

The conservation policy should identify a use or combination of uses, or constraints on use, that are compatible with the retention of the cultural significance of the place and that are feasible.

2.4 Interpretation

The conservation policy should identify appropriate ways of making the significance of the place understood consistent with the retention of that significance. This may be a combination of the treatment of the fabric, the use of the place and the use of introduced interpretive

In some instances the cultural significance and other constraints may preclude the introduction of such uses and material.

2.5 Management

The conservation policy should identify a management structure through which the conservation policy is capable of being implemented. It should also identify:

- (a) those to be responsible for subsequent conservation and management decisions and for the day-to-day management of the place;
- (b) the mechanism by which these decisions are to be made and recorded;
- (c) the means of providing security and regular maintenance for the place.

Guidelines: Conservation Policy, 1988

2.6 Control of physical intervention in the fabric

The conservation policy should include provisions for the control of physical intervention. It may:

- (a) specify unavoidable intervention;
- (b) identify the likely impact of any intervention on the cultural significance;
- specify the degree and nature of intervention acceptable for non-conservation purposes;
- (d) specify explicit research proposals;
- (e) specify how research proposals will be assessed;
- (f) provide for the conservation of significant fabric and contents removed from the place;
- (g) provide for the analysis of material;
- (h) provide for the dissemination of the resultant information;
- specify the treatment of the site when the intervention is complete.

2.7 Constraints on investigation

The conservation policy should identify social, religious, legal or other cultural constraints which might limit the accessibility or investigation of the place.

2.8 Future developments

The conservation policy should set guidelines for future developments resulting from changing needs.

2.9 Adoption and review

The conservation policy should contain provision for adoption and review.

3.0 Development of Conservation Policy

3.1 Introduction

In developing a conservation policy for the place it is necessary to assess all the information relevant to the future care of the place and its fabric. Central to this task is the statement of cultural significance.

The task includes a report as set out in Section 5.0. The contents of the report should be arranged to suit the place and the limitations of the task, but it will generally be in three sections:

- (a) the development of a conservation policy (see 3.2 and 3.3):
- (b) the statement of conservation policy (see 3.4 and 3.5);

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(c) the development of an appropriate strategy for implementation of the conservation policy (see 4.0). In the course of the assessment it may be necessary to collect further information.

3.2 Collection of Information

In order to develop the conservation policy sufficient information relevant to the following should be collected:

3.2.1 Significant fabric

Establish or confirm the nature, extent, and degree of intactness of the significant fabric including contents (see Guidelines to the Burra Charter: Cultural Significance).

3.2.2 Client, owner and user requirements and

Investigate needs, aspirations, current proposals, available finances, etc., in respect of the place.

3.2.3 Other requirements and concerns

Investigate other requirements and concerns likely to affect the future of the place and its setting including:

- (a) federal, state and local government acts, ordinances and planning controls;
- (b) community needs and expectations;
- (c) locational and social context.

3.2.4 Condition of fabric

Survey the fabric sufficiently to establish how its physical state will affect options for the treatment of the fabric.

3.2.5 Uses

Collect information about uses, sufficient to determine whether or not such uses are compatible with the significance of the place and feasible.

3.2.6 Comparative information

Collect comparative information about the conservation of similar places (if appropriate).

3.2.7 Unavailable information

Identify information which has been sought and is unavailable and which may be critical to the determination of the conservation policy or to its implementation.

3.3 Assessment of information

The information gathered above should now be assessed in relation to the constraints arising from the statement of cultural significance for the purpose of developing a conservation policy.

3.4 Statement of conservation policy

The practitioner should prepare a statement of conservation policy that addresses each of the issues listed in 2.0, viz.:

- fabric and setting;
- 1150
- interpretation;
- management;
- control of intervention in the fabric;
- constraints on investigation;
- future developments;
- adoption and review.

The statement of conservation policy should be crossreferenced to sufficient documentary and graphic material to explain the issues considered.

3.5 Consequences of conservation policy

The practitioner should set out the way in which the implementation of the conservation policy will or will not:

- (a) change the place including its setting;
- (b) affect its significance;
- (c) affect the locality and its amenity;
- (d) affect the client owner and user;
- (e) affect others involved.

4.0 Implementation of Conservation Policy

Following the preparation of the conservation policy a strategy for its implementation should be prepared in consultation with the client. The strategy may include information about:

- (a) the financial resources to be used;
- (b) the technical and other staff to be used;
- (c) the sequence of events;
- (d) the timing of events;
- (e) the management structure.

The strategy should allow the implementation of the conservation policy under changing circumstances.

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Guidelines: Conservation Policy, 1988

5.0 The Report

5.1 Introduction

The report is the vehicle through which the conservation policy is expressed, and upon which conservation action is based.

See also Guidelines to the Burra Charter: Procedures for Undertaking Studies and Reports.

5.2 Written material

Written material will include:

- (a) the statement of cultural significance;
- (b) the development of conservation policy;
- (c) the statement of conservation policy;
- (d) the strategy for implementation of conservation policy.

It should also include:

- (a) name of the client;
- (b) names of all the practitioners engaged in the task, the work they undertook, and any separate reports they prepared;
- (c) authorship of the report;
- (d) date;
- (e) brief or outline of brief;

- (f) constraints on the task, for example, time, money, expertise;
- (g) sources (see 5.4).

5.3 Graphic material

Graphic material may include maps, plans, drawings, diagrams, sketches, photographs and tables, clearly reproduced.

Material which does not serve a specific purpose should not be included.

5.4 Sources

All sources used in the report must be cited with sufficient precision to enable others to locate them.

All sources of information, both documentary and oral, consulted during the task should be listed, whether or not they proved fruitful.

In respect of source material privately held, the name and address of the owner should be given, but only with the owner's consent.

5.5 Exhibition and adoption

The report should be exhibited and the statement of conservation policy adopted in accordance with Guidelines to the Burra Charter: Procedures for Undertaking Studies and Reports.

Guidelines to the Burra Charter: Procedures for Undertaking Studies and Reports

These guidelines for the preparation of professional studies and reports were adopted by the Australian national committee of the International Council on Monuments and Sites (Australia ICOMOS) on 23 April 1988. They should be read in conjunction with the Burra Charter.

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- 2.0 Agreements between client and practitioner
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- 9.0 Adoption and review of report
- 10.0 Further evidence
- 11.0 Accessibility of information

1.0 Preface

These guidelines make recommendations about professional practice in the preparation of the studies and reports within the terms of the Burra Charter.

Attention is also drawn to the advice about ethical, procedural and legal matters provided in the practice notes issued by various professional bodies.

2.0 Agreements between client and practitioner

Before undertaking a study or report, the client and the practitioner should agree upon:

 (a) the extent of the task, for example, up to the preparation of a statement of significance, up to the preparation of a statement of conservation policy or

- up to the preparation of a strategy for implementation;
- (b) the boundaries of the place;
- (c) any aspect which requires intensive investigation;
- (d) the dates for the commencement of the task, submission of the draft report and submission of the final report;
- (e) the fee and basis upon which fees and disbursements will be paid;
- (f) the use of any joint consultant, sub-consultant or other practitioner with special expertise;
- (g) the basis for any further investigation which may be required, for example, within the terms of 7.0 below or Section 3.3 of Guidelines to the Burra Charter: Conservation Policy;
- (h) the representative of the client to whom the practitioner will be responsible in the course of the task;
- the sources, material or services to be supplied by the client including previous studies or reports;
- (j) any requirements for the format or reproduction of the report;
- (k) the number of copies of the report to be supplied at each stage;
- copyright and confidentiality;
- (m) how the authorship will be cited;
- (n) the condition under which the report may be published or distributed by the client, the practitioner or others:
- (o) the procedure for any required exhibition of the report:
- (p) the basis for comment upon the report and any consequent amendment;
- (q) the responsibility for affecting archival storage in accordance with Article 28 of the Burra Charter (Article 32 of the Burra Charter, 1999).

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Guidelines: Procedures for Studies and Reports, 1988

3.0 Responsibility for content of report

The content of the report is the responsibility of the practitioner. The report may not be amended without the agreement of the practitioner.

4.0 Draft report

It is useful for the report to be presented to the client in draft form to ensure that it is understood and so that the practitioner may receive the client's comments.

5.0 Urgent action

If the practitioner believes that urgent action may be necessary to avert a threat to the fabric involving, for example, stability or security, the practitioner should immediately advise the client to seek specialist advice.

6.0 Additional work

Where it becomes clear that some aspect of the task will require more investigation or more expertise than has been allowed within the budget or the terms of the agreement, the practitioner should advise the client immediately.

7.0 Recommendations for further investigations

In respect of major unresolved aspects of cultural significance, conservation policy or of strategies for implementation of conservation policy, recommendations for further investigation should be made only where:

 (a) the client has been informed of the need for such investigation at the appropriate stage and it has been impossible to have it undertaken within the budget and time constraints of the task; (b) further information is anticipated as a result of intervention in the fabric which would not be proper at this stage, but which will become appropriate in the future.

Such recommendations should indicate what aspects of cultural significance, conservation policy or implementation might be assisted by such study.

8.0 Exhibition and comment

The report for any project of public interest should be exhibited in order that interested bodies and the public may comment and reasonable time should be allowed for the receipt and consideration of comment. Where public exhibition is not appropriate, comment should be sought from relevant individuals, organisations and specialists.

9.0 Adoption and review of report

Recommendations should be made for the formal adoption of the report and for any subsequent review.

10.0 Further evidence

If after the completion of the report further evidence is revealed, for example, by intervention in the fabric or information from other sources, it is desirable for this evidence to be referred to the original practitioner so that the report may be amended if necessary.

11.0 Accessibility of information

All material relating to the cultural significance of the place should be made readily available to increase the common pool of knowledge. Publication by the client and/or practitioner should be encouraged.

Code on the Ethics of Co-existence in Conserving Significant Places

(Adopted by Australia ICOMOS in 1998)

Preamble

This Code has been drafted in the context of several national and international agreements and statutes, such as:

- the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (the Burra Charter) 1981, last revised 1988;
- the Code of Ethics of the Australian Archaeological Association, 1991;
- the Racial Discrimination Act 1975 (Australia);
- the Australian Heritage Commission Act 1975;
- the UNESCO Declaration of the Principles of International Cultural Co-operation 1996; and
- the UN Decade for the Cultural Development (1988-1997);

Assumptions

The Code assumes that:

- the healthy management of cultural difference is the responsibility of society as a whole;
- (ii) in a pluralist society, value differences exist and contain the potential for conflict; and
- (iii) ethical practice is necessary for the just and effective management of places of diverse cultural significance.

- 1.2 *cultural group* means a group of people holding common values, expressed through the sharing of beliefs, traditions, customs and/or practice;
- 1.3 the national estate means 'those places in the Australian environment which have aesthetic, historic, scientific, social or other special value for the present community and for future generations';1
- 1.4 cultural significance means 'aesthetic, historic, scientific or social value for past, present or future generations';²
- 1.5 conflict means a relationship in which 'two or more parties perceive their values or needs to be incompatible';³
- 1.6 dispute means a relationship in which two or more parties perceive their goals, interests or needs to be incompatible and in which each seeks to maximise fulfilment of its own goals, interests or needs; and
- 1.7 conflict resolution, as a generic term, includes the management of conflict through both mediated dispute settlement and the acceptance of value co-existence.

Ethical Principles

Article 2.

The co-existence of diverse cultures requires acknowledgment of the values of each group.

Definitions

Article 1.

For the purpose of this Code:

- 1.1 values means those beliefs which have significance for a cultural group — often including, but not limited to, political, religious and spiritual, and moral beliefs;
- 1 based on the Australian Heritage Commission Act 1975, section 4
- Australia ICOMOS, Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (the Burra Charter,), Article 1.2
- 3 G Tillett, Resolving Conflict, 1991

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Code on the Ethics of Co-existence, 1998

Article 3.

Conserving the national estate requires acknowledgment of, and sensitivity to, the values of all associated cultural groups.

Article 4.

Each cultural group has a primary right to identify places of cultural significance to it and this right may include the withholding of certain information.

Article 5.

Each cultural group has the right of access to pertinent information and to any decision-making process affecting places it has identified as significant.

Article 6.

In identifying places of significance to it, a cultural group assumes some custodial responsibility towards those places.

Article 7.

In the case of indigenous peoples, and other peoples, the right to identify significant places may extend to the right to their full custodianship.

Ethical Practice

In assessing or managing a place of significance to different cultural groups, the practitioner shall:

Article 8.

adopt a co-ordinated multi-disciplinary approach to ensure an open attitude to cultural diversity and the availability of all necessary professional skills;

Article 9.

identify and acknowledge each associated cultural group and its values, while accepting the cultural right of groups to withhold certain information;

Article 10.

enable each cultural group to gain access to pertinent information and facilitate the exchange of information among groups;

Article 11.

enable each cultural group to gain access to, and inclusion and participation in, the decision-making processes which may affect the place;

Article 12.

apply a decision-making process which is appropriate to the principles of this Code;

This will include:

- co-responsibility among cultural groups for the assessment and management of the cultural significance of the place;
- accepted dispute settlement practices at each stage at which they are required; and
- adequate time to confer with all parties, including the least outspoken, and may require the amendment of existing procedures in conservation practice.

Article 13.

whilst seeking to identify issues and associated cultural groups at the beginning of the process, accept new issues and groups if they emerge and accommodate evolving positions and values;

Article 14.

where appropriate, seek co-existence of differing perceptions of cultural significance rather than resolution; and

Article 15.

accept compensation as a possible element in managing irreconcilable cultural difference.

Notes on the 1999 revisions to the Burra Charter

These notes are about the changes made in the 1999 revisions to the Burra Charter and are intended for those familiar with previous versions. They do not form part of the Charter.

Key changes

1. Fabric, Use, Associations and Meanings

The revisions broaden the understanding of what is cultural significance by recognising that significance may lie in more than just the fabric of a place. Thus significance "is embodied in the place itself, its setting, use, associations, meanings, records, related places and related objects" (Article 1.2). Use, associations and meanings are defined (Articles 1.10, 1.15 and 1.16) and the need to retain significant uses, associations and meanings is explained (Articles 7.1, 23 and 24). Related places and related objects are defined in Articles 1.13 and 1.14, and the need to retain their contribution to significance is explained in Article 11.

2. Planning process explained

Article 6 and the flowchart now provide a clear explanation of the sequence of decisions and actions of the conservation planning process, namely:

- understand significance;
- develop policy;
- manage in accordance with the policy.

3. Peopling the Charter

The way the Charter deals with social value has been improved (through the recognition that significance may be embodied in use, associations and meanings); spiritual value has been included (Article 1.2); and the need to consult and involve people has been made clear (Articles 12 and 26.3).

4. Co-existence of values

The Charter encourages the co-existence of cultural values, especially where they conflict (Article 13).

5. Interpretation

The revisions recognise the importance of interpretation and also that restoration and reconstruction are acts of interpretation (Articles 1.17 and 25).

6. Explanatory preamble

The preamble has been enlarged to make the document more approachable, with sections on Who is the Charter for?, Using the Charter, and What places does the Charter apply to?

7. Why conserve

A short statement in the preamble to provide some explanation for why places of cultural significance should be conserved.

8. Language

Within the limits of retaining the 'look and feel' of the previous document, the revisions make the Charter longer, but easier to understand.

9. Heritage places should be conserved

Changes to Article 2 provide an obligation to conserve and importantly, recognise that conservation is an integral part of good management.

10. The title

The changes to the title reflect its common use and make the Charter applicable to all places of cultural significance, not just those that are being actively conserved.

Things that have not changed

The fundamental concepts of the Burra Charter have not changed. The 1999 revisions were made to bring the Charter up to date, not to change its essential message.

The 1999 revisions preserve the structure of previous versions. Following the Preamble there are three main sections: Conservation Principles, Conservation Processes and Conservation Practices. These have a hierarchy with principles in the first being further developed in the second or third sections: for example the higher order principle of Article 12 (Participation) is further developed in regard to practice in Article 26.3; Article 5.1 (Values) in Article 15.4; Article 6.1 (Process) in Articles 26.1, 26.2 and 26.3; and Article 10 (Contents) in Article 33.

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Notes on the 1999 revisions to the Burra Charter

Conversion table: Burra Charter, 1999 and previous version

This table relates article numbers and subjects in the current (1999) version of the Charter to those of the previous (1988) version. The table does not form part of the Charter.

1999	Subject	1988	1999	Subject	1988
1	Definitions	1		Conservation Processes	
1.1	Place	1.1	14	Conservation processes	1.4
1.2	Cultural significance	1.2	15	Change	16
1.3	Fabric	1.3	16	Maintenance	_
1.4	Conservation	1.4	17	Preservation	11
1.5	Maintenance	1.5	18	Restoration and reconstruction	14, 17
1.6	Preservation	1.6	19	Restoration	13
1.7	Restoration	1.7	20	Reconstruction	17–19
1.8	Reconstruction	1.8	21	Adaptation	20, 21
1.9	Adaptation	1.9	22	New work	_
1.10	Use	_	23	Conserving use	_
1.11	Compatible use	1.10	24	Retaining associations and meanings	-
1.12	Setting	_	25	Interpretation	_
1.13	Related place	_		Conservation Practice	
1.14	Related object	_	26	Applying the Burra Charter process	23, 25
1.15	Associations	_	27	Managing change	-
1.16	Meanings	_	28	Disturbance of fabric	24
1.17	Interpretation	-	29	Responsibility for decisions	26
	Conservation Principles		30	Direction, supervision and implementa	tion 27
2	Conservation and management	2	31	Documenting evidence and decisions	27
3	Cautious approach	3	32	Records	28
4	Knowledge, skills and techniques	4	33	Removed fabric	29
5	Values	5	34	Resources	-
6	Burra Charter process	6			
7	Use	7			
8	Setting	8			
9	Location	9			
10	Contents	10			
11	Related places and objects	_			
12	Participation	-			
13	Co-existence of cultural values	_			

Conservation table: Burra Charter and previous version

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Item 2 / Attachment 4

International Covenant on Economic, Social and Cultural Rights

Adopted and opened for signature, ratification and accession by General Assembly resolution 2200A (XXI) of 16 December 1966

entry into force 3 January 1976, in accordance with article 27

Preamble

The States Parties to the present Covenant,

Considering that, in accordance with the principles proclaimed in the Charter of the United Nations, recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world,

Recognizing that these rights derive from the inherent dignity of the human person,

Recognizing that, in accordance with the Universal Declaration of Human Rights, the ideal of free human beings enjoying freedom from fear and want can only be achieved if conditions are created whereby everyone may enjoy his economic, social and cultural rights, as well as his civil and political rights,

Considering the obligation of States under the Charter of the United Nations to promote universal respect for, and observance of, human rights and freedoms,

Realizing that the individual, having duties to other individuals and to the community to which he belongs, is under a responsibility to strive for the promotion and observance of the rights recognized in the present Covenant,

Agree upon the following articles:

PART I

Article 1

- 1. All peoples have the right of self-determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development.
- 2. All peoples may, for their own ends, freely dispose of their natural wealth and resources without prejudice to any obligations arising out of international economic co-operation, based upon the principle of mutual benefit, and international law. In no case may a people be deprived of its own means of subsistence.
- 3. The States Parties to the present Covenant, including those having responsibility for the administration of Non-Self-Governing and Trust Territories, shall promote the realization of the right of self-determination, and shall respect that right, in conformity with the provisions of the Charter of the United Nations.

PART II

Article 2

2

- 1. Each State Party to the present Covenant undertakes to take steps, individually and through international assistance and co-operation, especially economic and technical, to the maximum of its available resources, with a view to achieving progressively the full realization of the rights recognized in the present Covenant by all appropriate means, including particularly the adoption of legislative measures.
- 2. The States Parties to the present Covenant undertake to guarantee that the rights enunciated in the present Covenant will be exercised without discrimination of any kind as to race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status.
- 3. Developing countries, with due regard to human rights and their national economy, may determine to what extent they would guarantee the economic rights recognized in the present Covenant to non-nationals.

Article 3

The States Parties to the present Covenant undertake to ensure the equal right of men and women to the enjoyment of all economic, social and cultural rights set forth in the present Covenant.

Article 4

The States Parties to the present Covenant recognize that, in the enjoyment of those rights provided by the State in conformity with the present Covenant, the State may subject such rights only to such limitations as are determined by law only in so far as this may be compatible with the nature of these rights and solely for the purpose of promoting the general welfare in a democratic society.

Article 5

- 1. Nothing in the present Covenant may be interpreted as implying for any State, group or person any right to engage in any activity or to perform any act aimed at the destruction of any of the rights or freedoms recognized herein, or at their limitation to a greater extent than is provided for in the present Covenant.
- 2. No restriction upon or derogation from any of the fundamental human rights recognized or existing in any country in virtue of law, conventions, regulations or custom shall be admitted on the pretext that the present Covenant does not recognize such rights or that it recognizes them to a lesser extent.

PART III

Article 6

- 1. The States Parties to the present Covenant recognize the right to work, which includes the right of everyone to the opportunity to gain his living by work which he freely chooses or accepts, and will take appropriate steps to safeguard this right.
- 2. The steps to be taken by a State Party to the present Covenant to achieve the full realization of this right shall include technical and vocational guidance and training programmes, policies and techniques to achieve steady economic, social and cultural development and full and productive employment under conditions safeguarding fundamental political and economic freedoms to the individual.

Article 7

The States Parties to the present Covenant recognize the right of everyone to the enjoyment of just and favourable conditions of work which ensure, in particular:

(a) Remuneration which provides all workers, as a minimum, with:

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- (i) Fair wages and equal remuneration for work of equal value without distinction of any kind, in particular women being guaranteed conditions of work not inferior to those enjoyed by men, with equal pay for equal work;
- (ii) A decent living for themselves and their families in accordance with the provisions of the present Covenant;
- (b) Safe and healthy working conditions; (c) Equal opportunity for everyone to be promoted in his employment to an appropriate higher level, subject to no considerations other than those of seniority and competence;
- (d) Rest, leisure and reasonable limitation of working hours and periodic holidays with pay, as well as remuneration for public holidays

Article 8

- 1. The States Parties to the present Covenant undertake to ensure:
- (a) The right of everyone to form trade unions and join the trade union of his choice, subject only to the rules of the organization concerned, for the promotion and protection of his economic and social interests. No restrictions may be placed on the exercise of this right other than those prescribed by law and which are necessary in a democratic society in the interests of national security or public order or for the protection of the rights and freedoms of others;
- (b) The right of trade unions to establish national federations or confederations and the right of the latter to form or join international trade-union organizations;
- (c) The right of trade unions to function freely subject to no limitations other than those prescribed by law and which are necessary in a democratic society in the interests of national security or public order or for the protection of the rights and freedoms of others;
- (d) The right to strike, provided that it is exercised in conformity with the laws of the particular country.
- 2. This article shall not prevent the imposition of lawful restrictions on the exercise of these rights by members of the armed forces or of the police or of the administration of the State. 3. Nothing in this article shall authorize States Parties to the International Labour Organisation Convention of 1948 concerning Freedom of Association and Protection of the Right to Organize to take legislative measures which would prejudice, or apply the law in such a manner as would prejudice, the guarantees provided for in that Convention.

Article 9

The States Parties to the present Covenant recognize the right of everyone to social security, including social insurance.

Article 10

The States Parties to the present Covenant recognize that:

- 1. The widest possible protection and assistance should be accorded to the family, which is the natural and fundamental group unit of society, particularly for its establishment and while it is responsible for the care and education of dependent children. Marriage must be entered into with the free consent of the intending spouses.
- Special protection should be accorded to mothers during a reasonable period before and after childbirth. During such period working mothers should be accorded paid leave or leave with adequate social security benefits.

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3. Special measures of protection and assistance should be taken on behalf of all children and young persons without any discrimination for reasons of parentage or other conditions. Children and young persons should be protected from economic and social exploitation. Their employment in work harmful to their morals or health or dangerous to life or likely to hamper their normal development should be punishable by law. States should also set age limits below which the paid employment of child labour should be prohibited and punishable by law.

Article 11

- 1. The States Parties to the present Covenant recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions. The States Parties will take appropriate steps to ensure the realization of this right, recognizing to this effect the essential importance of international cooperation based on free consent.
- 2. The States Parties to the present Covenant, recognizing the fundamental right of everyone to be free from hunger, shall take, individually and through international co-operation, the measures, including specific programmes, which are needed:
- (a) To improve methods of production, conservation and distribution of food by making full use of technical and scientific knowledge, by disseminating knowledge of the principles of nutrition and by developing or reforming agrarian systems in such a way as to achieve the most efficient development and utilization of natural resources;
- (b) Taking into account the problems of both food-importing and food-exporting countries, to ensure an equitable distribution of world food supplies in relation to need.

Article 12

- 1. The States Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health.
- 2. The steps to be taken by the States Parties to the present Covenant to achieve the full realization of this right shall include those necessary for:
- (a) The provision for the reduction of the stillbirth-rate and of infant mortality and for the healthy development of the child;
- (b) The improvement of all aspects of environmental and industrial hygiene;
- (c) The prevention, treatment and control of epidemic, endemic, occupational and other diseases;
- (d) The creation of conditions which would assure to all medical service and medical attention in the event of sickness.

Article 13

- 1. The States Parties to the present Covenant recognize the right of everyone to education. They agree that education shall be directed to the full development of the human personality and the sense of its dignity, and shall strengthen the respect for human rights and fundamental freedoms. They further agree that education shall enable all persons to participate effectively in a free society, promote understanding, tolerance and friendship among all nations and all racial, ethnic or religious groups, and further the activities of the United Nations for the maintenance of peace.
- 2. The States Parties to the present Covenant recognize that, with a view to achieving the full realization of this right:
- (a) Primary education shall be compulsory and available free to all;

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- (b) Secondary education in its different forms, including technical and vocational secondary education, shall be made generally available and accessible to all by every appropriate means, and in particular by the progressive introduction of free education;
- (c) Higher education shall be made equally accessible to all, on the basis of capacity, by every appropriate means, and in particular by the progressive introduction of free education;
- (d) Fundamental education shall be encouraged or intensified as far as possible for those persons who have not received or completed the whole period of their primary education;
- (e) The development of a system of schools at all levels shall be actively pursued, an adequate fellowship system shall be established, and the material conditions of teaching staff shall be continuously improved.
- 3. The States Parties to the present Covenant undertake to have respect for the liberty of parents and, when applicable, legal guardians to choose for their children schools, other than those established by the public authorities, which conform to such minimum educational standards as may be laid down or approved by the State and to ensure the religious and moral education of their children in conformity with their own convictions.
- 4. No part of this article shall be construed so as to interfere with the liberty of individuals and bodies to establish and direct educational institutions, subject always to the observance of the principles set forth in paragraph I of this article and to the requirement that the education given in such institutions shall conform to such minimum standards as may be laid down by the State.

Article 14

Each State Party to the present Covenant which, at the time of becoming a Party, has not been able to secure in its metropolitan territory or other territories under its jurisdiction compulsory primary education, free of charge, undertakes, within two years, to work out and adopt a detailed plan of action for the progressive implementation, within a reasonable number of years, to be fixed in the plan, of the principle of compulsory education free of charge for all.

Article 15

- 1. The States Parties to the present Covenant recognize the right of everyone:
- (a) To take part in cultural life;
- (b) To enjoy the benefits of scientific progress and its applications;
- (c) To benefit from the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.
- 2. The steps to be taken by the States Parties to the present Covenant to achieve the full realization of this right shall include those necessary for the conservation, the development and the diffusion of science and culture. 3. The States Parties to the present Covenant undertake to respect the freedom indispensable for scientific research and creative activity.
- 4. The States Parties to the present Covenant recognize the benefits to be derived from the encouragement and development of international contacts and co-operation in the scientific and cultural fields.

PART IV

Article 16

6

1. The States Parties to the present Covenant undertake to submit in conformity with this part of the Covenant reports on the measures which they have adopted and the progress made in achieving the observance of the rights recognized herein.

2

- (a) All reports shall be submitted to the Secretary-General of the United Nations, who shall transmit copies to the Economic and Social Council for consideration in accordance with the provisions of the present Covenant:
- (b) The Secretary-General of the United Nations shall also transmit to the specialized agencies copies of the reports, or any relevant parts therefrom, from States Parties to the present Covenant which are also members of these specialized agencies in so far as these reports, or parts therefrom, relate to any matters which fall within the responsibilities of the said agencies in accordance with their constitutional instruments.

Article 17

- 1. The States Parties to the present Covenant shall furnish their reports in stages, in accordance with a programme to be established by the Economic and Social Council within one year of the entry into force of the present Covenant after consultation with the States Parties and the specialized agencies concerned.
- 2. Reports may indicate factors and difficulties affecting the degree of fulfilment of obligations under the present Covenant.
- 3. Where relevant information has previously been furnished to the United Nations or to any specialized agency by any State Party to the present Covenant, it will not be necessary to reproduce that information, but a precise reference to the information so furnished will suffice.

Article 18

Pursuant to its responsibilities under the Charter of the United Nations in the field of human rights and fundamental freedoms, the Economic and Social Council may make arrangements with the specialized agencies in respect of their reporting to it on the progress made in achieving the observance of the provisions of the present Covenant falling within the scope of their activities. These reports may include particulars of decisions and recommendations on such implementation adopted by their competent organs.

Article 19

The Economic and Social Council may transmit to the Commission on Human Rights for study and general recommendation or, as appropriate, for information the reports concerning human rights submitted by States in accordance with articles 16 and 17, and those concerning human rights submitted by the specialized agencies in accordance with article 18.

Article 20

The States Parties to the present Covenant and the specialized agencies concerned may submit comments to the Economic and Social Council on any general recommendation under article 19 or reference to such general recommendation in any report of the Commission on Human Rights or any documentation referred to therein.

Article 21

The Economic and Social Council may submit from time to time to the General Assembly reports with recommendations of a general nature and a summary of the information received from the States Parties to the present Covenant and the specialized agencies on the measures taken and the progress made in achieving general observance of the rights recognized in the present Covenant.

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Article 22

The Economic and Social Council may bring to the attention of other organs of the United Nations, their subsidiary organs and specialized agencies concerned with furnishing technical assistance any matters arising out of the reports referred to in this part of the present Covenant which may assist such bodies in deciding, each within its field of competence, on the advisability of international measures likely to contribute to the effective progressive implementation of the present Covenant.

Article 23

The States Parties to the present Covenant agree that international action for the achievement of the rights recognized in the present Covenant includes such methods as the conclusion of conventions, the adoption of recommendations, the furnishing of technical assistance and the holding of regional meetings and technical meetings for the purpose of consultation and study organized in conjunction with the Governments concerned.

Article 24

Nothing in the present Covenant shall be interpreted as impairing the provisions of the Charter of the United Nations and of the constitutions of the specialized agencies which define the respective responsibilities of the various organs of the United Nations and of the specialized agencies in regard to the matters dealt with in the present Covenant.

Article 25

Nothing in the present Covenant shall be interpreted as impairing the inherent right of all peoples to enjoy and utilize fully and freely their natural wealth and resources.

PART V

Article 26

- 1. The present Covenant is open for signature by any State Member of the United Nations or member of any of its specialized agencies, by any State Party to the Statute of the International Court of Justice, and by any other State which has been invited by the General Assembly of the United Nations to become a party to the present Covenant.
- 2. The present Covenant is subject to ratification. Instruments of ratification shall be deposited with the Secretary-General of the United Nations.
- 3. The present Covenant shall be open to accession by any State referred to in paragraph 1 of this article.
- 4. Accession shall be effected by the deposit of an instrument of accession with the Secretary-General of the United Nations.
- 5. The Secretary-General of the United Nations shall inform all States which have signed the present Covenant or acceded to it of the deposit of each instrument of ratification or accession.

Article 27

1. The present Covenant shall enter into force three months after the date of the deposit with the Secretary-General of the United Nations of the thirty-fifth instrument of ratification or instrument of accession.

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2. For each State ratifying the present Covenant or acceding to it after the deposit of the thirty-fifth instrument of ratification or instrument of accession, the present Covenant shall enter into force three months after the date of the deposit of its own instrument of ratification or instrument of accession.

Article 28

The provisions of the present Covenant shall extend to all parts of federal States without any limitations or exceptions.

Article 29

- 1. Any State Party to the present Covenant may propose an amendment and file it with the Secretary-General of the United Nations. The Secretary-General shall thereupon communicate any proposed amendments to the States Parties to the present Covenant with a request that they notify him whether they favour a conference of States Parties for the purpose of considering and voting upon the proposals. In the event that at least one third of the States Parties favours such a conference, the Secretary-General shall convene the conference under the auspices of the United Nations. Any amendment adopted by a majority of the States Parties present and voting at the conference shall be submitted to the General Assembly of the United Nations for approval.
- 2. Amendments shall come into force when they have been approved by the General Assembly of the United Nations and accepted by a two-thirds majority of the States Parties to the present Covenant in accordance with their respective constitutional processes.
- 3. When amendments come into force they shall be binding on those States Parties which have accepted them, other States Parties still being bound by the provisions of the present Covenant and any earlier amendment which they have accepted.

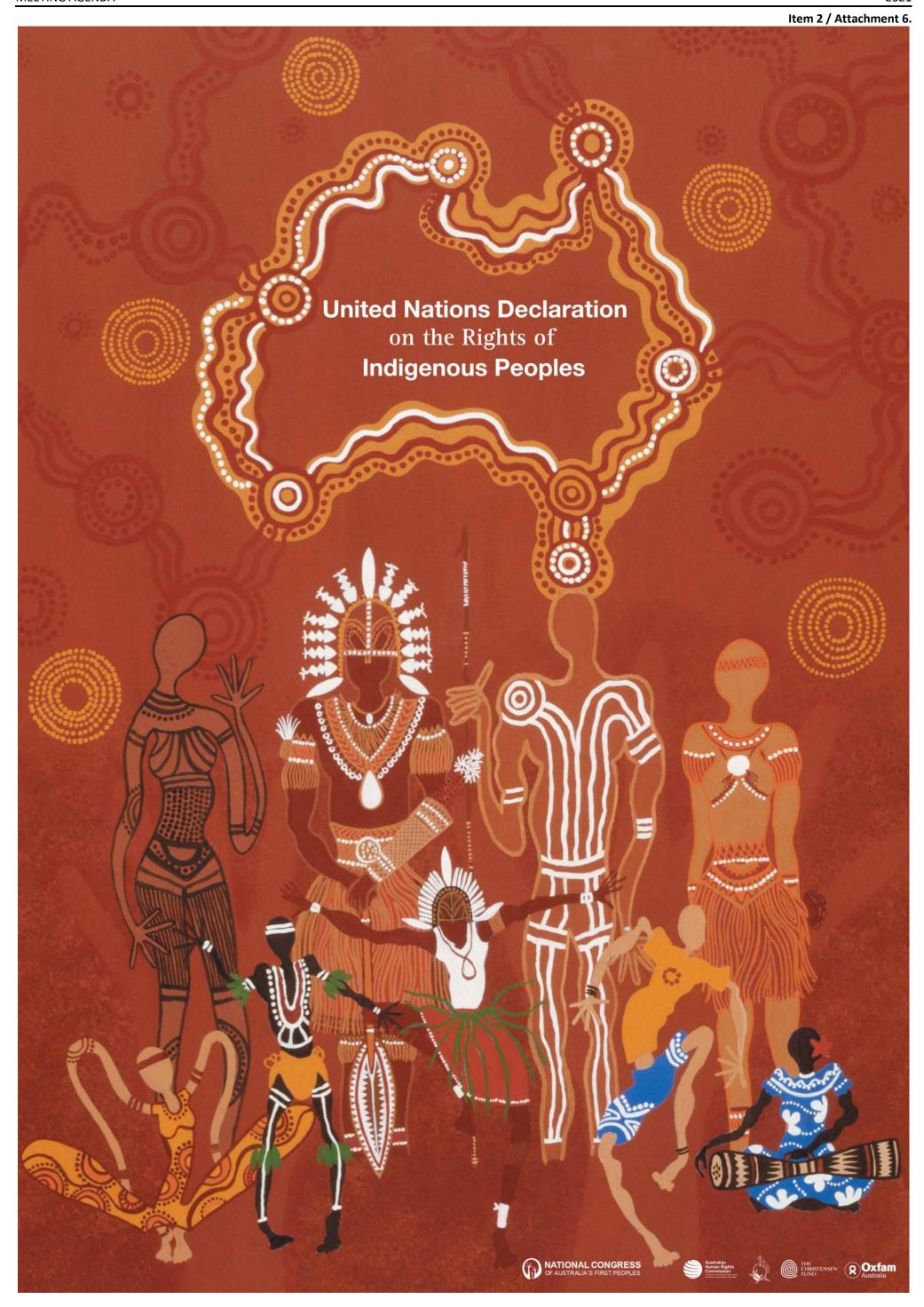
Article 30

Irrespective of the notifications made under article 26, paragraph 5, the Secretary-General of the United Nations shall inform all States referred to in paragraph I of the same article of the following particulars:

- (a) Signatures, ratifications and accessions under article 26;
- (b) The date of the entry into force of the present Covenant under article 27 and the date of the entry into force of any amendments under article 29.

Article 31

- 1. The present Covenant, of which the Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited in the archives of the United Nations.
- 2. The Secretary-General of the United Nations shall transmit certified copies of the present Covenant to all States referred to in article 26.



United Nations Declaration on the Rights of

Indigenous Peoples

COLLECTIVE AND INDIVIDUAL HUMAN SELF-GOVERNMENT RIGHTS

FOUNDATIONAL RIGHTS

LIFE AND SECURITY

LANGUAGE, CULTURAL AND SPIRITUAL IDENTITY

CULTURE AND CULTURAL PROPERTY

EQUALITY AND FREEDOM FROM

EDUCATION, INFORMATION AND EMPLOYMENT

OUR OWN INSTITUTIONS

SELF-GOVERNANCE

NATIONAL MEASURES

IMPLEMENTING THE DECLARATION

human rights
to peoples, shall take the appropriate
to including legislative measures, to achieve of this Declaration.

human rights
Apple 41

NTERNATIONAL COOPERATION

PARTICIPATION, DEVELOPMENT AND **ECONOMIC AND SOCIAL RIGHTS**

RIGHTS TO COUNTRY, RESOURCES AND KNOWLEDGE

SETTING THIS RIGHT - COMPENSATION

CARING FOR COUNTRY AND THE ENVIRONMENT

INTERPRETING THE DECLARATION









Artwork, design and layout Riki Salam Creative Director Gillmbaa Pty Ltd An Indigenous creative agency

Doc ID No: A7490720

ITEM: 3

SUBJECT: IPSWICH RIVERS IMPROVEMENT TRUST 2021-2022 ANNUAL PRECEPT

AUTHOR: MANAGER, ENVIRONMENT AND SUSTAINABILITY

DATE: 18 AUGUST 2021

EXECUTIVE SUMMARY

This is a report is concerning the 2021-2022 annual precept for the Ipswich Rivers Improvement Trust (IRIT), as per Part 6 Division 2 section 14(1) of the *River Improvement Trust Act 1940*.

Council is liable to contribute to the trust each year the sum prescribed in the precept.

RECOMMENDATION

- A. That Council negotiate with the Ipswich Rivers Improvement Trust to agree on an alternative sum for their 2021-2022 Precept for a reduced works program this year.
- B. That Council work in partnership with the Ipswich Rivers Improvement Trust to develop an agreed 3-5 year works program and funding model.

RELATED PARTIES

The current members of the Ipswich Rivers Improvement Trust are:

- Peter Johnstone Chair
- Leanne Savage Deputy Chair
- Dr Georgina Davis member
- Cr Andrew Fechner member
- Cr Jacob Madsen member

Non-member

Norm Craswell - Secretary

IFUTURE THEME

Natural and Sustainable

PURPOSE OF REPORT/BACKGROUND

The Ipswich Rivers Improvement Trust (IRIT/trust) is a statutory body established under the *River Improvement Trust Act 1940* (the Act) and covers the entire Ipswich local government area (LGA). The objectives of the Act are to provide for the responsible management of river catchment areas through:

- planning for and implementing measures that improve the protection, health and resilience of rivers and their catchments; and
- repairing, and preventing damage to, rivers and their catchments; and
- restoring natural resilience to flooding and cyclones in rivers and their catchments; and
- protection of water security; and
- improving water quality and river system function in rivers and their catchments

Each year, the IRIT adopts an annual works program by resolution at an ordinary meeting. The works program informs the activities to be carried out that financial year and is used to set the precept to be issued to the contributing local government.

Table 1. lists the annual works program as adopted at the IRIT meeting held on 30 July 2021.

Creek	Amount	Type of work	New/continuing	Notes
Mihi	\$40,000	Weed control	Continuing	
Mihi	\$70,000	Revegetation and	Continuing in areas	Working with
		community	that have had weed	Council on
		engagement	control	revegetation and
				community
				engagement
				activities
Iron Pot	\$10,000	Leucaena removal	New	Near junction with
				Bremer River. Site
				viewed during field
				day
Sandy (Tivoli)	\$40,000	Revegetation	New	Area adjoining Dog
				obedience and
				concrete factory.
				Site viewed during
				field day. Potential
				site for Trust
				Agreement
Bundamba	amba \$40,000 Weed Control		Continuing	Site off East Owen St
Woogaroo	\$60,000	Engineering		
		works/Revegtation		
Sandy (Tivoli)	\$5000	Follow up	Continuing	
Purga	\$5000	Follow up	Continuing	
ICC	\$20,000	Partnership work	New	Work with ICC and
				their Land for
				Wildlife (LFW)
				program
Franklin Vale	\$10,000	Historical weed	New	
		monitoring		
TOTAL	\$300,000			

Subsequent to the IRIT meeting held on 30 July 2021, the trust issued Council with the precept notice via email to the Manager Environment and Sustainability on 4 August 2021 (Attachment 1). The precept for 2021-2022 is for \$300,000.

LEGAL/POLICY BASIS

This report and its recommendations are consistent with the following legislative provisions: Local Government Act 2009
Rivers Improvement Trust Act 1940

RISK MANAGEMENT IMPLICATIONS

Ipswich City Council is the constituent local government which falls within the river improvement area for the Ipswich Rivers Improvement Trust. Under Part 6 Division 2 section 14(1) of the Act, Council is liable to contribute to the trust each year the sum prescribed by the trust. The sum is the amount of revenue estimated by the trust in their adopted annual budget.

The trust has full power and authority under the Act to issue a precept to Council and to require Council to pay the precept within a specified timeframe.

If there is a failure to negotiate and agree on an amount within a reasonable timeframe, the amount the local government must contribute will be the amount decided by the Minister.

If Council agrees to pay the amount prescribed within the precept, there is limited risk for Council regarding the requirements of the Act. If Council does not negotiate and agree on the amount within a reasonable timeframe, there is a risk the Minister will determine what amount Council must contribute.

HUMAN RIGHTS IMPLICATIONS

HUMAN RIGHTS IMPACTS

NON-DISCRETIONARY DECISION

The recommendations state that Council is liable to pay a sum to the Ipswich Rivers Improvement Trust as prescribed in their annual precept. Council has no ability to act differently/make a different decision because of Part 6 Division 2 section 14 (1) of the *River Improvement Trust Act 1940* that requires 'every local government in an area or any part of the area of which is included in a river improvement area shall be liable to contribute to the trust constituted for such river improvement area in each year the sum hereinafter prescribed'. Therefore, while the proposed decision may not be compatible with human rights Council's decision will not be unlawful under the *Human Rights Act 2019*.

Human Rights Impact Assessment Checklist

FINANCIAL/RESOURCE IMPLICATIONS

The allocated amount for the trust precept in the 2021-2022 budget is \$150,000 (as set in line with the previous 2020-2021 precept). If Council agrees to pay the amount prescribed within the 2021-2022 precept of \$300,000, an additional \$150,000 will need to be allocated

above the current budget or reallocated from other projects / programs within the current Environment and Sustainability budget. This may have an impact on the agreed projects and programs to be delivered by the Environment and Sustainability Branch in 2021-2022.

The precept amounts over the preceding 5 years were:

2016	\$150,000 (+ GST)
2017	\$150,000 (+ GST)
2018	\$150,000 (+ GST)
2019	\$150,000 (+ GST)
2020	\$150,000 (+ GST)

OPTIONS:

In accordance with the Act, Council may consider the following options:

Option 1:

Council pays the Ipswich Rivers Improvement Trust the sum of \$300,000 as prescribed in their 2021-2022 Precept Notice, and that the funds be drawn from the existing budget of \$150,000 and a budget amendment for the additional \$150,000.

Option 2:

Council negotiates with the Ipswich Rivers Improvement Trust an alternative sum for their 2021-2022 Precept that is in line with the allocated budget and previous years precept amount of \$150,000.

Option 3:

Council negotiates with the Ipswich Rivers Improvement Trust and agrees on an alternative sum for their 2021-2022 Precept for a reduced works program this year, and that Council works in partnership with the trust to develop an agreed 3-5 year works program and funding model.

COMMUNITY AND OTHER CONSULTATION

Consultation has occurred with the Ipswich Rivers Improvement Trust Chair and Secretary to seek clarification on the increased precept amount. The trust has provided their adopted annual works program (Table 1.) as justification for the prescribed sum in the 2021-2022 precept.

Further, the Chair and Secretary have been advised that the precept is to be considered at this committee, and as such, Council is unable to make the precept payment by 31 August 2021 as stipulated in the precept notice. Within this advice, it was requested that the trust consider payment to be made post the Council meeting in September.

CONCLUSION

Council is liable to contribute to the Ipswich Rivers Improvement Trust each year the sum prescribed by the trust by way of a precept notice. The 2021-2022 precept has been set at \$300,000 by the trust as per their adopted annual works program.

Within the provisions of the *River Improvement Trust Act 1940*, three (3) options have been presented for considered, with Option 3 being recommended as the preferred option.

Kaye Cavanagh

MANAGER, ENVIRONMENT AND SUSTAINABILITY

I concur with the recommendations contained in this report.

Sean Madigan

ACTING GENERAL MANAGER - INFRASTRUCTURE AND ENVIRONMENT

"Together, we proudly enhance the quality of life for our community"

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ITEM: 4

SUBJECT: NATURAL ENVIRONMENT POLICY

AUTHOR: SENIOR PLANNING OFFICER (STRATEGIC CONSERVATION PLANNING)

DATE: 11 MAY 2021

EXECUTIVE SUMMARY

This is a report concerning Ipswich City Council's Natural Environment Policy. The policy has been developed to fill a policy gap. Extensive internal and external consultation was undertaken when developing the policy.

RECOMMENDATIONS

That the policy titled 'Natural Environment Policy' as detailed in Attachment 1 be adopted.

RELATED PARTIES

There is no declaration of conflicts of interest in drafting the Natural Environment Policy.

IFUTURE THEME

Natural and Sustainable

PURPOSE OF REPORT/BACKGROUND

The Natural Environment Policy (Attachment 1) has been developed and drafted as part of a policy gap identified in the Business Transformation Project #9. In addition, it is timely to have an adopted policy position ahead of updating key corporate documents such as the Nature Conservation Strategy and Ipswich Planning Scheme.

A Natural Environment Policy also supports the Natural and Sustainable theme within council's Corporate Plan 2021-2026 (iFuture). Commencing 1 July 2021, the plan identified having a Natural Environment Policy (and strategy) as one (1) of the theme's catalyst projects. A project to develop a strategy to deliver on this policy is scheduled to commence in the coming months.

The natural environment is an important topic to the community of Ipswich and council, as demonstrated by the feedback received through extensive external and internal consultation undertaken. The seven (7) policy focus areas directly reflect this consultation feedback and common themes.

Policy development involved reviewing other local government natural environment policies as well as state, national and international natural environment frameworks. As such, the

policy links to Australia's Strategy for Nature 2019-2030 goals and objectives and several United Nations (UN) Sustainable Development Goals (SDGs).

Effort was made to ensure that other council policies that were either in development or adopted were considered in drafting the policy. Of note is the Ipswich Enviroplan Program & Levy Policy and Sustainability Policy (and associated strategy), where it was identified that there are synergies in both policy's intent.

LEGAL/POLICY BASIS

This report and its recommendations are consistent with the following legislative provisions: Local Government Act 2009

RISK MANAGEMENT IMPLICATIONS

There is an economic risk for council's demonstrated commitment and investment towards protecting and enhancing the natural environment, if an overarching direction (Natural Environment Policy) is not implemented. In addition, one (1) of the key messages from internal and external consultation is for council to provide leadership regarding natural environment management, which may impact its reputation and social licence should the policy not be implemented.

HUMAN RIGHTS IMPLICATIONS

HUMAN RIGHTS IMPACT	S
OTHER DECISION	
(a) What is the Act/Decision being made?	Adoption of a Natural Environment Policy
(b) What human rights are affected?	Recognition and equality before the law Freedom of movement Freedom of expression Peaceful assembly and freedom of association Taking part in public life Property rights Cultural rights
(c) How are the human rights limited?	Not applicable
(d) Is there a good reason for limiting the relevant rights? Is the limitation fair and reasonable?	Not applicable
(e) Conclusion	The decision is consistent with human rights.

FINANCIAL/RESOURCE IMPLICATIONS

There are no direct financial implications in adopting the Natural Environment Policy.

COMMUNITY AND OTHER CONSULTATION

Extensive stakeholder engagement, both internally and externally, was integral to developing a meaningful and forward-thinking policy. A dedicated policy page on Council's web-based community engagement platform was used https://shapeyouripswich.com.au/draft-natural-environment-policy.

The engagement process provided insight and feedback to help shape the policy. Feedback also identified additional actions and opportunities for council to consider or include within the strategy review and development planned to commence in the coming months.

Concurrently the policy oversight and discussion around direction was Community Reference Group for Environment and Sustainability. Progress reports were also given at subsequent Community Reference Groups.

Mayor and Councillors

Mayor and Councillors were provided opportunities to have input during the policy development.

In July 2020 at the very start of the policy journey a collaboration workshop was undertaken to provide insight into policy focus areas. These priorities informed drafting of the policy statement and principles.

An opportunity for feedback was offered via an email from the Branch Manager (Environment & Sustainability) prior to releasing the draft policy statement and principles to the community in February 2021. The statement and principles were released in a discussion paper at that time.

A briefing session was undertaken in May 2021 to inform finalisation of the daft policy. Invite for comment was put out as part of that briefing and followed up via email to the Mayor and Councillors from Branch Manager (Environment & Sustainability) on 21 June 2021 and followed up through the Chief of Staff (Office of the Mayor) on 6 July 2021. The Branch Manager also raised the policy at a monthly catch-up with the Chair and Deputy Chair of the Environment & Sustainability committee.

Local Community and External Stakeholders

Throughout policy development council invited a diverse and broad range of participants including:

- Community and general public
- Government environmental agencies identified
- Traditional owners/indigenous community groups identified

2021

- Development industry representative organisations and identified large scale developers
- Citywide community environmental groups
- Lineal infrastructure utility providers
- Recreation and natural area user groups
- Council landholder partners (urban and rural)
- Youth sector representatives
- School environmental groups
- SEQ Regional scale environment groups
- Commerce, industry and tourism representatives and groups
- Waterway user groups and businesses

Participants could contribute by taking part initially in an on-line survey and later draft policy principles. 107 contributions were provided through the survey, and a further 55 submissions were later received on the principles.

12 high valued external stakeholders representing various key sector participated in targeted phone or email interviews during the initial stage.

The Environment Community Reference Group (CRG) members were provided an opportunity to participate on several occasions. A workshop was held to gain an understanding of priorities, as well members were asked to participate through *Shape Your Ipswich* in the on-line survey and draft policy principles consultation.

Council Employees

Internal engagement involved subject area representatives from key sections including:

- Infrastructure & Environment Department City Maintenance, Infrastructure Strategy & Planning, Emergency Management & Sustainability and Natural Environment & Land.
- Planning & Regulatory Services Department Strategic Planning, Local Laws & Regulated Parking and Environment Assessment.
- Coordination & Performance Department Integrated Planning & Reporting.
- Community, Cultural & Economic Development Branch Sport & Recreation and Destination Development.

Representatives were engaged both during the research phase through an email questionnaire, as well as provision of feedback on the draft principles.

Supporting Consultation Resources

At milestones in the policy's development, supporting consultation resources were made available to the public through Shape Your Ipswich including:

- Natural Environment Policy Background Paper (Attachment 2)
- Natural Environment Policy Community Engagement Report (Attachment 3)
- Draft Natural Environment Policy Discussion Paper (Attachment 4)

A Natural Environment Policy Summary Report (Attachment 5) is planned to be made available to the community after the policy is adopted.

CONCLUSION

Council's Natural Environment Policy has been developed to provide strategic direction for the green elements, such as bushland and waterways, which make up the city. The policy will inform decision making, investment and natural environment programs. The extensive internal and external consultation, research, benchmarking and national strategy review informed the policy development and will be used in any future strategy/plan development.

ATTACHMENTS AND CONFIDENTIAL BACKGROUND PAPERS

- 1. Natural Environment Policy 🗓 🖫
- 2. Background Paper $\sqrt[4]{2}$
- 3. Community Engagement Report 🗓 🖫
- 4. Discussion Paper 🖟 🖫
- 5. Summary Report 🗓 🖺

Darryl Porche

SENIOR PLANNING OFFICER (STRATEGIC CONSERVATION PLANNING)

I concur with the recommendations contained in this report.

Phil A. Smith

NATURAL ENVIRONMENT AND LAND MANAGER

I concur with the recommendations contained in this report.

Kaye Cavanagh

MANAGER, ENVIRONMENT AND SUSTAINABILITY

I concur with the recommendations contained in this report.

Sean Madigan

ACTING GENERAL MANAGER - INFRASTRUCTURE AND ENVIRONMENT

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IPSWICH CITY COUNCIL

Natural Environment Policy

Version Control and Objective ID	Version No: 1.	Objective ID: A5835864
Approved by Council on	ТВА	
Date of Review	ТВА	

1. Statement

Council is committed to conserve, protect, enhance and restore the health of the City's natural environment values both on public and private lands for the benefit, use and lifestyle of current and future generations.

That protecting the natural environment for its own intrinsic value is an important objective for all the community and for Council.

Council acknowledges a healthy natural environment is fundamental to cultural, social, physical and economic wellbeing of the community.

By continuing to operate a proactive and evidence-based approach, we will strive to ensure improvement to the natural environment.

Council recognises the important contribution a healthy natural environment makes in transitioning to a Sustainable City.

2. Purpose and Principles

The purpose of the policy is to strengthen council's commitment to conserve, protect, enhance and restore the natural environment and its values, through the following seven focus areas and associated principles:

1. Biodiversity & Threatened Species Recovery

- Identify, protect, maintain & rehabilitate priority natural environment values of the city.
- Protect and improve habitat value within large areas of intact threatened species and priority wildlife habitat, including koalas.
- Enhance and protect key habitat corridors to maintain or increase regional and local connectivity for threatened species and priority wildlife.
- Understand, identify and reduce the impact of threats to threatened species and priority wildlife, including koalas.
- Gather data, prioritise, plan and support other government initiatives for threatened species and priority wildlife, including locally significant wildlife.
- Further incorporate natural value importance into council's planning activities and general business operations.

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- Implement sustainable land-use planning practices that concentrates urban development within the urban footprint in a compact development form as a desirable outcome, relative to meeting the need for housing, employment and other facilities and services for the city's growing community.
- Develop and implement regulatory (e.g. local laws) and non-regulatory (e.g. incentives) tools that supports natural environment outcomes on public and private land.
- Seek an approach whereby negative impacts are first avoided, minimised or mitigated before any remaining impacts are offset.

2. Wetlands & Waterways Improvement

- Protect, rehabilitate and maintain wetlands and waterways, including their associated corridors, for the benefit of aquatic and terrestrial wildlife, community liveability and continuation of traditional cultural practices.
- Invest in waterway recovery projects at priority sites targeting improved in-stream habitat condition, aquatic connectivity and riparian weed management and revegetation.
- Monitor aquatic communities and connectivity of the region's waterways to quantify threats, as well as measure the outcomes of remediation activities.
- Identify and address key sources of sediment which impact aquatic communities through poor water quality and degraded stream morphology.
- Improve streambank stabilisation at strategic locations supporting habitat conditions for priority wildlife, including platypus.
- Increase community education and awareness of key issues impacting aquatic biodiversity to encourage behavioural change and stewardship of the city's waterways and wetlands.

3. Urban Biodiversity Enhancement

- Catalogue, conserve and enhance urban biodiversity values and the ecological systems that support them.
- Create and enhance corridors in urban areas to provide connectivity and refuge for wildlife and ecosystem services functions.

4. Natural Area Restoration & Protection

- Invest in strategic restoration activities to re-establish corridor linkages through the landscape, including using offsets or partnerships programs.
- Implement sound environmental management principles on Council owned or managed land, focusing on long term protection, practical actions with foreseeable outcomes.

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 Manage protected natural areas and partner with private landholders in core habitat areas to provide refuge for native plants and animals from the impacts of changing climate.

5. Experiencing Nature

- Support Traditional owners with maintaining connection to cultural lands and sites.
- Encourage community to connect with nature to foster a conservation ethic and develop environmental stewards.
- Promote and provide for sustainable outdoor/nature-based recreational activities, environmental education and eco-tourism opportunities within natural areas, recognising the significant community benefit these areas provide.
- Invest in infrastructure and management activities that supports sustainable provision of nature experiences.
- Provide, plan, develop, manage, maintain and activate high quality sustainable outdoor/nature-based recreation opportunities in natural areas.
- Assess the need for the provision of outdoor/nature-based recreation activities based on demand and the identification of suitable sites to ensure a sustainable fit between natural values and outdoor/nature-based recreation activities.
- Provide, manage and maintain outdoor/nature-based recreation activities, facilities
 and settings that are complementary to and protect the natural values of the settings
 within which they are positioned.

6. Community Awareness & Support

- Embrace opportunities to partner with Indigenous Land Management Businesses, government agencies, universities, research organisations, regional bodies and other local governments on collaborative projects.
- Work closely with the community through collaboration, partnerships and support programs that empower and build capacity as environmental stewards.
- Support community contribution of information through citizen science programs.
- Increase recognition within the community and council of natural environment ecosystem services as well as Cultural Heritage and Cultural Landscape values.

7. Governance, Measuring & Reporting

- Implement outcome based, priority driven and adaptive investment of council funds, including Ipswich Enviroplan Levy, general revenue and external grants.
- Comply with relevant statutory responsibilities, legislation, policy & plans, while
 pursuing new approaches, continual improvement, environmental excellence and
 demonstrating leadership in operations and activities.

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- Identify, collect, monitor, review and report about natural values, environmental performance and visitation.
- Operate programs and undertake priorities driven by best available knowledge and data, cross-referenced with community interest and capability to ensure confidence in achieving outcomes.

3. Strategic Plan Links

The policy supports the Natural and Sustainable theme within council's iFuture Corporate Plan (commencing the 1st July 2021).

This policy also contributes to achieving the themes within council's Advance Ipswich community plan including:

- Caring for the Environment
- · Caring for the Community
- · Listening, Leading and Financial Management
- Managing growth and delivering key infrastructure
- · Strengthening our local economy and building prosperity

The policy shares links with the following key corporate documents:

- Employee Code of Conduct
- Ipswich Enviroplan Program & Levy Policy (and Procedure)
- Ipswich Planning Scheme
- Nature Conservation Strategy
- Open Space & Recreation Strategy
- Sustainability Policy
- Waterway Health Strategy

4. Regulatory Authority

Implementation, application and governance of the policy will give consideration to the following regulatory instruments:

- Aboriginal and Torres Strait Islander Heritage Protection Act 1984
- Environmental Protection Act 1994
- Environmental Protection & Biodiversity Conservation Act 1999
- Fisheries Act 1994
- Local Government Act 2009
- Native Title Act 1993
- Nature Conservation Act 1992
- Planning Act 2016
- The Biosecurity Act 2014
- Vegetation Management Act 1999
- Water Act 2000

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5. Scope

The policy relates to council's natural environment management activities including delivery of services, strategic planning, regulation, facilitation, advocacy, education and facilities.

The policy guides decision making and the development of all future council policy, strategy and plans in relation to the natural environment.

The policy applies to all councillors, council staff, contractors, and others that act on Council's behalf to ensure they work in accordance with the policy principles and in accordance with the relevant legislation.

These policy principles are also aspirational for Ipswich's community whereby, through the commitment and actions of Council, they will be realised.

6. Roles and Responsibilities

Role	Responsibility
Chief Executive Officer and General Managers	The CEO and General Managers' are responsible for advocating, promoting and supporting the principles of the Natural Environment Policy as a business as usual practice.
Environment & Sustainability Branch	Branch/ Natural Environment & Land Management Section Manager Responsible for overall development, implementation and monitoring of the Natural Environment Policy. Natural Environment & Land Management Section Responsible for the development, drafting and implementation and review of the policy and its related strategies, plans and programs. Provision of technical support and expertise to assist in the implementation of this policy. Provision of regular reporting and analytics. Liaison and education with key internal and external
All Ipswich City Council Employees	stakeholders. Responsible for understanding the principles outlined in the policy and applying these principles in planning, decision making, delivery activities and reporting.

7. Key Stakeholders

The policy applies broadly across all Council departments. Key stakeholders sit within each department and branch. However, stakeholders of note are those in the following teams:

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- Infrastructure & Environment Department City Maintenance, Infrastructure Strategy & Planning, Emergency Management & Sustainability and Natural Environment & Land Section.
- Planning & Regulatory Services Department Strategic Planning, Local Laws & Regulated Parking and Environment Assessment.
- Coordination & Performance Department Integrated Planning & Reporting.
- Community, Cultural & Economic Development Branch Sport & Recreation and Destination Development.

8. Monitoring and Evaluation

The following measures will determine the success and effectiveness of the policy:

- · Access to the natural environment
- · Progress implementing strategies
- Increased connected corridors
- · Extent of protected area
- Increased nature-based recreation opportunities and activation
- Improvement in waterway condition
- Extent of protection of Aboriginal cultural heritage and cultural landscape features
- Preservation of traditional cultural practices
- Improvement of natural environment health
- Amount of area under active restoration
- Extent if canopy cover
- Level of staff awareness of the importance of natural environment

An annual update about the policies implementation and council's performance will be published on council's web, and the community made aware of its availability.

9. Definitions

Conserve/conservation (nature): terms generally used to describe an approach to protect natural resources and their values and seeks for the proper, sustainable and renewable use of nature – ensuring its continued availability.

Manager: includes persons appointed to positions with the title Supervisor, Principal, Section Manager, General Manager and Chief Executive Officer.

Natural Environment: With reference to this policy, the natural environment is a collective term used to describe the diverse terrestrial and aquatic ecosystems that make up the city's habitat network.

Natural Values: With reference to this policy, natural values are special qualities such as uniqueness, rarity, typicality, representivity, scientific or education importance, have useful features or recreation value. Includes:

- habitat for iconic, significant and threatened species;
- core habitat areas as home for a diverse range of wildlife;

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- · nodes of remnant vegetation in urban areas providing wildlife refuge;
- strategic remnants vegetation patches as stepping stones for wildlife movement;
- corridors providing connectivity for wildlife, recreation and active transport;
- increasing vegetation condition and animal abundance within core habitat areas;
- biological diversity, natural capital and ecosystem services;
- waterways, wetlands, riparian and aquatic ecosystems and floodplains;
- improving health of waterways;
- Aboriginal cultural heritage and cultural landscape features; and
- · scenic amenity.

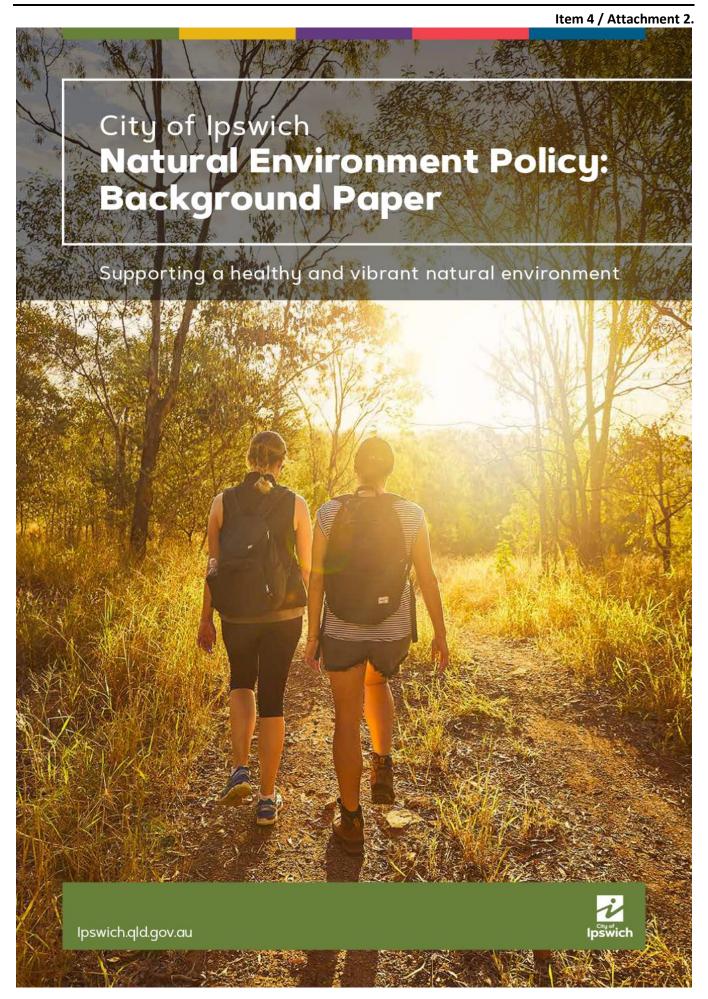
Sound Environmental Management Principles: With reference to this policy, sound environmental management principles includes:

- Natural values should be protected, managed and enhanced to conserve their natural condition;
- Best practice pest plant, animal and fire management should be implemented;
- Maintaining and enhancing natural values and cultural landscapes for inspirational, educational, cultural and nature-based recreation; and
- Scientific and educational enquiry should be provided and promoted at ecologically sustainable levels.

Urban Biodiversity: Refers to the variety and variability among living organisms found in the city's highly developed areas and the ecological systems in which they are found.

10. Policy Owner

The General Manager (Infrastructure & Environment) is the policy owner and the Environment & Sustainability Manager is responsible for authoring and reviewing this policy.



Item 4 / Attachment 2. Cover image: Gothic bottlebrush by E White This page: Glossy ibis by R Crutcher Ipswich Enviroplan Photo Comp

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OPENING THE DISCUSSION

Ipswich City Council is developing a new policy for the natural environment. The scope will cover the green elements that make up the city. Other environmental issues such as air and odour, noise, domesticated animals and waste, recycling and landfill will not be covered through this policy.

A policy for the natural environment is to have close links to council's key strategic documents including:

- Ipswich Enviroplan Program and Levy Policy
- Ipswich Nature Conservation Strategy
- Waterway Health Strategy
- Planning Scheme.

Council's goal for the environment is to conserve important areas of native habitat, protect important waterways and enhance their water quality and respond to climate change and use resources prudently (Corporate Plan 2017-2022). A new policy will set-out a strategic position and principles to achieve this goal.

This document provides further information about the values and elements that make up the city's natural environment. It includes insight into trends of what is happening to the city's natural environment.

Council is seeking input from the community, stakeholders and interest holders. **We want to hear what natural environment matters you think are important for the city**.

Historical context

lpswich has some of the longest European settlements in the state. Consequently its natural environment has seen modification over an extended period of time from activities such as urban settlement, mining, forestry and agriculture.

Yet despite extensive modification of our natural environment, the city has managed to retain and conserve:

- biologically diverse, ecologically important and attractive natural areas and systems (terrestrial and aquatic) supporting a broad range of plants, animals and ecological functions that provide ecosustem services: and
- an integrated greenspace network of publicly and privately owned conservation estates, bushland reserves, green areas and corridors that contribute to:
 - significant vegetation, habitat, environmental features, waterway areas and ecosystems;
 - natural features and landscapes, including those of cultural significance for the Aboriginal community;
 - the scenic amenity and physical attractiveness of the city;
 - the recreational needs of the community; and
 - economic activity, particularly for tourism.



WHAT DO WE MEAN BY IPSWICH'S NATURAL ENVIRONMENT?

lpswich's natural environment is a complex and multifaceted greenspace network comprising:

a) Key nature conservation areas of core habitat and significant vegetation in:

- the Little Liverpool Range including Mount Beau Brummell, Mount Mort and Mount Grandchester;
- the Teviot Range including Ivory's Rock, Mount Goolman, Mount Blaine and Flinders Peak;
- the area extending from Flinders Peak to Karawatha, including White Rock and Spring Mountain;
- Pine Mountain and Saplings Pocket; and
- Ebenezer/Mount Forbes.

b) Strategic corridor links including:

- regional cross-border corridors focussed on the areas of the Little Liverpool Range, Flinders Peak to Karawatha and D'Aquilar Range;
- priority local corridors connecting:
 - the northern part of the Little Liverpool Range Corridor to Rosewood along the ridgeline and slopes running across Tallegalla, The Bluff and Ashwell;
 - Ebenezer/Mount Forbes to the Flinders-Karawatha Corridor through Mutdapilly and Purga; and
 - Sapling Pocket through Pine Mountain to Chuwar.
- c) Environmental management areas that have a primary strategic function of separating and buffering land uses and that also contain areas of vegetation and provide connections including in association with the Carole Park, Redbank, Dinmore/Riverview, Swanbank/ New Chum and Ebenezer/Willowbank regional business and industry areas.
- **d) Significant urban nodes** of other native vegetation that form 'stepping stones' through the landscape.

- **e) A waterway system** of significant watercourses, designated wetlands and associated buffer (riparian) areas including¹:
- Bremer and Brisbane rivers;
- Bundamba lagoon, Ten and Seven Mile swamps;
- Creeks including Sandy (Carole Park and Camira), Goodna, Six Mile, Woogaroo (and its tributaries Opossum and Mountain), Black Snake, Western (and its tributaries Spring and Franklin Vale), Warrill, Purga, Ebenezer, Bundamba, Deebing, Ironpot, Mihi and Sandy (Tivoli and Chuwar);
- ephemeral wetlands in urban areas; and
- Happy Jack Gulley and O'Dwyer's Gulley.

(f) Remnant² vegetation communities of different forms including:

 rainforest, dry vine forest, soft wood forest, open forests, woodlands, heathlands, wetlands and grasslands.

(g) Diverse native plants and animals including:

- over 2,000 recorded species;
- 5 local priority conservation species;
- 38 locally significant species;
- 34 state significant species; and
- 18 nationally significant species.

A map of features that comprise the natural environment is included in Appendix B, as well as a map of *Cultural Landscape Values* which can be found in Appendix C.

Aboriginal landscape and cultural heritage values

Aboriginal cultural landscape values are intrinsically linked with the values and elements that define the natural environment.

For example ridgelines were used traditionally as pathways and alluvial flats were used for hunting grounds and various activities.

The Cultural Heritage Act, 2003 provides protection for Aboriginal cultural heritage and cultural landscape values. The Act defines these values as 'features' such as rock outcrops, caves, natural wetlands, waterholes and natural springs, native vegetation, hills, mountains and mound formations.

¹ Refer Appendix A for more detailed explanatory information.

² Remnant Vegetation: Relatively natural vegetation that meets classification of remnant regional ecosystem vegetation under the Queensland Government (and mapped accordingly).

WHAT ARE THE VALUES OF IPSWICH'S NATURAL ENVIRONMENT?

Ipswich's natural environment provides vital habitat to the diverse native flora and fauna of our region. Besides its biological values, the natural environment contributes to the economic prosperity, amenity, liveability and lifestyle of the city and its residents. The natural environment enhances land values, attracts tourists to the city, provides recreational opportunities for the community, improves community health, increases

economic development and enables continued cultural and spiritual connection by the Traditional Owner community. Its cultural landscape values are extensive and highly significant. The natural environment is valued for the extensive 'ecosystem services' it provides such as water and air purification, noise and light management, temperature regulation, recreation opportunities, and support of physical, spiritual and emotional wellbeing.

WHAT IS HAPPENING TO IPSWICH'S NATURAL ENVIRONMENT?

Ipswich contains one of the most highly diverse natural environments in South East Queensland, from vine forest along the Brisbane River to the heath-covered top of Flinders Peak. This diverse landscape provides habitats for many different native plants and animals including significant species such as the Brush-tailed Rock Wallaby, Koala, Platypus, Plunkett mallee and Cooneana olive.

Making up 45 percent of vegetation in the city, 'Spotted Gum and Ironbark' open forest and woodland is the main type of remnant vegetation occurring in the city. In contrast, only 0.02 per cent³ of Semi-evergreen vine forest remains.

Figure 1 highlights a 20-year trend from 1997 to 2017 with respect to the extent of remnant vegetation mapped in the city – refer Appendix D for map. The amount of change has seen a decline of 11 percent from 26,354ha to 23,395ha – a decrease of 2,959ha. Over the same period, South East Queensland remnant vegetation decreased by 17,860ha.

Extent of remnant vegetation in the city

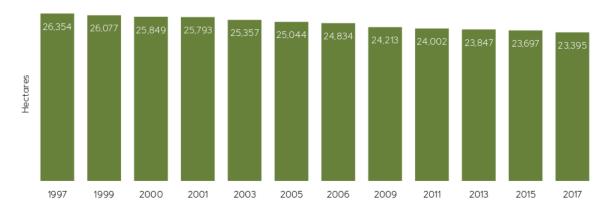


Figure 1: Over the 20-year period from 1997 to 2017 the extent of natural vegetation mapped in the city decreased by 11 percent (Source: Queensland Government - Bioregion and Subregion Analysis of Remnant Regional Ecosystem Vegetation 1997-2017).

³ Nature Conservation Strategy 2015

Accordingly, remnant vegetation as a percentage of city land area has reduced from 24.1 percent to 21.4 percent - a decrease of 2.7 percent, - Figure 2.

Remnant vegetation as a percentage of the city area

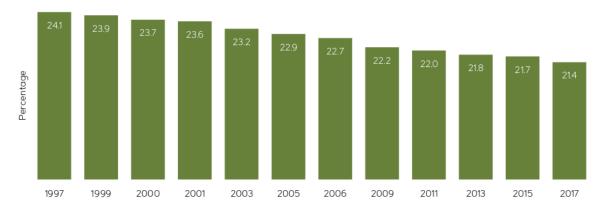


Figure 2: The percentage of the city mapped as naturally vegetated (Source: Queensland Government - Bioregion and Subregion Analysis of Remnant Regional Ecosystem Vegetation 1997-2017).

That said, council has protected extensive areas from clearing through tools such as land-use planning, land acquisitions and landholder partnerships. Most of the remaining vegetation is identified primarily for conservation purposes. More than 8,440ha of open space is owned or controlled by council, of which 7,774ha (92 percent) is publicly accessible.

Ipswich Enviroplan Program

Funded through a levy paid by ratepayers, the program involves acquiring significant areas, managing the natural area estate, monitoring and planning, partnering with landholders and raising awareness in the community.

Introduced in 1996, a key highlight of the program has been the extensive purchase of significant areas such as:

- endangered Swamp Tea-tree at Purga
- habitat for multiple threatened flora at White Rock
- Brush-tailed Rock Wallaby habitat at Mount Flinders
- Koala and Glossy Black Cockatoo habitat at Mount Grandchester.

The Bremer River is the city's primary waterway. From a water quality standpoint, it is a highly degraded system that fails to meet state government objectives. The river scores poorly through the regional Ecosystem Health Monitoring Program (EHMP) Queensland. Overall, waterway health in Ipswich is rated poor or very poor based on assessments of water quality and vegetation condition.

Most waterways in Ipswich have been significantly modified or altered from the pre-European state, with only a few waterways still having natural features, biodiversity and ecosystem functions considered to be in a 'healthy natural state'. Despite the health and condition of waterways, council has undertaken extensive replanting programs at key strategic sites to restore vegetation and stabilise banks. As well as restoration, land-use planning tools have been used to manage impacts from development in proximity of watercourses.

The status of native plants and animals is varied. Typically, species that are robust, agile, adaptable and mobile (e.g. Common Brush-tailed Possum) are thriving, while species requiring specific needs (i.e. dietary) are facing challenges. Koalas are one such species faced with challenges, and which council is investing extensive resources in for their recovery.

WHAT HAS CONTRIBUTED TO CHANGE WITHIN THE NATURAL ENVIRONMENT?

The natural environment is impacted by key threatening processes including:

- loss of native vegetation
- impacts from climate change
- inappropriate fire regimes
- introduced pest plants and animals
- dryland salinity
- increasing disconnection with nature

Loss of native vegetation

In particular, loss of native vegetation as a result of clearing is considered a key threat as it leads to the loss of ecosystem services, loss of habitat for plants and animals, and potential to cause fragmentation within the landscape. Clearing may also facilitate the spread of introduced plants and animals as well as being a contributor towards climate change.

There are many challenges involved with managing the natural environment to reduce the impacts caused by these threats, particularly in relation to catering for the need for development. However, there are also some opportunities to combat some of these risks, potentially resulting in a gain for the natural environment and for the local community.

Impacts from climate change

lpswich's natural environment is not immune to climate change. Rising temperatures, shifting rainfall patterns and more intense and frequent extreme events, such as storms, impact native plants and animals and the habitat they rely on.

Inappropriate fire regimes

Poorly managed fire regimes threaten native vegetation communities, plants and animal populations. More frequent and intense bushfire seasons increase soil erosion, expand pest plant and animal populations, reduce water quality and increase soil salinity.

Introduced pest plants and animals

Pest plants and animals modify the environment. Native plants are faced with pressures such as competition for nutrients and light, and native animals are forced to cope with predation and altered food sources.

Dryland salinity

Dryland salinity effects the survival range for native plant and animal species. Sensitive plants are lost, while habitats, both terrestrial and aquatic, are reduced.

Increasing disconnection with nature

Community disconnection with nature often results in a lack of empathy towards the natural environment. This often leads to biodiversity not being recognised as underpinning environmentally sustainable development. As a consequence, short-term socio-economic benefits are considered ahead of long term environmental considerations.



Growing city - challenges with opportunity

Current figures from South East Queensland Regional Plan – Shaping SEQ (2017) expects the SEQ region to grow by an additional 1.9 million people (from 3.4 million to 5.3 million) by the year 2041. The population of the lpswich Local Government Area is expected to grow by 136 per cent (with an extra 300,000 residents) to 520,000 people by 2041 (from the current population of approximately 220,000).

To manage this growth, the City of Ipswich will need to generate at least 61,000 extra jobs and provide for an extra 112,000 dwellings (including supporting infrastructure).

Growth and change has brought, and continues to bring with it opportunities as well as challenges for the community and for council. Extensive growth areas have been set aside for residential development on greenfield sites and opportunities for urban consolidation and infill. This includes higher density living and mixed use areas around key centres and transport nodes. This has seen, and will continue to see, growth and change managed through the strategic framework and planning scheme that provides land for development uses as well as conservation outcomes.

WHAT THINGS HELP IPSWICH'S NATURAL ENVIRONMENT?

The community and council have a solid background in working closely to care for the city's natural environment. Significant areas are protected and managed through approaches such as:

- conservation zones in the Ipswich Planning Scheme 23,139 hectares⁴ (the current extent of which is found in Appendix E)
- identified cultural landscape value areas (see Appendix C)
- voluntarily acquiring areas and including these in the Natural Area Estate – 6,611 hectares⁵
- voluntary Conservation Agreements on private owned land – 6,460 hectares⁶
- Bushcare and Parkcare groups working on council land
- Environmental and Sustainability grants
- Local Law 49: Protection of Important Vegetation.

Besides council, state and Commonwealth Governments contribute to protecting natural values and areas through:

Nature Refuges (Qld)

Legal protection over vegetation on private land, similar to a national park. There are five properties protected within the city:

- Bowman Park Koala Nature Refuge
- Edward Corbould Nature Refuge
- Gum Tips Nature Refuge
- Old Hiddenvale Nature Refuge
- Tir Na Crann Nature Refuge.

Regional Parks (Qld)

Protects smaller areas of significant conservation value under state government tenure. The city contains five regional parks, which council manages on behalf of the state:

- Denmark Hill Regional Park
- Flinders Peak Regional Park
- Ipswich Pteropus Regional Park
- Mount Beau Brummell Regional Park.
- White Rock Regional Park

⁴ Spatial Query 2020

⁵ Nature Conservation Strategy 2015

⁶ Nature Conservation Strategy 2015

Vegetation Management Act 1999 (Qld)

Regulates clearing of native vegetation, manages regrowth vegetation and classified ecosystems based on their conservation significance.

Nature Conservation Act 1992 (Qld)

Sets legal protection for national parks and similar conservation areas, lists and sets regulations for impacts to threatened plants and animals.

Nature Conservation (Wildlife) Regulation 2006 (Qld)

Regulates activities associated with certain classes of plants and animals e.g. taking or keeping.

Environmental Protection Act 1994 (Qld) and subordinate legislation

Regulates activities that have the potential to impact environment.

Water Act 2000 (Qld)

Regulates impacts on watercourses and management of water.

Environmental Protection (Water) Policy 2009 (Qld)

Manages water quality of waterways.

Environmental Offsets Act 2014 (Qld)

Establishes a framework in relation to environmental offset management.

Planning Act 2016 and Planning Regulation 2017 (Qld)

Regulates land use, particularly prohibits certain types of development in priority koala areas.

Fisheries Act 1994 (Qld)

Regulates fisheries and fish habitats.

Aboriginal Cultural Heritage Act 2003 (Qld)

Regulates activities that may cause harm to Aboriginal cultural heritage and aboriginal cultural landscape features.

Human Rights Act 2019 (Qld)

Protects the cultural rights of Aboriginal peoples to conserve and protect the environment and productive capacity of their land, territories, water, coastal seas and other resources. Also, protects the right to maintain and strengthen their distinctive spiritual, material and economic relationship with the land, territories, waters, coastal seas and other resources with which they have a connection under Aboriginal tradition.

Environmental Protection and Biodiversity Conservation Act 1999 (Comm)

Reflects the national interest in biodiversity conservation through managing world heritage areas, nationally threatened species and managing illegal trade in wildlife and wildlife parts.

There are an extensive number of mechanisms, involving many stakeholders, providing different levels of management, for a variety of matters. This highlights the complexity and challenges associated with managing the city's natural environment as a whole.

State protection of koalas

The state government regulates impacts on koalas in the city through its Nature Conservation (Koala) Conservation Plan 2017. The plan identifies:

- Koala priority areas large, connected areas that will focus habitat protection, habitat restoration and threat mitigation to areas that have the highest likelihood of safeguarding koala populations in South East Queensland.
- Koala habitat areas areas that are subject to protections under the new koala conservation protections in South East Queensland.
- Koala districts map establishes what requirements of the Nature Conservation (Koala) Conservation Plan 2017 apply to each area of Queensland.

NEXT STEPS AND QUESTIONS?

Developing a natural environment policy is a shared, community-wide responsibility.

Council also plays an important role. As we develop the policy we want to reflect the priorities and aspirations of the community, as well as take into account best environmental practice and expert advice.

You can join this important discussion online through Shape Your Ipswich (Shapeyouripswich.com.au).

JOIN THE CONVERSATION ONLINE!

Contact:

Senior Planning Officer (Strategic Conservation Planning) council@ipswich.qld.gov.au (07) 3810 6666

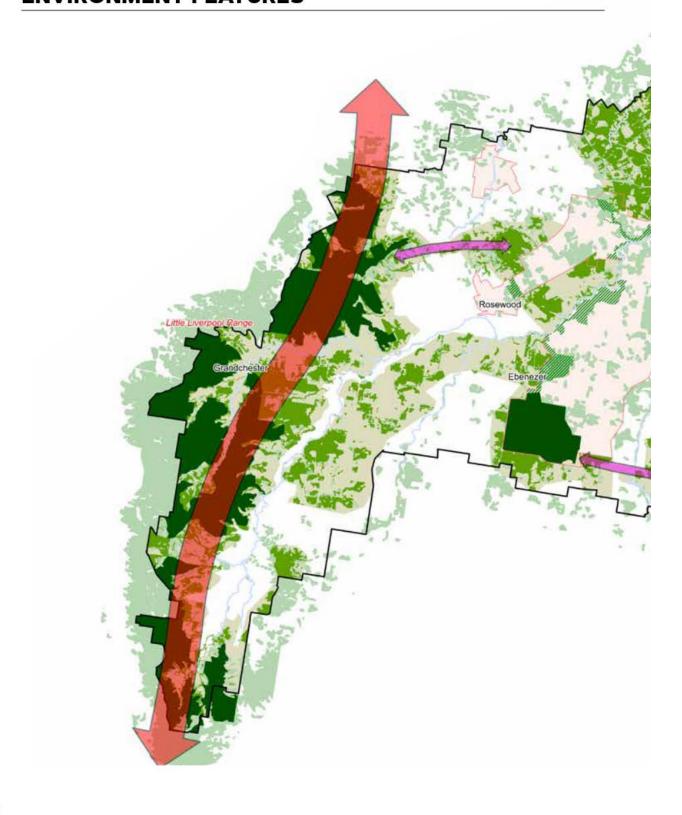
APPENDIX A: EXPLANATORY NOTES DEFINING WATERWAY SYSTEMS COMPONENTS

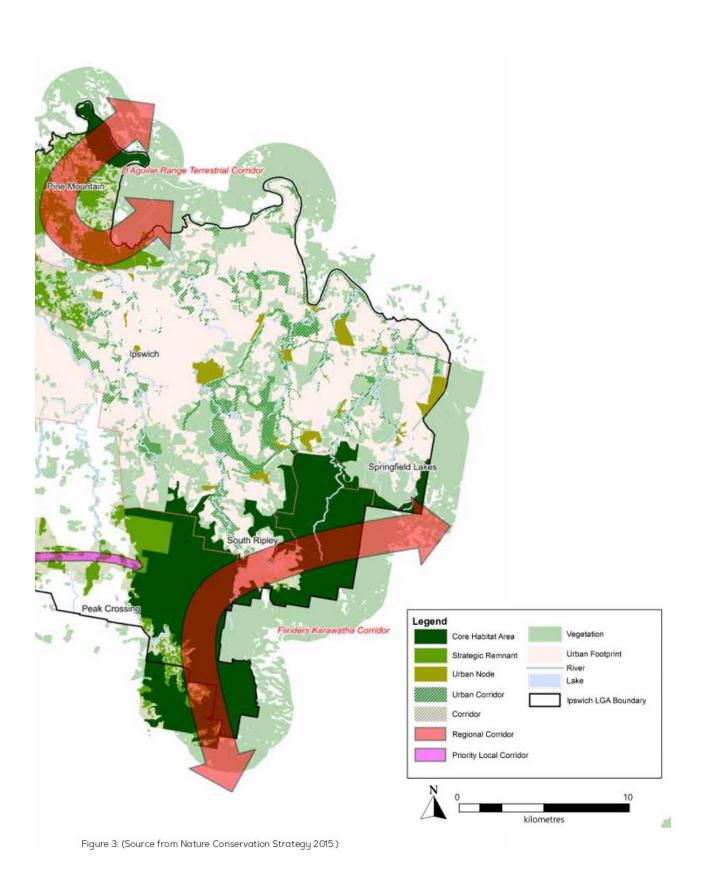
From the perspective of strategic land use planning and assessment of development within the Ipswich Local Government Area:

- significant watercourses have been identified based on their stream order category;
 - (i) major watercourses Stream Orders 8 to 5;
 - (ii) medium watercourses Stream Orders 4 and 3;
 - (iii) minor watercourses Stream Orders 2 and 1, where it has been determined it is prudent and feasible for them to be retained in their natural form;
- state significant wetlands have been identified as designated wetlands; and
- c) indicative buffer (riparian) areas to the significant watercourses (specified as a distance either side of the centre of the watercourse) and designated wetlands (specified as a distance from the edge of the wetland) have been identified to provide the basis for more detailed investigation of the riparian extent and assessment of impacts from development:
 - (i) major watercourses 50 metres;
 - (ii) medium watercourses 25 metres;
 - (iii) minor watercourses 10 metres; and
 - (iv) designated wetlands 100 metres.

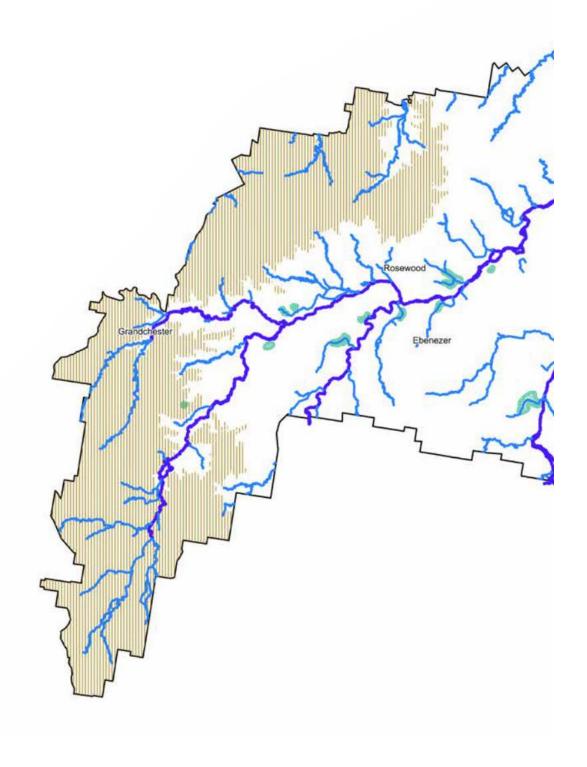


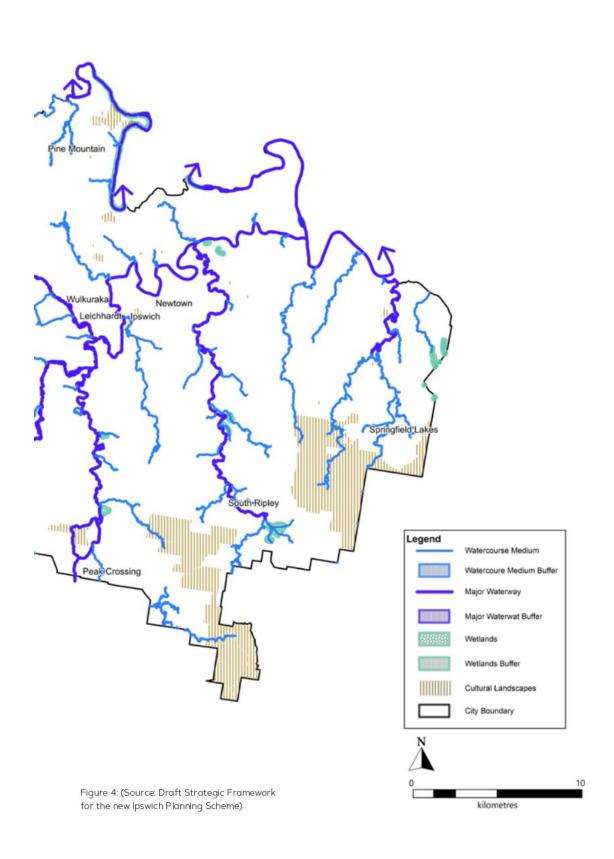
APPENDIX B: IPSWICH'S NATURAL ENVIRONMENT FEATURES



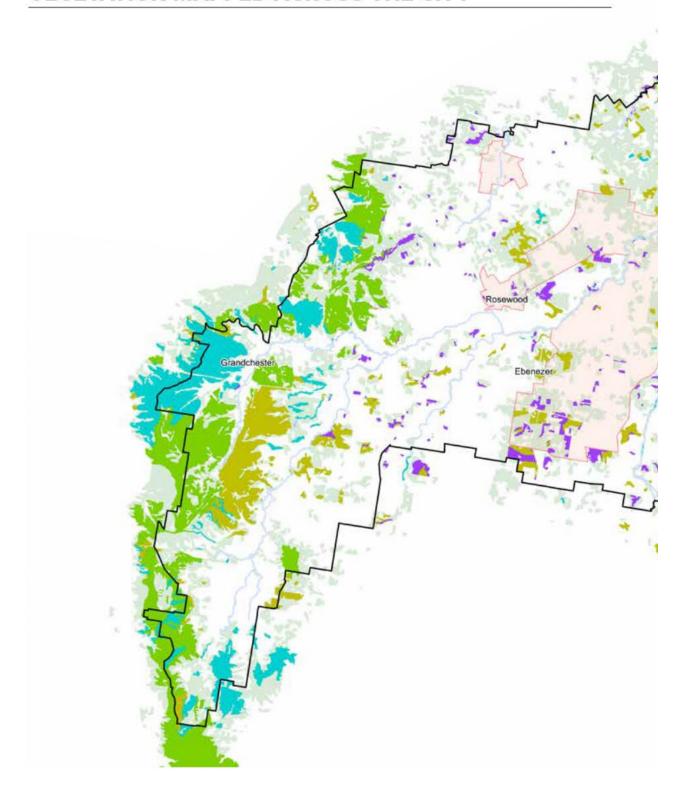


APPENDIX C: IPSWICH'S CULTURAL LANDSCAPE VALUES





APPENDIX D: EXTENT OF REMNANT VEGETATION MAPPED ACROSS THE CITY



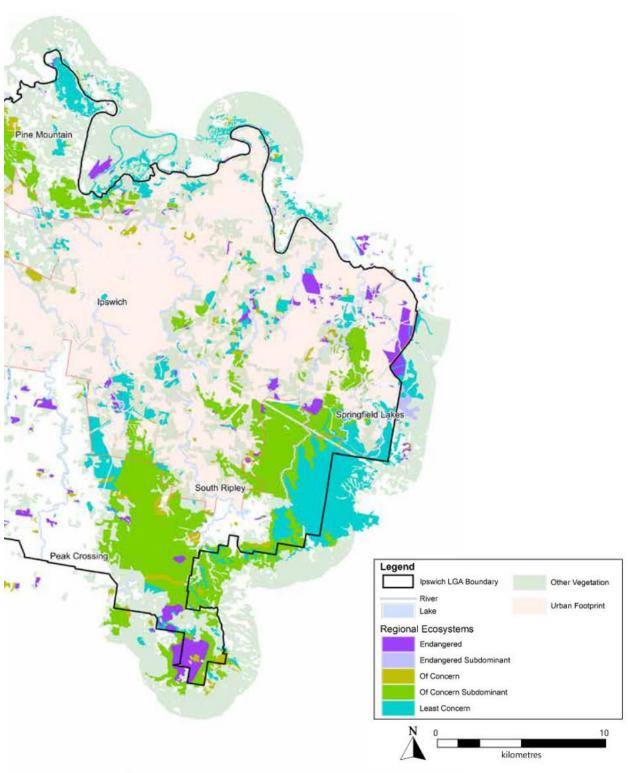
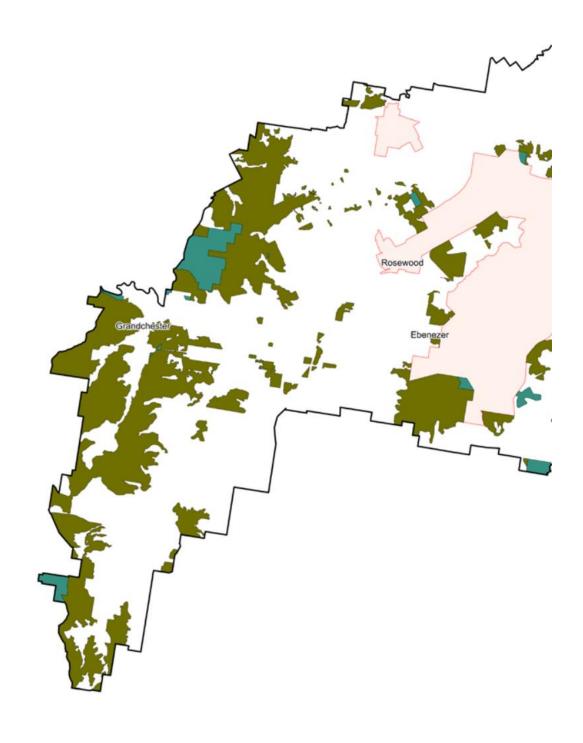


Figure 5: Extent of mapped remnant vegetation in the City in 2017 (Source: Queensland Government - Bioregion and Subregion Analysis of Remnant Regional Ecosystem Vegetation 1997-2017).

APPENDIX E: AREAS ZONED FOR CONSERVATION PURPOSES IN THE IPSWICH PLANNING SCHEME



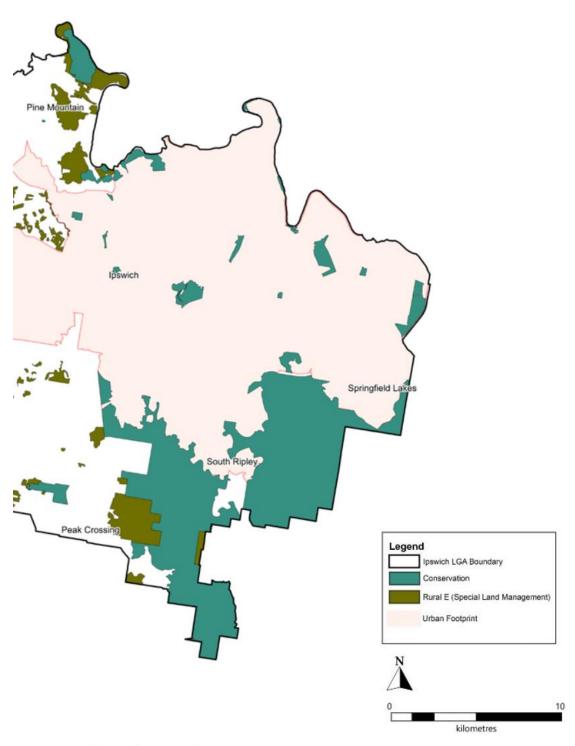


Figure 6: Extent of area zoned for conservation purposes through the lpswich Planning Scheme (as produced in January 2020).

REFERENCES AND FURTHER READING

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Dlgrma.qld.gov.au/resources/planning/population-growth/population-growth-highlights-and-trends-queensland-final.pdf

Healthy Land and Water. Ecosystem Health Monitoring Program

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Ipswich City Council. Advance Ipswich (2015)

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|pswich.qld.gov.au/__data/assets/pdf_file/0012/125400/lpswich-Enviroplan-Program-and-Levy-Policy.pdf

lpswich City Council. Ipswich Planning Scheme

lpswich.qld.gov.au/about_council/corporate_publications/ipswich_planning_scheme

Ipswich City Council. Koala Conservation and Habitat Management Plan

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Ipswich City Council. Nature Conservation Strategy (NCS) 2015

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Ipswich City Council. Our Community: Demographic Profile (ICC)

lpswich.qld.gov.au/icc/publications/ipswich-census-data/2016/files/assets/common/downloads/lpswich%20in%20 Autumn%202017.pdf?uni=ac4ae236bd5d15079018324eaa85bd16

Ipswich City Council. Significant Flora and Fauna

lpswich.qld.gov.au/about_ipswich/environment/wildlife/significant-flora-and-fauna

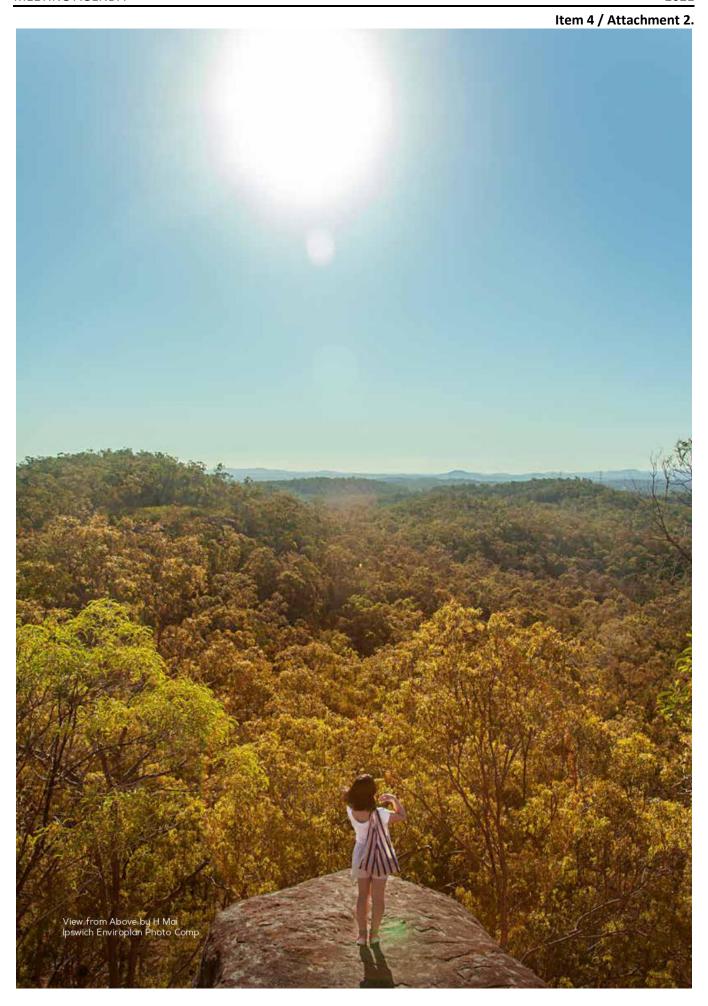
Ipswich City Council. Waterway Health Strategy

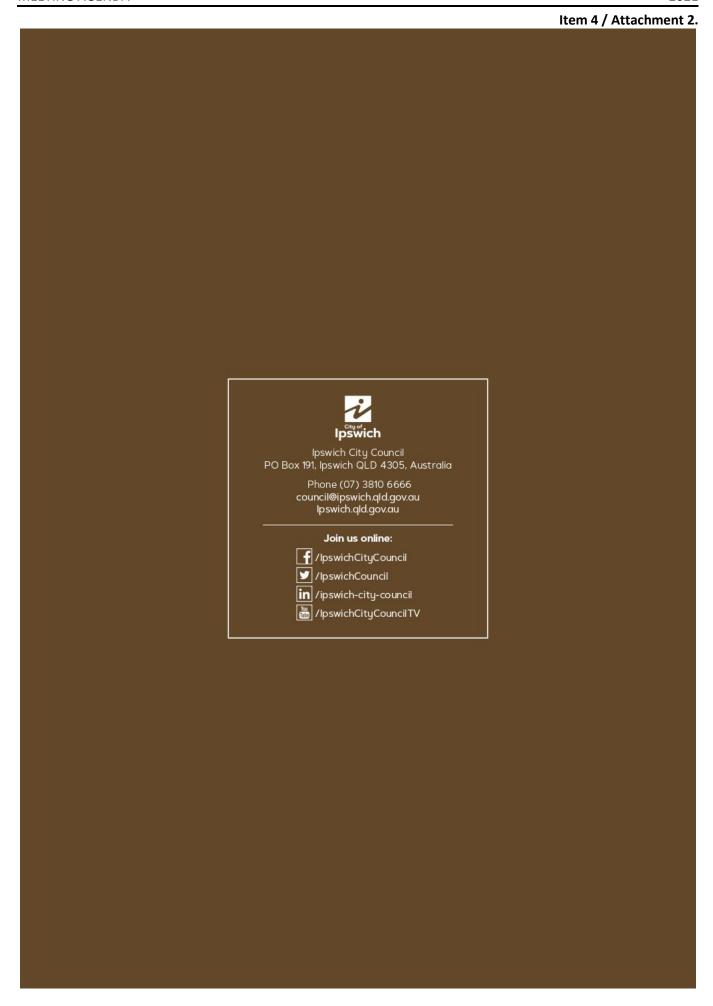
lpswich.qld.qov.au/about_council/corporate_publications/waterway_health_strategy

Queensland Government. Remnant Regional Ecosystem Vegetation in Queensland

Qld.gov.au/environment/plants-animals/plants/ecosystems/remnant-vegetation#bioregion

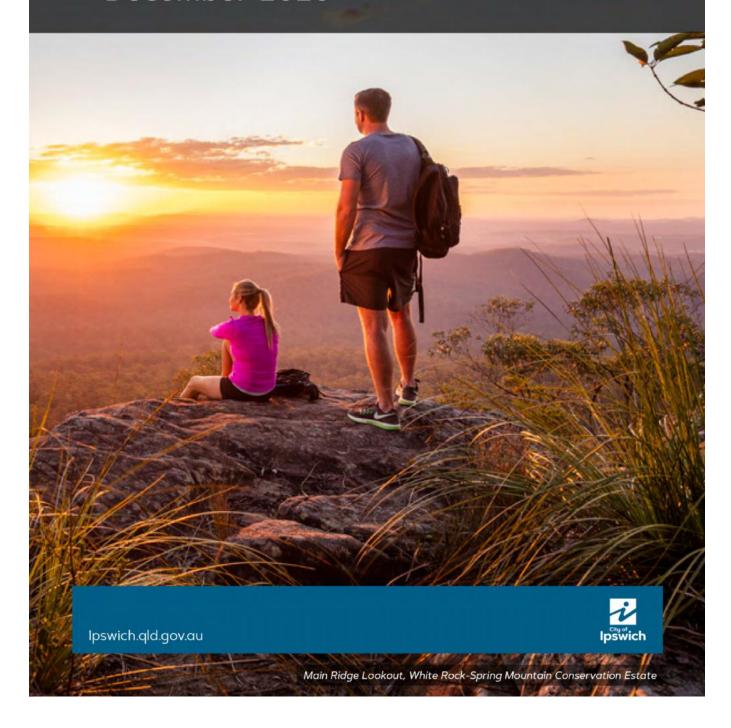






City of Ipswich Natural Environment Policy Engagement Report

December 2020



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BACKGROUND

Purpose

Ipswich's natural environment provides vital habitat to the diverse native flora and fauna of our region. Besides its biological values, the natural environment has significant cultural values and contributes to the economic prosperity, amenity, liveability and lifestyle of the city and its residents. A new policy will set out a strategic position and principles to achieve long-term viability of the natural environment.

The community represent one of council's key stakeholder groups due to the critical role they play in the natural environment policy's development. Having a clear understanding of community attitudes, expectations and values is critical.

Council's Environment & Sustainability Branch required community and stakeholder input in the development of an overarching Natural Environment Policy. The policy will provide strategic direction for council and the City of Ipswich led by the Natural Environment and Land Management Section.

Council's Communications & Engagement Branch and other members of the Environment & Sustainability Branch provided support including advice and assistance with engagement activities.

Engagement Objectives

To gain a representative and reliable understanding of:

- What natural environment elements the community most appreciate;
- Areas that need improvement and how to undertake this;
- Community vision for the natural environment;
- Actions the community feel are important for the natural environment's viability; and
- Values and benefits of the natural environment.

To inform the development of council's Natural Environment Policy.

Methodology

A structured five question survey was developed for council's community engagement digital platform Shape Your Ipswich. This was open for a period of slightly over six weeks from 3 August to 16 September 2020.

The online survey also captured data from the contributor:

- Whether there responses are on behalf of an organisation or general public;
- Suburb;
- Year of birth;
- Gender;
- Cultural background, and
- Connection with Ipswich.

The same five questions along with an additional apportunity for general feedback was posed to high valued stakeholders representing 12 sectors:

- 1. Catchment Management
- 2. Citywide Community Environmental Group.
- 3. Regional Environmental Community Group
- 4. Development Industry
- 5. Government Environmental Agency
- 6. Natural Area User Group
- 7. Council Landholder Partnership Program (Rural)
- 8. Council Landholder Partnership Program (Urban)
- 9. School Aged Children
- 10. Utility Provider
- 11. Youth
- 12. Waterway User Group/Business

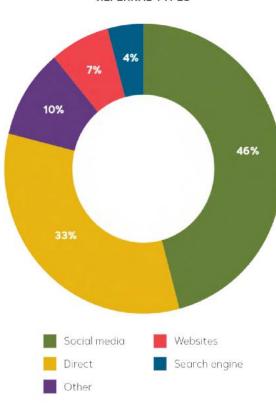
Due to limitations associated with COVID, engagement of stakeholders was done through either phone interview or email.

A background paper was available on the dedicated Shape Your Ipswich project page to provide context on the city's natural environment.

Promotion

The survey was promoted through social media and direct email to networks, Visitors who arrived at the site were mainly through social media links.

REFERRAL TYPES



Participation

The Shape Your Ipswich page for the survey received 1,105 visits. There were 107 survey contributions provided through the online survey. Not all five survey questions were completed.

76 community members subscribed to the project and will receive ongoing updates.

The survey was open to the general public. Anybody with a connection to the city could participate.

12 sector representatives participated in the phone interviews. Contributors provided responses to all five questions.

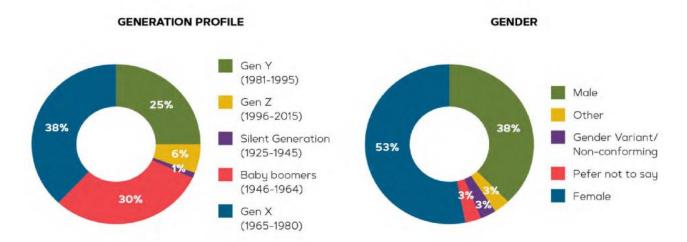
Analysis

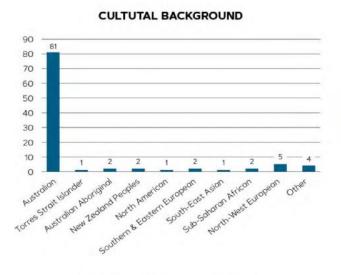
The survey and interview questions allowed for open comments, allowing contributors to answer however they wished. Not all questions received a comment from a contributor.

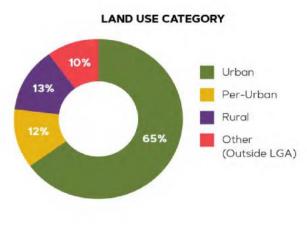
Comments were categorised into high frequency themes. Where a comment contains multiple elements, it is consequently categorised against multiple themes.

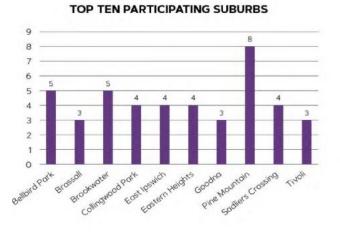


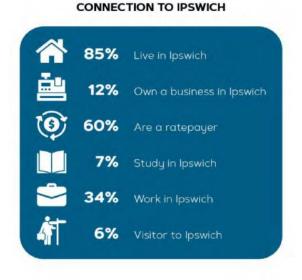
PROFILE OF COMMUNITY AND STAKEHOLDERS SURVEYED











KEY FINDINGS

Appreciate the Most

- The extent of greenspace and natural areas within the city is highly valued by the community and stakeholders.
- Close to three-quarters of survey respondents mentioned the amount of greenspace and/or natural areas in their response, while slightly over half of stakeholders interviewed did as well.

I am impressed that there is so much natural environment around. (Resident - Redbank Plains)

Areas for Improvement and How

- Top four areas mentioned for improvement by the community and stakeholders were:
 - Management of council's natural areas and broader greenspace network (including parks)
 - Protecting wildlife and threatened species particularly their habitat
 - Condition of the waterways, wetlands and associated riparian vegetation
 - Preservation of corridors and connectivity across the city.
- Amongst both the community and stakeholders, expanding land use planning protection and more sustainable outcomes was mentioned most frequently as the tool to improve the natural environment.

Integrate the natural environment policy into the planning scheme. (Works in Ipswich -South Brisbane)

Vision

- The main visionary themes are:
 - Balancing development and natural environment
 - Protection of significant habitat areas
 - A restored natural environment network
 - Resilience of the natural environment (including corridors)
 - An accessible and activated natural environment.

I would love to see more wildlife corridors connecting native reserves together so that native wildlife are able to move more freely throughout the area with less loss of species due to interactions with the urban environment. (Resident - Pine Mountain)

Actions

- Two key actions most mentioned by the community and stakeholders are for council to:
 - Improve land use planning & control
 - Boost community support and partnerships programs.
- Around 1 in 2 survey responses referenced land use planning or development processes.

Establish a strong, defensible position on ecologically sustainable development and commit to this position and direction across growth, development and investment as fundamental objective and criteria in decision making (Resident - Augustine Heights)

Values

- Over half of community responses identified mental and physical health benefits associated with the natural environment. Similarly, 7 of the 10 sector stakeholders also mentioned health values.
- Recreation and aesthetic values associated with the natural environment was highly recognised by stakeholders – mentioned by 10 of 12 stakeholders. It also was mentioned in around 1 in 3 community responses.
- About 1 in 3 community responses made reference to habitat provisions for native plants and animals.
 - A healthy natural environment provides clean air and water, fertile soil, biodiversity, plant and animal products, recreation, improved mental health and a reduction in greenhouses gases and soil and water pollutants. (Resident – North Ipswich)
- Of note, a number of responses took an intergenerational view.

To leave it for following generations. (Resident - Grandchester)

RESPONSE DATA

Q1. What is already great about the natural environment in lpswich?

This was an open comment field designed to provide insight into what are the positive aspects of the city's natural environment.

103 of the 107 contributors in the on-line survey responded to the question. All 12 stakeholders responded to the question as part of the interview.

FINDINGS

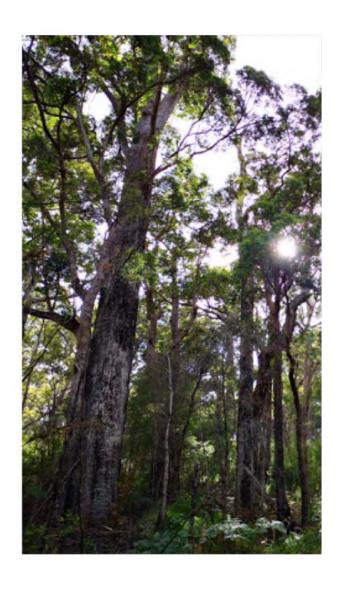
Community comments

By far the top comments in terms of what is great about the city's natural environment was the extent of greenspace and natural areas (76 comments). A common thread of comments was towards the recreation value of these spaces to residents and visitors.

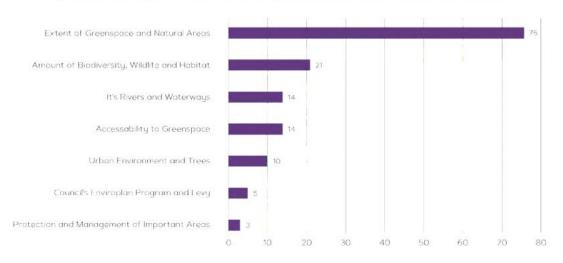
The amount of biodiversity, wildlife and habitat was also a key topic with 21 related comments. The majority of comments related to the appreciation of the different types of vegetation communities, plants and animals found in the city, particularly in close proximity to urban areas.

Other trends in the comments include:

- 14 comments said that accessibility to greenspace is valued
- 14 comments specifically included reference to the city's river and waterways as critical
- 10 responses highlighted the importance of the urban environment (forest) and trees to the liveability of the city – reference being to climatic conditions.



Q1. WHAT IS ALREADY GREAT ABOUT THE NATURAL ENVIRONMENT IN IPSWICH?

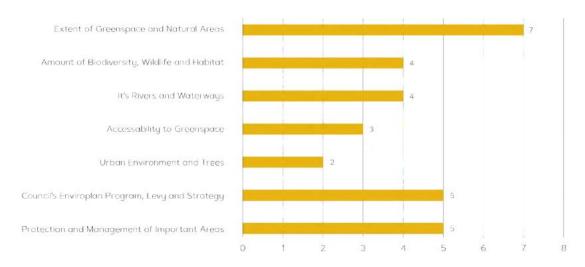


Stakeholder comments

Comparable to community comments, the extent of greenspace and natural areas also received the most responses. 7 of the 12 stakeholders specifically mentioned either greenspace or natural areas as important.

- 5 stakeholder comments specifically mentioned council's Enviroplan Program, Levy and Strategy as important for the natural environment
- 5 comments included reference to protecting and managing important areas remaining in the city
- 4 responses said that the amount of biodiversity, wildlife and habitat is vital
- 4 responses indicated the city's rivers and waterways are highly valued

Q1. WHAT IS ALREADY GREAT ABOUT THE NATURAL ENVIRONMENT IN IPSWICH?





Sample comments

That Ipswich has local areas to go bushwalking and a number of them across the city.

There are protected natural areas that the public still have access to and can enjoy.

The natural environment in Ipswich is a place for people to walk, cycle, play, relax and observe nature.

The conservation estates which encourage sympathetic active participation.

We are lucky to have a huge green space in the centre of Ipswich and we have abundant nature reserves surrounding us in the form of national parks and other spaces.

I love the large number of well-established trees in the area.

That we have wildlife that is abundant and that we have koalas & other rare & endangered species.

I am impressed that there is so much natural environment around.

Conservation Estate network and bushwalking opportunities.

They're also great areas for nature based recreation and provide people with a wilderness experience close to the city.

Access to various mountain bike trails and rock climbing at Mount Flinders and White Rock.

The free plant program!!! I love that program so much!!!

I love the natural bushlands and green spaces.

Lots of natural areas in a short distance from the city.

Parklands and green corridors.

Having natural areas to visit and explore; the family able to see the Queens Park flying-fox fly out from a safe distance; some good signage.

There are so many natural areas and waterways.

The diversity of the area is a massive draw, from the Dry-Vine Scrub areas to the eucalypt forests.

Ipswich Enviroplan was revolutionary when it was created. Council invested considerable funding and effort into securing key natural habitats throughout the city.

There is native wildlife present, native flora is abundant.

Large number and size of protected green space and waterways meeting a range of recreational needs for the community and visitors.

Throughout the region, there are still large tracts of nature reserves and other undeveloped land where the bush has been left in its (relatively) natural state.



Q2. What could be improved now, and how could we improve it?

This was an open comment field. The question was in two parts to understand community sentiment on what can be enhanced and mechanisms that could achieve this.

106 of the 107 contributors responded to the question online. All 12 stakeholders responded to the question as part of the interview.

FINDINGS

Community comments

Key themes for what could be enhanced include:

- 31 comments mentioned management of council's natural areas and broader greenspace network (including parks)
- 21 comments stated a need to protect more wildlife and threatened species - particularly their habitat
- 20 comments were on the condition of the waterways, wetlands and associated riparian vegetation.
- 19 comments made reference to preserving corridors and connectivity across the city
- 9 comments said management of pest plants and animals needed to change – often linked with council's natural areas and broader greenspace.

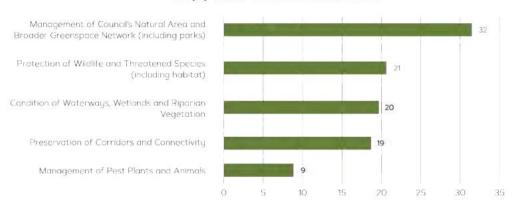
Item 4 / Attachment 3.

Expanding land use planning protection and seeking more sustainable outcomes was the most common theme for how to improve the city's natural environment (40 comments). Connected with planning protection, 10 comments said more compliance and local law controls could assist.

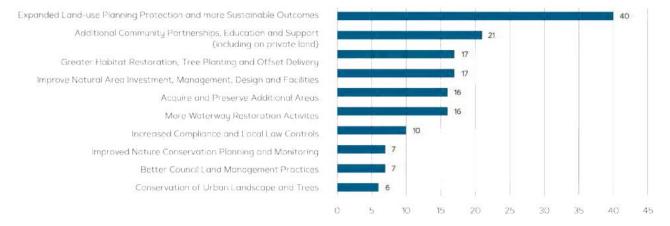
Other key mechanisms the community commented on include:

- 21 comments mentioned using additional community partnerships, education and support
- 17 comments said there should be greater habitat restoration, tree planting and offset delivery in the city
- 17 comments referenced improving the level of investment in council's Natural Area Estate and related management, design and facilities
- 16 comments outlined acquiring and preserving more areas – particularly focusing on wildlife and waterway corridors.
- 16 comments noted more water restoration activities is needed – e.g. tree planting.

Q2.(A) WHAT COULD BE IMPROVED?



Q2 (B) HOW COULD WE IMPROVE IT?



Stakeholder comments

In contrast to community comments, the most common stakeholder theme is improving preservation of corridors and connectivity (6 comments). Comments made reference to corridors through urban landscapes needing more attention, with a focus on waterways.

Additional key improvement themes include:

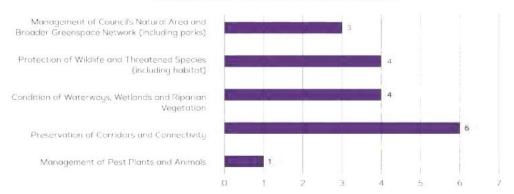
- 4 comments said protection of wildlife and threatened species – including their habitat
- 4 comments mentioned the condition of waterways, wetlands and riparian vegetation as being concerning
- 3 comments noted management of council's natural areas and broader greenspace network as an aspect needing attention
- 1 comment suggested management of pest plants and animals

There was not a substantial standout theme ahead of the others. Similar to community comments, stakeholders saw expanding land use planning protection and more sustainable outcomes as important for improvement (7 comments). A number of comments mentioned development coexisting with the natural environment.

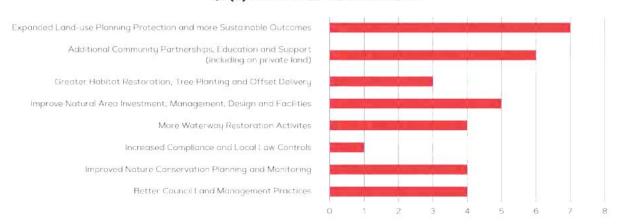
Key mechanisms also mentioned include:

- 6 comments suggested additional community partnerships, education and support for the community – particularly private landholders
- 5 comments said improve natural areas investment, management, design and facilities
- 4 comments proposed that more focus on waterway restoration activities would contribute significantly to improving the natural environment
- 4 comments noted improving the level of nature conservation planning and monitoring, some suggested using the community more to do this
- 4 comments made reference to better council land management practices e.g. fauna crossing infrastructure.

Q2 (A). WHAT COULD BE IMPROVED NOW?



Q2 (B) HOW COULD WE IMPROVE IT?



Sample comments

Connectivity between natural areas - improve corridors between fragmented areas.

Clean up weeds in council owned land and roadsides.

Our laws to protect our threatened species needs to be improved as we are still clearing koala habitat at phenomenal rate.

Improved waterway rehabilitation and improved access to riverside

Make Ipswich world class environmental and make it famous and worth visiting.

Less residential development expansion into green corridors. More parklands in suburbs.

Improve visitor facilities and walking tracks in conservation estates, particularly Flinders-Goolman where there are few accessible tracks.

Please plant more trees in parks for shade - too many parks are just big open spaces. Also, I would love for our waterways to be cleaned up!

The size of the riparian zones for wildlife corridors is too small.

Keeping the existing greenspaces and maintaining our existing reserves, parklands and waterways. Preserving habitat for existing wildlife.

Item 4 / Attachment 3.

Integrate the natural environment policy into the planning scheme.

There is not enough habitat for threatened species. Land acquisition or working with environmental organisations to protect more land is critical in halting the rapid decline of species within the lpswich LGA.

Investing in nesting box programs or cutting nests into trees in parks.

Nature conservation - conservation talks at nature centre with focus on endangered species to educate the community.

More education to the public on how they can help the environment in their everyday lives, as well as other ways to help.



Q3. What do we dream of achieving for the natural environment in Ipswich?

This was an open comment field. The question helps understand the community's vision.

105 of the 107 contributors responded to the question online. All 12 stakeholders responded to the question as part of the interview

FINDINGS

Community comments

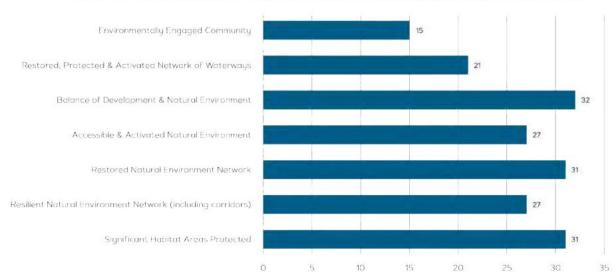
Comments were received across 7 central themes:

- 1. Balancing development and natural environment.
 - 32 comments were supportive of this with many comments mentioning a need for growth and development that maintains greenspace.
- 2. Protection of significant habitat areas.
 - 31 comments identified having adequate safe places for wildlife to thrive.
- 3. A restored natural environment network.
 - 31 comments were around taking action to address the health of the environment e.g. fewer pest plants and animals.
- Resilience of the natural environment (including corridors).
 - 27 comments were about connectedness to large tracts, naturalness, species diversity, co-existence and comprehensiveness.

- 5. An accessible and activated natural environment.
 - 27 comments were about both local residents and visitors to the city being able to undertake sustainable recreation experiences within a natural setting (e.g. bushwalking).
- Restored, protected and activated network of waterways – including wetlands.
 - 21 comments mentioned riparian vegetation and cleaning -up waterways for the purposes such as undertaking recreation - particularly fishing and swimming. A significant number of responses remarked the Bremer River is central to the natural environment.
- 7. An environmentally engaged community.
 - 15 comments referenced the community highly valuing the natural environment and actively participating in its protection and management.
 Terms such as understand, awareness, respect, care, pride and positive were common in the responses.

Again, urban areas, lifestyle and amenity were a focus of a sizeable number of community responses. A vision for a natural environment in urban areas containing more trees, forest, greenspace, publically accessible lands and visually pleasing were terms regularly used in responses

Q 3. WHAT DO WE DREAM OF ACHIEVING FOR THE NATURAL ENVIRONMENT IN IPSWICH?



Stakeholder comments

Having a restored, protected and activated network of waterways across the city was a strong visionary theme with stakeholders.

 6 comments mentioned being able swim and fish, improved water quality and health, and farmers being supported with riparian vegetation management.

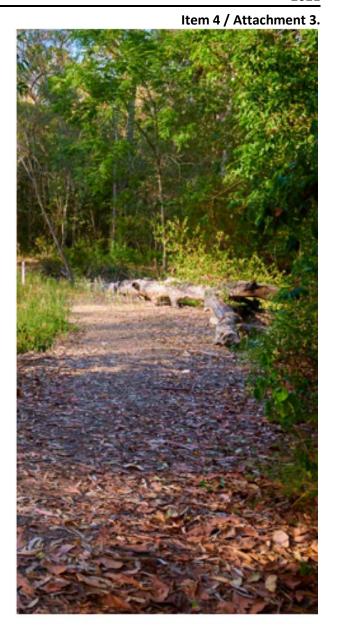
A related theme regarding the city having a broader restored natural environment network also received a similar level of mention.

 5 comments were around seeing a greener landscape and natural spaces, and gaps in corridors under active restoration.

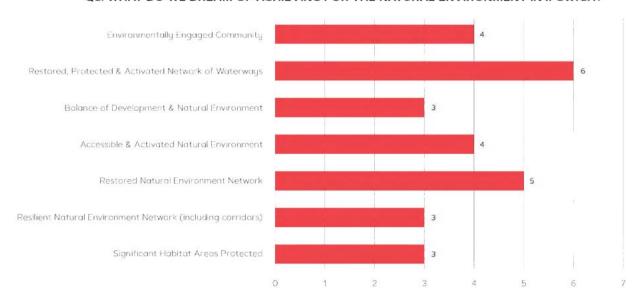
Other key themes also raised include:

- 4 comments regarding having a natural environment accessible and activated for the general public – particularly to participate in recreation
- 4 comments mentioned there being an environmentally engaged community. Terms like the community contributing to solutions and participating in volunteering were used
- 3 comments said they envisioned a balance of development and natural environment. Responses varied from less development through to more 'coexistence' approach
- 3 comments were about achieving a natural environment network that is more resilient.
- 3 comments referenced significant habitat areas being protected – especially for vulnerable and valuable species.

Stakeholder responses were more citywide view in general comparison to community comments. No reference was made to urban environments in stakeholder responses.



Q3. WHAT DO WE DREAM OF ACHIEVING FOR THE NATURAL ENVIRONMENT IN IPSWICH?



Sample comments

To be able to experience areas which are natural/ bush areas (not only parks) and know that they are protected, that they protect wildlife and that they offer an experience.

Build a resilient urban forest that can tolerate and continue to thrive in future climatic extremes.

Become a model for excellence in environmental care and effective integration of development and conservation of the natural environment.

The Bremer River in particular is in a healthy condition, an icon for the right reasons, and a focus area for recreation in the city.

More areas set aside for green spaces, more restraints placed on developers, more bush land parks rather than just ovals and sporting fields.

Healthy, clean, swimmable rivers and creeks.

A comprehensive, linked protected area estate, providing abundant habitat for native species and walking opportunities for lpswich residents.

I would love to see a large "back country" style mountain bike loop trail created out of the existing trails at White Rock and Spring Mtn.

A place that supports and encourages our native species of flora and fauna to co-exist with us.

For my kids I want a future where bushland and urban forest is maximised in urban areas.

Community awareness of the significant natural (e.g. threatened species) and Indigenous Cultural values of reserve.

I would love to see more wildlife corridors connecting native reserves together so that native wildlife are able to move more freely throughout the area with less loss of species due to interactions with the urban environment.

At least 50% of the community valuing and involved in voluntary nature conservation activities e.g. weeding and planting in reserves and private land.

Natural environmental areas should be increased with native corridors at least 100 metre width.

People to know natural environmental and appreciate it.

I'd like to see every member of the community contributing to, and taking advantage of the many great outdoor areas we have.

More places to fish or more waterway areas to enjoy.



Q4. What are some steps we could take now to contribute to this future?

This was an open comment field. The question helped understand community views of the action they felt was necessary to achieve a vision for the natural environment.

104 of the 107 contributors responded to the question online. All 12 stakeholders responded to the question as part of the interview.

FINDINGS

Community comments

Improving land use planning & control was a strong theme among the responses. 46 comments were around:

- State government mandated requirements
- Sustainability of current development practices
- Extent of corridor width protection
- Tree retention
- Greenspace allocation.

Item 4 / Attachment 3.

Dominant action themes also include:

- 26 comments mentioned boosting community support and partnerships programs e.g. expanding habitat garden scheme
- 23 comments were about identifying, creating, restoring and protecting corridors – particularly waterways
- 23 comments referred to improving management of council's natural areas. Responses tended to focus on actions associated with recreation facilities
- 18 comments related to expanding and if required acquiring more natural areas.

Other themes raised were:

- 13 comments about increasing knowledge
- 10 comments around increasing investment
- 9 comments on expanding laws, regulations and enforcement activity
- 2 comments about offsetting impacts on the environment.

Q4. WHAT ARE SOME STEPS WE COULD TAKE NOW TO CONTRIBUTE TO THIS FUTURE?



Stakeholder comments

Similar to the trend with community responses, boosting community awareness, support and partnerships programs were strong themes amongst stakeholders.

7 comments mentioned related aspects such as:

- Establish community projects
- Raise awareness of people's impacts
- Educate on the value of the natural environment and issues affecting it.

Identifying, creating, restoring and protecting corridors was also a key theme (6 comments). In comparison to community responses there was more mention of broader wildlife movement corridors.

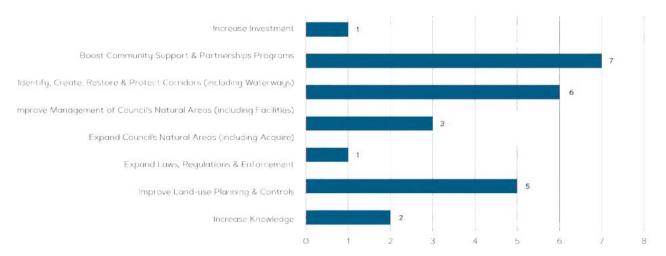
Improving land use planning and controls received a number of mentions (5 comments). Comments were similar to those the community highlighted i.e. sustainable development.

Other action themes raised:

- 3 comments regarding improving management of council's natural areas
- 2 comments around council increasing its knowledge i.e. collecting information from the community
- 1 comment on expanding council's natural areas
- 1 comment on increasing investment.



Q4. WHAT ARE SOME STEPS WE COULD TAKE NOW TO CONTRIBUTE TO THIS FUTURE?



Sample comments

Change how we plan/guidelines/specifications.

Green belts/parks between developments.

Make a better planning scheme that does not allow for unsustainable development and that takes priority of the environment.

A planning and policy framework that provides certainty through clearly identifying corridors of value and improvement.

Establish a strong, defensible position on ecologically sustainable development and commit to this position and direction across growth, development and investment as fundamental objective and criteria in decision making.

Clearer and stricter control of developers.

Funding for Bremer riparian zone replanting projects.

Use the environmental levy for retaining more natural bush areas to eliminate loss of biodiversitu.

Acquiring larger parcels of land ideally connecting to existing bushland tracts.

Ensure there is a current understanding of the existing state of the environment.

Feral and pest management on existing estates and looking at planning regulations for clearing of habitat.

More trails, more signage, more access, more preservation.

Cool burn programs that are communicated openly with the community so they understand that the Council is doing a great job in balancing safety, environment and lifestyle.

Encourage people to plant native species.

Engage with Service clubs to assist maintain river banks and parklands free of weeds.

Protect soils, prevent erosion, improve water quality.

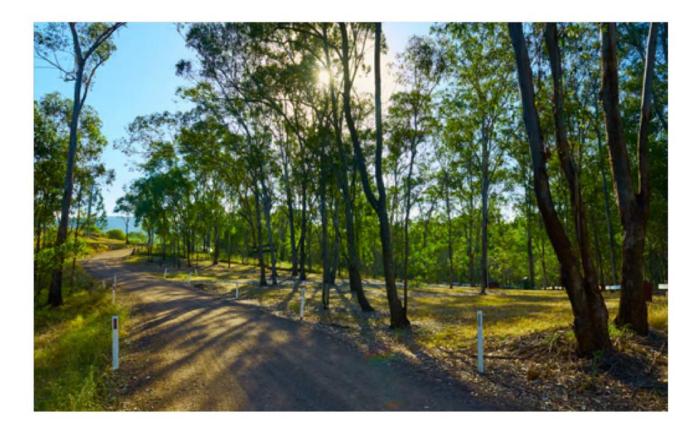
Community consultative processes, partnerships.

Incentives for landholders and industry.

Remnant vegetation communities of all types along roads and road reserves to be maintained and enhanced.

Funding for local community groups focusing on educating and promoting the care of local habitats.

Focusing on areas that are vital for future conservation project.



Q5. Why is it important for Ipswich to have a healthy and resilient natural environment?

This was an open comment field. The question helped understand community values connected to the natural environment.

103 of the 107 contributors responded to the question online. All 12 stakeholders responded to the question as part of the interview.

FINDINGS

Community comments

The importance of the natural environment's human health values was a dominant theme amongst the responses. 58 comments were on health services provided including:

- Mental health and wellbeing places to unwind and relax
- Physical health space for recreation and exercise
- Leisure pursuits area for solitude and reflection.

Central themes were also around values including:

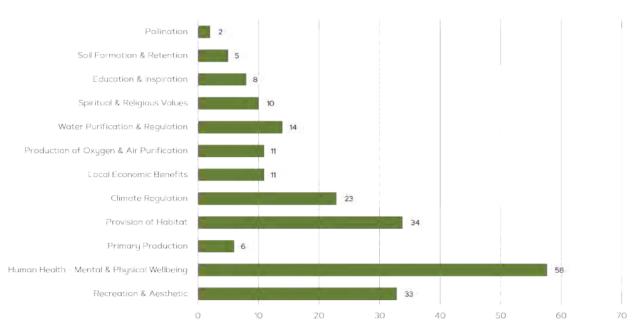
- Provision of habitat for species (34 comments) a number mentioning preserving areas as refuges during the time of change
- Recreation and aesthetic (33 comments) responses often linked to physical and health values
- Climate regulation (23 comments) increasing temperatures and heat were frequently mentioned.

Other themes include:

- 14 comments about water purification and regulation values
- 11 comments on production of oxygen and air purification
- 11 comments mentioned local economic benefits
- 10 comments were on spiritual and religious values
- 8 comments referenced education and inspiration
- 6 comments around primary production needs
- 5 comments regarding soil formation and retention services
- 2 comments on pollination.

Notably 11 responses mentioned intergenerational benefits of having a healthy and resilient natural environment.

Q5. WHY IS IT IMPORTANT FOR IPSWICH TO HAVE A HEALTHY AND RESILIENT NATURAL ENVIRONMENT?



Stakeholder comments

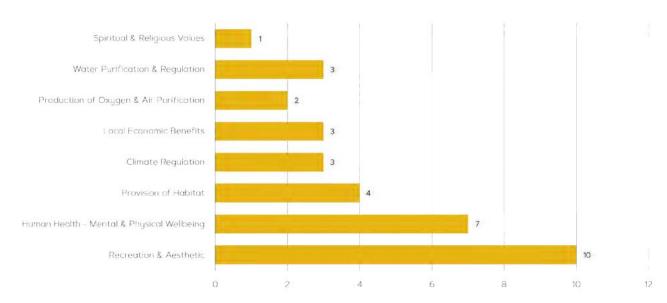
10 of the 12 stakeholder comments referenced recreation and aesthetic values as important. A number of responses linked the economic importance to the local community (i.e. tourism) of undertaking recreation in a natural environment setting.

7 comments identified human health values associated with the natural environment. Similar to community comments, stakeholder responses mentioned a strong relationship between community health and accessibility to the environment.

Other themes include:

- 4 comments around provision of habitat for species
- 3 comments were on climate regulation
- 3 comments on local economic benefits
- 3 comments referenced water purification and regulation.
- 2 comments mention production of oxygen and air purification
- 1 comment was on spiritual and religious values.

Q5. WHY IS IT IMPORTANT FOR IPSWICH TO HAVE HEALTHY AND RESILIENT NATURAL ENVIRONMENT?



Sample comments

Provide ecosystem services.

It contributes to Ipswich's economic growth.

The amount of vegetation and how well it's looked after tells a great deal about the people who live there and run things.

Greener healthier environments support mental wellbeing.

It encourages people to get outdoors and try and lead a healthier lifestyle.

So that we have a healthy and resilient population into the future.

Community health and wellbeing, including that of local native species of flora and fauna.

Healthy environments mean healthy communities and healthy people - we want to be able to breathe in the future.

Natural environments are a tourist draw card - more eco-tourism means more dollars into the community.

As for sustainable wildlife populations, we could be a state leader in conservation management. We could set an example for the greater good.

For local wildlife to thrive and for locals and visitors alike to enjoy.

Reducing heat island effect.

Because people depend on the natural environment for our air, water, food and wellbeing.

The overall amenity and liveability of the city is significantly increased when the preservation of the natural environment is at the forefront of developments.

A major focus should be both the Bremer and Brisbane river systems improving these will improve water quality as well as reducing the destructive impacts of flooding within the Ipswich areas.

So that generations after us can live in a nice area where there are no problems with lots of garbage, and more wildlife living there.

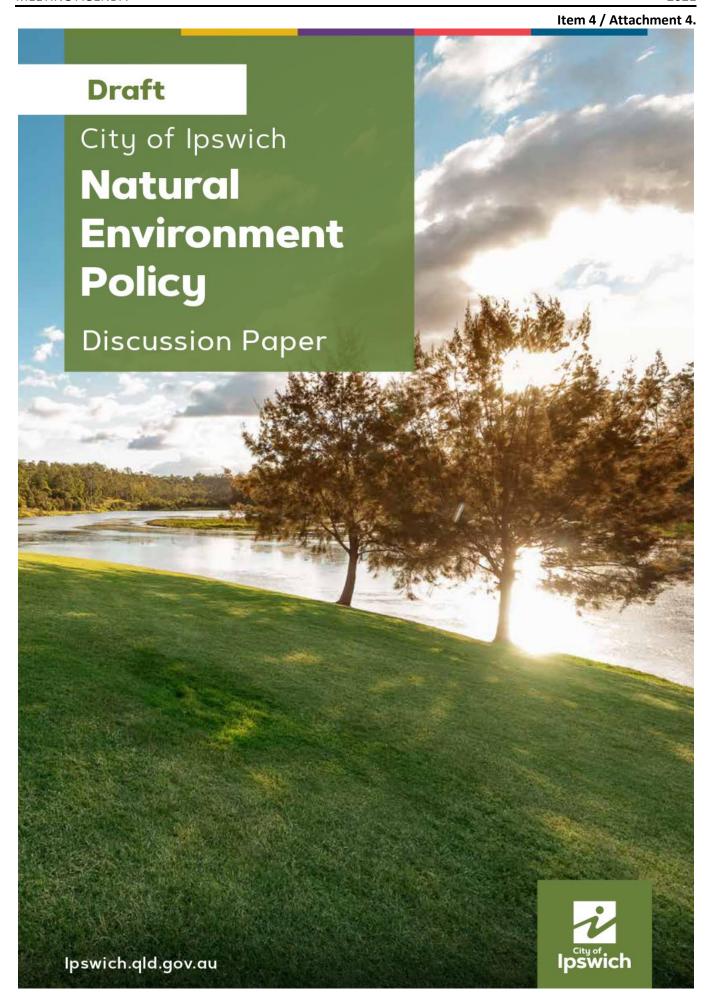
So it is there for future generations to enjoy for recreation, scenic amenity, art and culture, nature-based activities.

Preserving our natural flora and fauna is a priority for the future generations, we have koala habitat that is currently under incredible duress from the natural disasters.

A healthy natural environment provides clean air and water, fertile soil, biodiversity, plant and animal products, recreation, improved mental health and a reduction in greenhouses gases and soil and water pollutants.









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INTRODUCTION AND BACKGROUND

Council is developing a new policy detailing its strategic position with respect to its direction and functions in terms of the natural environment. The purpose of the policy is to reinforce council's commitment to the natural environment by setting out principles to support good long term and balanced decision making that takes into consideration natural values, economic viability and social wellbeing.

The policy will have a focus on council's social and corporate responsibilities as well as partnerships with the community. It also links with the recently adopted Sustainability Policy.

To inform policy development, the Natural Environment and Land Management team has undertaken community consultation; engagement with high valued stakeholder sector representatives; and internal collaboration with council employees and elected representatives. This paper includes insight into trends on what natural environment elements are important to stakeholders and, within council's responsibilities, how to address them.

The paper also provides further information about the values and elements that make up the draft policy including reference to council strategies and commitments, a comparison of other councils in South East Queensland and review of national environmental goals.

The intent of this paper is to recommend for consideration council's policy direction for managing the values of the natural environment.

Natural Environment – for the purpose of the policy, the natural environment is a collective term used to describe the diverse terrestrial and aquatic ecosystems that make up the city's habitat network. It includes natural values such as cultural landscape features.

Natural Values – with reference to the policy, natural values are special qualities such as uniqueness, rarity, typicality, representivity, scientific or education importance, have useful features or recreation value.

- habitat for iconic, significant and threatened species
- core habitat areas as home for a diverse range of wildlife
- nodes of remnant vegetation in urban areas providing wildlife refuge
- strategic remnants vegetation patches as stepping stones for wildlife movement
- corridors providing connectivity for wildlife, recreation and active transport
- increasing vegetation condition and animal abundance within core habitat areas
- biological diversity, natural capital and ecosystem services
- waterways, wetlands, riparian and aquatic ecosystems and floodplains
- improving health of waterways
- Aboriginal cultural heritage and cultural landscape features
- scenic amenity.

CURRENT STRATEGIES AND COMMITMENTS

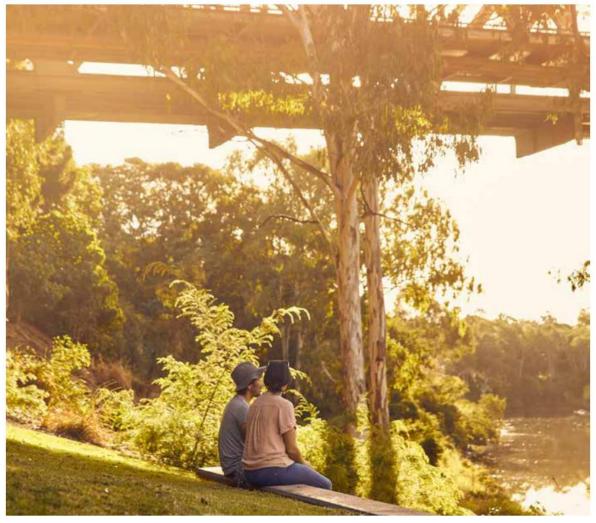
Council's two key citywide strategies with natural environment links are the Ipswich Nature Conservation Strategy (2015) and the recently updated Waterway Health Strategy (2020). Although council has strived to implement the actions focused on the intent of both strategies it has sometimes been faced with challenges with balancing decision making and prioritising investment.

The intent of the 'new' policy is to provide good governance across council and ensure consistent decision making reflects best practice and stakeholder sentiment.

The current Ipswich Nature Conservation Strategy is due for review and therefore timely to have a community aligned council policy for the natural environment to inform the review – setting the foundation.

Council is committed to undertaking a review into its management of urban greening from a perspective of biodiversity contribution, liveability and community participation. It is opportune to be developing a natural environment policy that can inform any future review.

Planning schemes can guide appropriate outcomes for the use and development of land. Schemes and the strategic planning process are one of the most effective mechanisms to protect and conserve the natural environment. Council's current scheme has sought sustainable citywide solutions that balances social, economic and environmental outcomes. The current scheme is under review and as such, timing is fitting to be setting out council's natural environment commitments so as to ensure alignment.



STRATEGIC DRIVERS

CORPORATE PLAN 2021-2026 DEVELOPMENT (IFUTURE)

Council is developing a 20 year vision for lpswich which includes a five year corporate plan. A clean natural environment and open spaces is one of the key strategic themes. Council is consulting with the community on the theme and initial indications suggest that there is extensive input and feedback in this area. A Natural Environment Policy would set out the strategic position and framework to support the plan's strategic theme and contribute towards achieving the corporate vision for the city.

COUNCIL POLICY REVIEW - BUSINESS TRANSFORMATION PROJECT #9

In 2019 council implemented a Business Transformation Program (TP) comprising 18 projects to ensure it provided an enhanced service to the community and make the organisation a better place to work. Project #9 involved a review and update of policies, procedures and local laws. The project identified a gap in policy for the natural environment.

An Enviroplan Program and Levy Policy was developed and endorsed as part of that review. The policy sets out commitments for council's investment of the levy in initiatives that protect and enhance the natural environment. When developing the policy a need was highlighted for a position to guide the management of broader natural environment matters (i.e. landuse impacts, landscape and city scale direction and objectives) outside of that associated or funded by the levy alone.

Council also endorsed a strategic framework for sport, recreation, physical activity, active travel and outdoor/ nature-based recreation in its Active City Policy. The natural environment is interrelated with creating an active city. A policy addressing this relationship and recreation sustainability in natural areas was identified as critically important.

SUSTAINABILITY POLICY IMPLEMENTATION

Council recently endorsed a Sustainability Policy committing council to balancing the protection of the environment as well as encompassing environmental, social and economic considerations from the perspective of creating a sustainable city. The natural environment is one of the key considerations that underpin the Sustainability Policy and associated strategic framework through the delivery of critical ecosystem services for example. A policy specifically focused on natural environment elements will support achieving sustainability outcomes.

NEW PLANNING SCHEME DEVELOPMENT

Commencing in 2019, council is in the process of developing a new Planning Scheme. Community submissions received as part of consultation on the scheme's strategic framework included extensive reference to the natural environment, strategic greenspace and links, biodiversity, watercourses and designated wetlands. It is both timely and central for the review that council set out its strategic position for these matters.

'LIVING IN IPSWICH 2020' PILOT PROJECT AND **SURVEY RESULTS**

Survey results from residents collected as part of this pilot project identified access to the natural environment as the third most important liveability attribute for the city. The results indicate that to advance liveability, council needs to implement appropriate and sustainable planning, development, management, maintenance and activation of natural environment. A policy that takes into consideration sustainable access to the natural environment will contribute to addressing this important community aspect.

NATURAL ENVIRONMENT MANAGEMENT IN OTHER COUNCILS

The Natural Environment and Land Management team has analysed and reviewed governance documents of other SEQ councils to identify where natural environment management commitments exists and how they are addressed. Of 11 council's reviewed, two councils – Brisbane and Redlands had a specific natural environment policy. Remaining councils did not have a natural environment policy, however had strategies that specifically addressed the natural environment or similar policies that partly addressed it – refer table 1.

Besides at a policy and strategy level, many SEQ councils have environmental commitments in their planning scheme strategic frameworks/plans. Following are examples of councils with scheme policies relating to the environment:

- Brisbane City Council biodiversity areas
- Logan City Council environmental management
- Moreton Bay Regional Council environmental areas and corridors
- Redlands City Council environmental significance
- Sunshine Coast Regional Council biodiversity, waterways and wetlands.

South East Queensland Councils	Natural Environment Policy (Y/N)	Other	Web link
Brisbane City Council	Υ	-	Brisbane.qld.gov.au/about-council/governance- and-strategy/vision-and-strategy/environmental- policy
Redlands City Council	Υ	-	Redland.qld.gov.au/download/downloads/id/3612/env-001-p_natural_environment_policy.pdf
Gold Coast City Council	N	Our Natural City Strategy	https://www.goldcoast.qld.gov.au/our-natural- city-strategy-40717.html
Lockyer Valley Regional Council	N	Natural Resource Management Strategy	Lockyervalley.qld.gov.au/our-services/ environment-and-pest-management/Documents/ Final_LVRC_NRM_Strategy_2020_2030_ web_1579750124.pdf
Logan City Council	N	Sustainability Policy	Logan.qld.gov.au/downloads/file/1965/ sustainability-policy
Moreton Bay Regional Council	N	Sustainability Policy	Moretonbay.qld.gov.au/files/assets/public/ services/policies/sustainability-policy.pdf
Noosa Council	N	Environment and Sustainable Living Policy	Noosa.qld.gov.au/downloads/file/1081/ environment-and-sustainable-living-policy
Scenic Rim Regional Council	N	Scenic Rim Biodiversity Strategy	Scenicrim.qld.gov.au/our-environment/biodiversity
Somerset Regional Council	N	Esk Shire Natural Resource Management Plan	Somerset.qld.gov.au/downloads/file/471/esk- shire-natural-resource-management-plan-nrmp- pdf
Sunshine Coast Regional Council	N	Environment and Liveability Strategy	Els.sunshinecoast.qld.gov.au/About-the-strategy
Toowoomba Regional Council	N	Green Infrastructure Strategy	Tr.qld.gov.au/about-council/council- governance/plans-strategy-reports/various- documents/12539-green-infrastructure-strategy

Table 1: Natural Environment in other SEQ council's.

AUSTRALIA'S STRATEGY FOR NATURE 2019-2030

In 2019 the Commonwealth Government published Australia's Strategy for Nature - <u>Australiasnaturehub.gov.au/national-strategy</u>. The strategy is the overarching framework for all national, state and territory and local strategies, legislation, policies and actions that target nature. The Australian Local Government Association was involved in development of the strategy, along with representatives of the Australian, state and territory governments.

The strategy is a shared roadmap to better understand, care for and sustainably manage nature. It seeks to coordinate national delivery of Australia's commitments to national and international conventions and targets such as Sustainable Development Goals (SDGs).

The strategy comprises three priority goals which are supported by 12 objectives and associated measures of progress. The Commonwealth Government mapped each goal against SDGs, demonstrating the contribution they make.

Recognising the local scale contribution council can make to national environmental outcomes as part of policy development, the national strategy's goals, objectives and targets were mapped for alignment against council's policy and its seven policy focus areas being:

- 1. Biodiversity and Threatened Species Recovery
- 2. Wetlands and Waterways Improvement
- 3. Urban Biodiversity Enhancement
- 4. Natural Area Restoration and Protection
- 5. Experiencing Nature
- 6. Community Awareness and Support
- 7. Governance, Measuring and Reporting

A national strategic framework also provides council an opportunity to validate its policy commitments against and confirm clear policy alignment. Mapping the policy against the strategy assists council in demonstrating a commitment to 'working together' and 'act locally, think globally' e.g. alignment from local policy to national objective to international goals.

Table 2 sets out where council's policy contributes to achieving strategic national goals and objectives.



8 | Draft Natural Environment Policy Discussion Paper

Australia's Strategy for Nature Goals	#	Objectives	#	Progress Measures	Council Policy Focus Area Alignment
			1A	Promotion of human health benefits from nature-based activities	
	—	Encourage Australians to get out into nature	18	Visitation rates to public nature conservation areas (land and sea)	5. Experiencing Nature
			10	Value and diversity of nature-based tourism	
			2A	Number and diversity of volunteers for nature-based activities	
			2B	Number of people contributing information through citizen science programs	4. Natural Area Restoration
	2	Empower Australians to be active stewards of nature	2C	Number and extent of lands managed for conservation under other effective conservation measures (privately managed protected areas, covenants or stewardship agreements	and Protection 6. Community Awareness and Support
			2D	Number and scope of public-private partnerships and cross-sector collaborations to look after nature	
7.7.7	0	Increase Australians	3A	Activities to increase awareness of the importance of nature, including to human health and wellbeing	6. Community Awareness and Support
ALL AUSTRALIANS WITH NATURE	n	understanding or the value of nature	38	Quantification of natural capital and its benefits, such as through environmental-economic accounts	7. Governance, Measuring and Reporting
			4A	Work with Indigenous communities to support the protection, documentation and retention of Indigenous ecological knowledge	
	4	Respect and maintain traditional ecological	4B	Recognition and use of Indigenous ecological knowledge in interpretation, practices and decisions relating to environmental management	4. Natural Area Restoration and Protection
		knowleage and stewardship of nature	4C	Indigenous rangers and Indigenous ranger programs managing land and seascapes	6. Community Awareness and Support
			4D	Number and extent of terrestrial and marine areas managed by Indigenous Protected Areas (IPAs) or other co-management arrangements	

Australia's Strategy for Nature Goals	#	Objectives	#	Progress Measures	Council Policy Focus Area Alignment
			5A	Extent and representativeness of government-managed reserve estate and, where available, their condition	
			5B	Extent and representativeness of marine protected areas, including marine Indigenous protected areas	4. Natural Area Restoration and Protection
	2	Improve conservation management of Australia's landscapes, waterways,	2C	Number and extent of significant ecosystems protected by private landowners through stewardship or other arrangements	6. Community Awareness and Support
6		2000	5D	Explicit consideration of future climate scenarios in the planning and management of protected area networks	7. Governance, Measuring and Reporting
			5E	Retention, protection and/or restoration of wetland systems to maintain or improve ecological integrity and ecosystem function	
GOAL 2: CARE			6A	Consistent, robust and transparent assessment and listing of threatened species applied across all jurisdictions	1 Biodiscorritt , tong Throatened
FOR NATURE IN ALL ITS DIVERSITY			6B	Number of populations of threatened or near-threatened species protected in government-managed reserves	Species Recovery Wetlands and
	9	Maximise the number of species secured in nature	90	Number of populations of threatened or near-threatened species protected by private landowners through stewardship or other arrangements	Waterways Improvement 3. Urban Biodiversity Enhancement
			Q9	Number and success of strategic ex-situ conservation programs and emergency interventions implemented for the most at-risk species	Natural Area Restoration and Protection Community Awareness Community Awareness
			9E	Number and area of 'safe havens' for threatened species (e.g. threat-free islands, predator-free enclosures	and support

10 | Draft Natural Environment Policy Discussion Paper

Australia's Strategy for Nature Goals	#	Objectives	#	Progress Measures	Council Policy Focus Area Alignment
			7A	Explicit consideration of climate change adaptation and resilience, including in the management of species and ecosystems that are vulnerable to climate change	
			7B	Extent and success of management programs to implement appropriate fire regimes that reduce impacts of fire on species and/or ecosystems that are vulnerable to this threat	1. Biodiversity and Threatened Species Recovery
	7	Reduce threats and risks to nature and build resilience	7C	Extent and success of management programs for established invasive species that pose a significant threat to species and/or ecosystems that are vulnerable to this threat	Wetlands and Waterways Improvement Urban Biodiversity
			7D	Extent and success of management programs to minimise incursion and spread of new and emerging invasive species	Enhancement 4. Natural Area Restoration and Protection
			7E	Retention, protection and/or restoration of landscape-scale, native vegetation corridors	
GOAL 2: CARE			7F	Retention, protection and/or restoration of native vegetation in urban, peri-urban and agricultural contexts	
FOR NATURE IN ALL ITS DIVERSITY	∞	Use and develop natural resources in an ecologically sustainable way	80	Explicit consideration of measures of natural capital in the sustainable development of Australia's natural resources	Biodiversity and Threatened Species Recovery Community Awareness and Support Governance, Measuring and Reporting
			98	Number and extent of urban greening initiatives	
	0	Enrich cities and towns with nature	9B	Inclusion of ecologically diverse green spaces in the design and development of urban areas	3. Urban Biodiversity Enhancement
			96	Promotion of urban nature-based initiatives	

Australia's Strategy for Nature Goals	#	Objectives	#	Progress Measures	Council Policy Focus Area Alignment
			10A	Explicit science and knowledge programs to support effective management of biodiversity	
	10	Increase knowledge about nature to make better decisions	10B	Understanding of the likely impacts of climate change on, and effective methods to promote adaptation and resilience of, terrestrial, aquatic and marine systems and species	Biodiversity and Threatened Species Recovery Governance, Measuring And Reporting
			10C	Systems capturing data on the diversity of Australian nature and how ecosystems function	
			11A	Public accessibility to information on Australia's nature, through a variety of platforms	
	E	Share and use information effectively	118	Citizen science programs providing robust data on Australia's nature to public information sets	
GOAL 3: SHARE AND BUILD KNOWLEDGE			110	Collaboration and coordination between jurisdictions and research agencies in the collection, collation and publication of data about Australia's nature	6. Community Awareness and Support
			12A	Development of options for using measures of natural capital and ecosystem services in monitoring and reporting systems	7. Governance, Measuring and Reporting
	12	Measure collective efforts to demonstrate our progress	12B	Number of organisations and businesses reporting their performance against environmental measures	
			12C	Document biodiversity-related intervention and investment, and measure and report on outcomes	

Table 2: Where policy contributes to national environmental goals.

SUSTAINABLE DEVELOPMENT GOALS

Endorsed by the Commonwealth Government in 2015, the United Nations 2030 Agenda for Sustainable Development provides a global blueprint to systematically improve quality of life through its social, environmental and economic determinants. The agenda includes 17 Sustainable Development Goals (SDGs) - Sdgs.un.org/goals.

Some local governments have built the SDGs into their policies, strategies and/or local initiatives such as Logan and Mackay. Council recently took SDGs into consideration when developing the Sustainability Strategy.

There is close alignment between the SDGs and our responsibility as a local government to the long-term environmental, social and economic interests of our community. In developing the draft environment policy, council identified six SDGs that directly align to the purpose and principles of the policy. As the previous section outlines, mapping the policy against SDGs demonstrates council's commitment to national and internationally recognised goals and objectives.

The relevant goals are:



Ensure healthy lives and promote well-being for all at all ages



Take urgent action to combat climate change and its impacts



Ensure availability and sustainable management of water and sanitation for all



Conserve and sustainably use the oceans, seas and marine resources for sustainable development



Make cities and human settlements inclusive, safe, resilient and sustainable



Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

CONSULTATION

The Natural Environment and Land Management team has undertaken extensive engagement with council officers, elected representatives, community (general public) and high valued stakeholder representatives. Engagement was undertaken over several months through face-to-face, on-line platforms, email and telephone.

COUNCIL OFFICER CONSULT

An email survey of officers across seven key sections involved in protecting the natural environment was undertaken. 53 officers were invited to participate from:

- Natural Environment and Land Management
- Sustainability and Emergency Management
- Planning and Regulatory Services
- Works and Field Services
- Infrastructure Strategy
- Coordination and Performance
- Community, Cultural and Economic Development.

29 officers provided qualitative responses to four questions. The questions asked are as follows:

- What are we doing well now in the natural environment?
- (A) What is not working as well as it should; and (B)
 Why is it not working well enough?
- What should we be aspiring to?
- What is your big idea?

The questions allowed for open comments, allowing contributors to answer however they wished. Not all questions received a comment from a contributor. Comments were categorised into high frequency themes. Where a comment contains multiple elements, it is consequently categorised against multiple themes.

Results from the feedback were analysed to identify insights and help inform the draft policy. The feedback also identified additional actions that council could take when developing relevant corporate documents in the near future e.g. Nature Conservation Strategy and Urban Greening Plan.

Table 3 outlines where the policy contributes to addressing the top council officer feedback themes to each question.



14 | Draft Natural Environment Policy Discussion Paper

Internal Questions to Council Officers:	Top Feedback Themes (Response Number)	Example Comments	Council Policy Focus Area Alignment
1. What are we doing well now in the natural environment?	Securing and managing important areas (11) Implementing the Enviroplan Program and Levy (11) Greenspace and natural area management (8)	 The work that is undertaken using the Enviroplan funding by acquiring land for conservation, restoration and protection. Acquiring land for conservation purposes. 	1. Biodiversity and Threatened Species Recovery 3. Urban Biodiversity Enhancement 4. Natural Area Restoration and Protection
2A. What is not working as well as it should?	Organisational integration and communication (8) Management of council's natural area and broader greenspace network - including parks (7)	 We could still work a lot more effectively to have a more integrated approach to land management between different jurisdictions/ areas. 	4. Natural Area Restoration and Protection 5. Experiencing Nature 7. Governance, Measuring and Reporting
2B. Why is it not working well enough?	Insufficient resourcing, budget and investment (11) Conflicting direction and planning (7)	The lack in true budget and resourcing requirements The city's planning scheme should support and assist in facilitating the conservation and environmental outcomes of the city.	7. Governance, Measuring and Reporting
3. What should we be aspiring to?	Agreed corporate strategic direction and alignment (9) High standards in management and protection (7)	 Clear collaboration and agreement in the planning and implementation of the replacement of vegetation again both in the built and Natural Environment. 	4. Natural Area Restoration and Protection 7. Governance, Measuring and Reporting
4. What is your big idea?	Integration and internal working group (5) Urban greening (3) Increase funding (3) Promotion and activation (3)	A council Environment Group that has representatives from each relevant area across council that would communicate what is going on, advocate on ideas and provide guidance.	3. Urban Biodiversity Enhancement 5. Experiencing Nature 7. Governance, Measuring and Reporting

Table 3: Policy response to council officer input.

COUNCILLOR COLLABORATION

Councillors were provided an opportunity for input into policy priorities through a briefing and workshop session on the 7 July 2020. The session involved two components, an overview of policy development approach along with time for Councillors to ask questions and provide feedback.

Table 4 outlines where a policy focus area and key principle/s addresses Councillors feedback on priorities.

Councillor Identified Priorities	Council Policy Focus Area and Key Principle Alignment	
Council aligning with State Koala corridors	Biodiversity and Threatened Species Recovery Protect and improve habitat value within large areas of intact threatened species and priority wildlife habitat,	
	including koalas.	
Council doing more for Koalas	Understand, identify and reduce the impact of major threats to threatened species and priority wildlife, including koalas.	
Council getting good offset outcomes	Biodiversity and Threatened Species Recovery Seek an approach whereby impacts are first avoided, minimised or mitigated before any remaining impacts are offset.	
Protection of environment in the corridor around Mutdapilly	Biodiversity and Threatened Species Recovery Enhance and protect key habitat corridors to maintain or increase regional and local connectivity for threatened species and priority wildlife.	
Long-term protection of Natural Area Estate	Natural Area Restoration and Protection Implement sound environmental management principles on council owned or managed land, focusing	
Council's management of Mount Beau Brummel	on long term protection, practical actions with foreseeable outcomes.	

Table 4: Policy response to Councillor Priorities.



16 | Draft Natural Environment Policy Discussion Paper

ENVIRONMENT COMMUNITY REFERENCE GROUP (CRG) INVOLVEMENT

The Environment Community Reference Group (CRG) had an opportunity to have input in late 2019. They were asked what the key priorities for the future are. Responses and comments were categorised into themes. In developing the draft policy, these themes were addressed. Table 5 sets out how the draft policy has addressed the top feedback themes.

Question to CRG:	Top Feedback Themes (Response Number)	Example Comments	Council Policy Focus Area and Key Principle Alignment
	Preservation of Corridors and Connectivity (8)	 Corridors need to be wide enough to sustain animals. Nature Corridors - maintain and enhance connectivity between corridors. 	1. Biodiversity and Threatened Species Recovery Protect and improve habitat value within large areas of intact threatened species and priority wildlife habitat,
What are the key priorities for Ipswich's natural environment over the next 5-10 years?	Protection of Wildlife and Threatened Species - including habitat (6)	 Keep large areas in natural condition alongside urban areas. Key areas/buffer zone increased. Small areas not enough to sustain 	including koalas. Enhance and protect key habitat corridors to maintain or increase regional and local connectivity for threatened species and priority wildlife. 3. Urban Biodiversity Enhancement Catalogue, conserve and enhance urban biodiversity values and the ecological systems that support them.

Table 5: Policy response to CRG priorities.



COMMUNITY AND HIGH VALUED STAKEHOLDER CONSULTATION

Engagement was conducted with the community through an on-line survey available on the community engagement digital platform Shape Your Ipswich (SYI). In addition, specific engagement with high valued stakeholder sector representatives was undertaken through telephone interview.

There were 107 survey contributions provided by the general public through an online survey. Anybody with a connection to the city could participate.

Stakeholder representatives for 12 sectors participated in telephone interviews. The sectors included:

- Catchment Management
- Citywide Community Environmental Group
- Regional Environmental Community Group
- Development Industry
- Government Environmental Agency
- Natural Area User Group
- Council Landholder Partnership Program (Rural)
- Council Landholder Partnership Program (Urban)
- School Aged Children

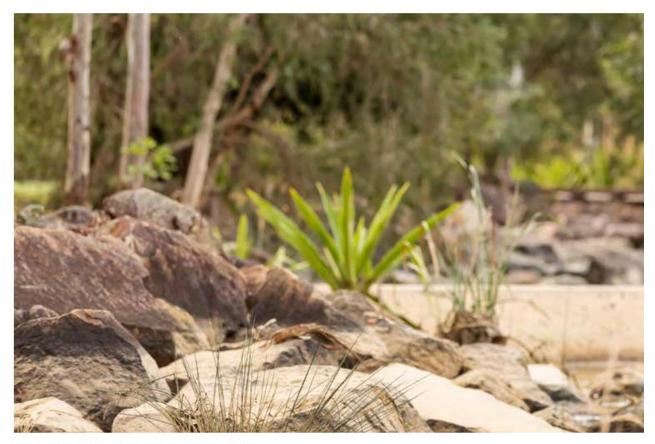
- Utility Provider
- Youth
- Waterway User Group/Business.

Both the survey and interview involved similar questions allowing an understanding to be gained of:

- what natural environment elements the community most appreciate
- areas that need improvement and how to undertake this
- community vision for the natural environment
- actions the community feel are important for the natural environment's viability
- values and benefits of the natural environment.

The feedback was analysed to identify insights and subsequently included into an engagement report made available on SYI.

Table 6 details how the draft policy has addressed the insights and key feedback themes from community and stakeholder engagement.



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Council Policy Focus Area and Community and Example Comments Stakeholder Key Themes Key Principle Alignment Extent of greenspace and 1. Biodiversity and Threatened Species Recovery I am impressed natural areas within the that there is so Identify, protect, maintain and rehabilitate priority city is highly valued much natural natural environment values of the city. environment around. Protect and improve habitat value within large areas We are lucky to have a of intact threatened species and priority wildlife huge green space in the habitat, including koalas. centre of Ipswich and we Enhance and protect key habitat corridors to have abundant nature maintain or increase regional and local connectivity reserves surrounding us for threatened species and priority wildlife. in the form of national parks and other spaces. 2. Wetlands and Waterways Improvement Protect, rehabilitate and maintain wetlands and I love the natural waterways, including their associated corridors, bushlands and for the benefit of aquatic and terrestrial wildlife, green spaces. community liveability and continuation of traditional cultural practices. 3. Urban Biodiversity Enhancement Catalogue, conserve and enhance urban biodiversity values and the ecological systems that support them. Create and enhance corridors in urban areas to provide connectivity and refuge for wildlife and ecosystem services functions.



Community and Stakeholder Key Themes	Example Comments	Council Policy Focus Area and Key Principle Alignment
Areas for improvement include: management of council's natural areas and broader greenspace network (including parks) protecting wildlife and threatened species – particularly their habitat condition of the waterways, wetlands and associated riparian vegetation preservation of corridors and connectivity across the city expanding land use planning protection and more sustainable outcomes.	 Clean up weeds in council owned land and roadsides. Our laws to protect our threatened species needs to be improved as we are still clearing koala habitat at phenomenal rate. Improved waterway rehabilitation and improved access to riverside. The size of the riparian zones for wildlife corridors is too small. Integrate the natural environment policy into the planning scheme. 	1. Biodiversity and Threatened Species Recovery Protect and improve habitat value within large areas of intact threatened species and priority wildlife habitat, including koalas. Further incorporate natural value importance into council's planning activities and general business operations. Implement sustainable land-use planning practices that concentrates urban development within the urban footprint in a compact development form as a desirable outcome, relative to meeting the need for housing, employment and other facilities and services for the city's growing community. Seek an approach whereby impacts are first avoided, minimised or mitigated before any remaining impacts are offset. 2. Wetlands and Waterways Improvement Protect, rehabilitate and maintain wetlands and waterway corridors for the benefit of aquatic and terrestrial wildlife and community liveability. 3. Urban Biodiversity Enhancement Catalogue, conserve and enhance urban biodiversity values and the ecological systems that support them. Create and enhance corridors in urban areas to provide connectivity and refuge for wildlife. 4. Natural Area Restoration and Protection Implement sound environmental management principles on council owned or managed land,
		focusing on long term protection, practical actions with foreseeable outcomes.

Community and Stakeholder Key Themes	Example Comments	Council Policy Focus Area and Key Principle Alignment
The main visionary themes are: balancing development and natural environment protection of significant habitat areas a restored natural environment network resilience of the natural environment (including corridors) an accessible and activated natural environment.	 Become a model for excellence in environmental care and effective integration of development and conservation of the natural environment. A place that supports and encourages our native species of flora and fauna to co-exist with us. Natural environmental areas should be increased with native corridors at least 100 metre width. The Bremer River in particular is in a healthy condition, an icon for the right reasons, and a focus area for recreation in the city. I'd like to see every member of the community contributing to, and taking advantage of the many great outdoor areas we have. 	1. Biodiversity and Threatened Species Recovery Identify, protect, maintain and rehabilitate priority natural environment values of the city. Protect and improve habitat value within large areas of intact threatened species and priority wildlife habitat, including koalas. Enhance and protect key habitat corridors to maintain or increase regional and local connectivity for threatened species and priority wildlife. Further incorporate natural value importance into council's planning activities and general business operations. 2. Wetlands and Waterways Improvement Protect, rehabilitate and maintain wetlands and waterways, including their associated corridors, for the benefit of aquatic and terrestrial wildlife, community liveability and continuation of traditional cultural practices. 5. Experiencing Nature Encourage community to connect with nature to foster a conservation ethic and develop environmental stewards. Provide, plan, develop, manage, maintain and activate high quality sustainable outdoor/nature-based recreation opportunities in natural areas. Provide, manage and maintain outdoor/nature-based recreation activities, facilities and settings that are complementary to and protect the natural values of the settings within which they are positioned.

Community and Stakeholder Key Themes	Example Comments	Council Policy Focus Area and Key Principle Alignment
Actions most mentioned needing council attention are to: improve land use planning and control boost community support and partnerships programs.	 Make a better planning scheme that does not allow for unsustainable development and that takes priority of the environment. A planning and policy framework that provides certainty through clearly identifying corridors of value and improvement. Establish a strong, defensible position on ecologically sustainable development and commit to this position and direction across growth, development and investment as fundamental objective and criteria in decision making. Incentives for landholders and industry. Funding for local community groups focusing on educating and promoting the care of local habitats. 	1. Biodiversity and Threatened Species Recovery Further incorporate natural value importance into council's planning activities and general business operations. Implement sustainable land-use planning practices that concentrates urban development within the urban footprint in a compact development form as a desirable outcome, relative to meeting the need for housing, employment and other facilities and services for the city's growing community. Develop and implement regulatory (e.g. local laws) and non-regulatory (e.g. incentives) tools that supports natural environment outcomes on public and private land. Seek an approach whereby negative impacts are first avoided, minimised or mitigated before any remaining impacts are offset. 6. Community Awareness and Support Embrace opportunities to partner with Indigenous Land Management Businesses, government agencies, universities, research organisations, regional bodies and other local governments on collaborative projects. Work closely with the community through collaboration, partnerships and support programs that empower and build capacity as environmental stewards. Support community contribution of information through citizen science programs.

Community and Stakeholder Key Themes	Example Comments	Council Policy Focus Area and Key Principle Alignment
The highly recognised ecosystem services values include:	 Greener healthier environments support mental wellbeing. 	Policy Statements Council is committed to protect, enhance and restore the health of the city's natural environment values
 mental and physical health benefit 	 Healthy environments mean healthy 	both on public and private lands for the benefit, use and lifestyle of current and future generations.
recreation and aesthetic	communities and healthy people - we want to be able to breathe in	That protecting the natural environment for its own intrinsic value is an important objective for all the community and for council.
 habitat provisions for native plants and animals. 	the future. It encourages people to get outdoors and try and lead a healthier lifestyle.	Council acknowledges a healthy natural environment is fundamental to cultural, social, physical and economic wellbeing of the community.
	The overall amenity and liveability of the city is significantly increased when the preservation of the natural environment is at the forefront of developments.	
	 Preserving our natural flora and fauna is a priority for the future generations, we have koala habitat that is currently under incredible duress from the natural disasters. 	

Table 6: Policy response to community and high valued stakeholder feedback.

DRAFT NATURAL ENVIRONMENT POLICY STATEMENT AND PRINCIPLES

All the information collected to date including that presented above and has been assessed and considered and the most locally relevant and pertinent points have been drawn out to develop the following draft policy.

POLICY STATEMENT

Council is committed to conserve, protect, enhance and restore the health of the city's natural environment values both on public and private lands for the benefit, use and lifestyle of current and future generations.

That protecting the natural environment for its own intrinsic value is an important objective for all the community and for council.

Council acknowledges a healthy natural environment is fundamental to cultural, social, physical and economic wellbeing of the community.

By continuing to operate a proactive and evidencebased approach, we will strive to ensure improvement to the natural environment.

Council recognises the important contribution a healthy natural environment makes in transitioning to a sustainable city.

POLICY PRINCIPLES

The purpose of the policy is to strengthen council's commitment to conserve, protect, enhance and restore the natural environment and its values, through the following seven focus areas and associated principles:

1. Biodiversity and Threatened Species Recovery

- Identify, protect, maintain and rehabilitate priority natural environment values of the city.
- Protect and improve habitat value within large areas of intact threatened species and priority wildlife habitat, including koalas.
- Enhance and protect key habitat corridors to maintain or increase regional and local connectivity for threatened species and priority wildlife.
- Understand, identify and reduce the impact of threats to threatened species and priority wildlife, including koalas.
- Gather data, prioritise, plan and support other government initiatives for threatened species and priority wildlife, including locally significant wildlife.
- Further incorporate natural value importance into council's planning activities and general business operations.

- Implement sustainable land-use planning practices that concentrates urban development within the urban footprint in a compact development form as a desirable outcome, relative to meeting the need for housing, employment and other facilities and services for the city's growing community.
- Develop and implement regulatory (e.g. local laws) and non-regulatory (e.g. incentives) tools that supports natural environment outcomes on public and private land.
- Seek an approach whereby negative impacts are first avoided, minimised or mitigated before any remaining impacts are offset.

2. Wetlands and Waterways Improvement

- Protect, rehabilitate and maintain wetlands and waterways, including their associated corridors, for the benefit of aquatic and terrestrial wildlife, community liveability and continuation of traditional cultural practices.
- Invest in waterway recovery projects at priority sites targeting improved in-stream habitat condition, aquatic connectivity and riparian weed management and revegetation.
- Monitor aquatic communities and connectivity of the region's waterways to quantify threats, as well as measure the outcomes of remediation activities.
- Identify and address key sources of sediment which impact aquatic communities through poor water quality and degraded stream morphology.
- Improve streambank stabilisation at strategic locations supporting habitat conditions for priority wildlife, including platypus.
- Increase community education and awareness of key issues impacting aquatic biodiversity to encourage behavioural change and stewardship of the city's waterways and wetlands.

3. Urban Biodiversity Enhancement

- Catalogue, conserve and enhance urban biodiversity values and the ecological systems that support them.
- Create and enhance corridors in urban areas to provide connectivity and refuge for wildlife and ecosystem services functions.

4. Natural Area Restoration and Protection

- Invest in strategic restoration activities to reestablish corridor linkages through the landscape, including using offsets or partnerships programs.
- Implement sound environmental management principles* on council owned or managed land, focusing on long term protection, practical actions with foreseeable outcomes.
- Manage protected natural areas and partner with private landholders in core habitat areas to provide refuge for native plants and animals from the impacts of changing climate.

5. Experiencing Nature

- Support Traditional Owners with maintaining connection to cultural lands and sites.
- Encourage community to connect with nature to foster a conservation ethic and develop environmental stewards.
- Promote and provide for sustainable outdoor/ nature-based recreational activities, environmental education and eco-tourism opportunities within natural areas, recognising the significant community benefit these areas provide.
- Invest in infrastructure and management activities that supports sustainable provision of nature experiences.
- Provide, plan, develop, manage, maintain and activate high quality sustainable outdoor/naturebased recreation opportunities in natural areas.
- Assess the need for the provision of outdoor/ nature-based recreation activities based on demand and the identification of suitable sites to ensure a sustainable fit between natural values and outdoor/nature-based recreation activities.
- Provide, manage and maintain outdoor/naturebased recreation activities, facilities and settings that are complementary to and protect the natural values of the settings within which they are positioned.

6. Community Awareness and Support

- Embrace opportunities to partner with Indigenous Land Management Businesses, government agencies, universities, research organisations, regional bodies and other local governments on collaborative projects.
- Work closely with the community through collaboration, partnerships and support programs that empower and build capacity as environmental stewards.
- Support community contribution of information through citizen science programs.
- Increase recognition within the community and council of natural environment ecosystem services as well as Cultural Heritage and Cultural Landscape values.

7. Governance, Measuring and Reporting

- Implement outcome based, priority driven and adaptive investment of council funds, including lpswich Enviroplan Levy, general revenue and external grants.
- Comply with relevant statutory responsibilities, legislation, policy and plans, while pursuing new approaches, continual improvement, environmental excellence and demonstrating leadership in operations and activities.
- Identify, collect, monitor, review, and report about natural values and environmental performance.
- Operate programs and undertake priorities driven by best available knowledge and data, crossreferenced with community interest and capability to ensure confidence in achieving outcomes.

Definition

Sound Environmental Management Principles: With reference to this policy, sound environmental management principles includes:

- natural environment values, inclusive of cultural landscape values, should be protected, managed and enhanced to conserve their natural condition
- best practice pest plant, animal and fire management should be implemented
- visitor use should be managed for inspirational, educational, cultural and nature-based recreation at a level that will maintain natural values and cultural landscapes
- scientific and educational enquiry should be provided and promoted at ecologically sustainable levels.

SUMMARY

Council's Natural Environment Policy has been developed to provide strategic direction for the green elements, such as bushland and waterways, which make up the city. The policy will inform decision making, investment and natural environment programs. The extensive internal and external consultation, research, benchmarking and national strategy review informed the policy development and will be used in any future strategy/plan development.

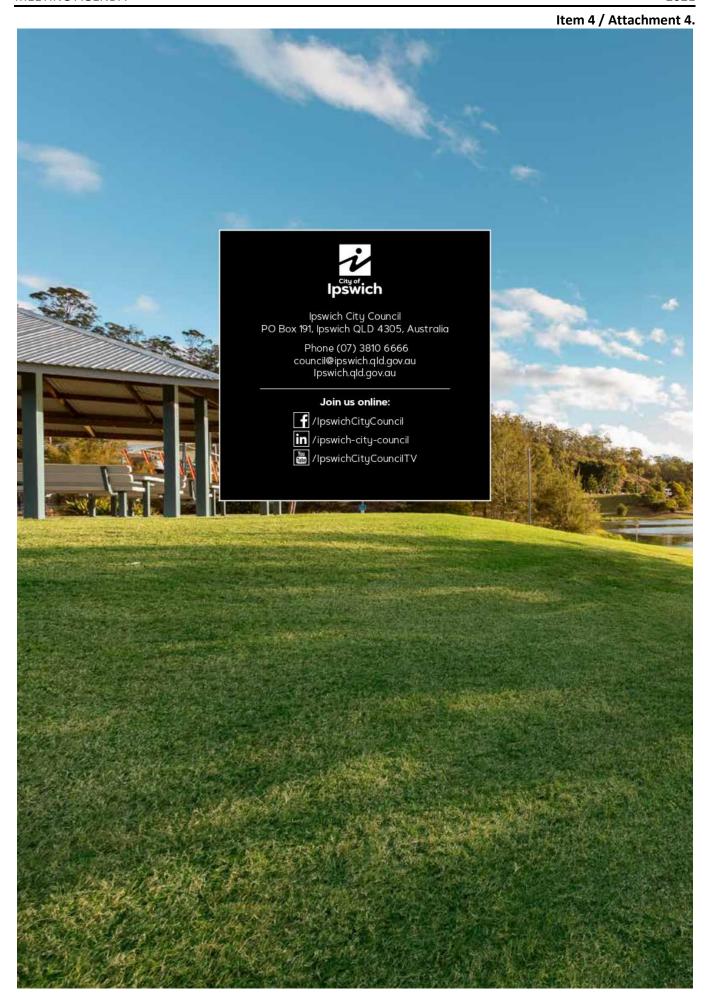
HAVE YOUR SAY

In recognition of the importance of collaboration in protecting the natural environment, council is seeking feedback on the draft policy statement and principles via Shape Your Ipswich (Shapeyouripswich.com.au).

Contact:

Senior Planning Officer (Strategic Conservation Planning) council@ipswich.qld.gov.au (07) 3810 6666





City of Ipswich Natural Environment Policy: Summary Report

Supporting a healthy and vibrant natural environment



Natural Environment Policy

Introduction & Background

Council embarked on a structured and comprehensive process to develop a new policy detailing its strategic position with respect to the natural environment.

The following report relates to council's Natural Environment Policy (refer Appendix A for content).

Being a summary document, it provides an overview of the process rather than the specifics. Reference is made to supporting documents that contain more detailed information.

The policy states council's strategic position with respect to its direction and functions in terms of the natural environment. The purpose of the policy is to reinforce council's commitment to the natural environment by setting out principles to support good long term and balanced decision making that takes into consideration natural values, economic viability and social wellbeing.

The policy also shares close links with several corporate documents and is catalyst project for the Natural & Sustainable theme with-in the new five-year corporate plan (iFuture) that commenced in July 2021.

As with all council policies, for the Natural Environment Policy to be in-place a resolution is needed in accordance with the provisions of the *Local Government Act 2009*.

Policy Development Process

Council's *Policy and Procedure Management Guide* (and associated *Framework*) provided a structured approach to policy development – refer Figure 1. Development followed the four initial phases of the process being researching, drafting, approval and adoption. Extensive consultation with stakeholders was undertaken throughout these phases.

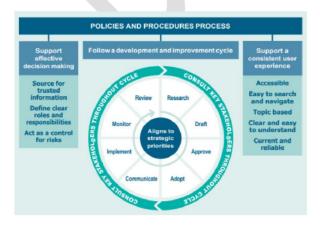


Figure 1: Council's policy and procedure development and improvement cycle.

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1. Research

Development of council policies is informed by enough information to assist with balanced and informed decision-making. Developing the Natural Environment Policy involved best practice evidence-based approach that included:

- analysis of city's environmental values, conditions, challenges and threats
- policy benchmarking of natural environment management in South-east Queensland council's
- research of related State and Commonwealth environmental commitments, legislation, strategies and programs
- a review of council's environmental related commitments, policies, strategic drivers, strategies, programs, land-use planning and local laws
- consultation with key council officers on opportunities, vision and challenges
- collaboration with councillors on policy priorities.

Information gathered during the research phase informed development of a *Natural Environment Policy: Background Paper*. The paper was accessible to public through a dedicated Natural Environment Policy page on council's on-line community engagement platform Shape Your Ipswich https://shapeyouripswich.com.au/draft-natural-environment-policy.

Council's Environment Community Reference provided input during one of their regular meetings on what they envisage key priorities are for the future. The fourteen participants identified key areas of focus including preserving corridors & connectivity, and protection of wildlife & threatened species.

Early consultation with the wider community and high valued stakeholders was undertaken to understand:

- what natural environment elements the community most appreciate?
- areas that need improvement and how to undertake this
- community vision for the natural environment;
- actions the community feel are important for the natural environment's viability
- values and benefits of the natural environment.

107 contributions were provided through an on-line survey. A further 12 stakeholder sector representatives participated in targeted phone or email interviews - whichever the stakeholder felt more suited to. Both the survey and interview responses were open comments, allowing contributors to answer however they wished.

The on-line survey was promoted through council officer's email distribution lists, corporate social media channels and subscribers to Shape Your Ipswich. Anybody with a connection to the city could participate.

2. Draft Policy

Survey and phone/email responses were analysed by taking responses and codifying them into high frequency themes. The results were compiled into a *Natural Environment Policy Engagement Report* and made publicly available through Shape Your Ipswich.

Information gathered was used to draft policy statements and associated principles for the seven (7) focus areas:

Biodiversity & Threatened Species Recovery

Page **2** of **22**

- Wetlands & Waterways Improvement
- Urban Biodiversity Enhancement
- Natural Area Restoration & Protection
- Experiencing Nature
- Community Awareness & Support
- Governance, Measuring & Reporting

The drafting process involved taking due consideration of current drivers, common themes, objectives, priorities and challenges the policy needs to address. A *Draft Natural Environment Policy Discussion Paper* containing research analysis and draft policy statements and principles was developed. This discussion paper was made publically accessible to the community through Shape Your Ipswich.

The community was then provided a month-long opportunity to give feedback on the focus areas and principles through Shape Your Ipswich. The format allowed for feedback through open comment fields on each of the focus area's principles.

The opportunity to provide feedback was again promoted through council officer's email distribution lists, corporate social media channels and subscribers to Shape Your Ipswich.

51 submissions were received through Shape Your Ipswich. A further four (4) submissions were received separately, emailed directly to council. Generally, most of the feedback was on implementation actions or location specific matters.

Appendix B summarises the feedback received. It outlines a response and recommendation.

The broad-based approach to consultation helped identify minor areas for improvement in the final version. It particularly highlighted implementation needs and opportunities which will be captured in future reviews of strategies and through the change process.

3. Policy Endorsement

The final version of the policy reflects a development process involving extensive research and genuine consultation process with internal and external stakeholders. This will lead to better natural environment outcomes and hopefully greater acceptance in the Ipswich community, particularly among stakeholders.

The Infrastructure and Environment General Manager presented the policy for endorsement to councils Executive Leadership Team that comprises the Chief Executive Officer and Department Heads.

4. Policy Adoption

Mayor and Councillors received an overview of the policy through a workshop briefing in May 2021. They also had opportunities for input during the earlier research phase through a workshop as well as again prior to publishing the *Draft Natural Environment Policy Discussion Paper* with the community.

In June 2021 a report on the policy was tabled at council's standing Environment and Sustainability committee then forwarded to the Ordinary meeting of council for adoption.

The final policy is made available to the public on the Ipswich City Council website under 'Council Policies'-https://www.ipswich.qld.gov.au/about_council/media/corporate_publications/council-policies

Consultation Participants

Involving stakeholders early and often in policy development is a commitment from council to transparent and comprehensive participation. Throughout the policy development process a diverse and broad range of participants were invited to participate on several occasions including:

- Mayor and Councillors
- Council's Executive Leadership Team
- Council internal subject area representatives
- Council's Environment Community Reference Group
- Community and general public
- Government environmental agencies identified
- Traditional owners/indigenous community groups identified
- Development industry representative organisations and identified large scale developers
- Citywide community environmental groups
- Lineal infrastructure utility providers
- Recreation and natural area user groups
- Council landholder partners (urban and rural)
- Youth sector representatives
- School environmental groups
- SEQ Regional scale environment groups
- Commerce, industry and tourism representatives and groups
- Waterway user groups and businesses

The approach to consultation was adapted due to COVID-19 restrictions. The restrictions limited the range of strategies and forums council could use to consult with. Stakeholders were consulted mainly on-line or through phone interviews.

Information provided to stakeholders was designed to be easy to comprehend. It was in a clear format and used plain language.

Summary

Council set-out to develop the city's first ever Natural Environment Policy through a comprehensive evidence-based approach. Extensive internal and external consultation, research, benchmarking and national strategy review informed the policy development and will also be used in any future strategy/plan development and change management process.

Council thanks all those who took the time to participate in the development of council's new Natural Environment Policy.

Contact:

Senior Planning Officer (Strategic Conservation Planning) council@ipswich.qld.gov.au (07) 3810 6666

Appendix A: Content of Natural Environment Policy final version

1. Statement

Council is committed to conserve, protect, enhance and restore the health of the City's natural environment values both on public and private lands for the benefit, use and lifestyle of current and future generations.

That protecting the natural environment for its own intrinsic value is an important objective for all the community and for Council.

Council acknowledges a healthy natural environment is fundamental to cultural, social, physical and economic wellbeing of the community.

By continuing to operate a proactive and evidence-based approach, we will strive to ensure improvement to the natural environment.

Council recognises the important contribution a healthy natural environment makes in transitioning to a Sustainable City.

2. Purpose and Principles

The purpose of the policy is to strengthen council's commitment to conserve, protect, enhance and restore the natural environment and its values, through the following seven focus areas and associated principles:

1. Biodiversity & Threatened Species Recovery

- Identify, protect, maintain & rehabilitate priority natural environment values of the city.
- Protect and improve habitat value within large areas of intact threatened species and priority wildlife habitat, including koalas.
- Enhance and protect key habitat corridors to maintain or increase regional and local connectivity for threatened species and priority wildlife.
- Understand, identify and reduce the impact of threats to threatened species and priority wildlife, including koalas.
- Gather data, prioritise, plan and support other government initiatives for threatened species and priority wildlife, including locally significant wildlife.
- Further incorporate natural value importance into council's planning activities and general business operations.
- Implement sustainable land-use planning practices that concentrates urban development within the urban footprint in a compact development form as a desirable outcome, relative to meeting the need for housing, employment and other facilities and services for the city's growing community.
- Develop and implement regulatory (e.g. local laws) and non-regulatory (e.g. incentives) tools that supports natural environment outcomes on public and private land.
- Seek an approach whereby negative impacts are first avoided, minimised or mitigated before any remaining impacts are offset.

2. Wetlands & Waterways Improvement

- Protect, rehabilitate and maintain wetlands and waterways, including their associated corridors, for the benefit of aquatic and terrestrial wildlife, community liveability and continuation of traditional cultural practices.
- Invest in waterway recovery projects at priority sites targeting improved in-stream habitat condition, aquatic connectivity and riparian weed management and revegetation.
- Monitor aquatic communities and connectivity of the region's waterways to quantify threats, as well as measure the outcomes of remediation activities.
- Identify and address key sources of sediment which impact aquatic communities through poor water quality and degraded stream morphology.
- Improve streambank stabilisation at strategic locations supporting habitat conditions for priority wildlife, including platypus.
- Increase community education and awareness of key issues impacting aquatic biodiversity to encourage behavioural change and stewardship of the city's waterways and wetlands.

3. Urban Biodiversity Enhancement

- Catalogue, conserve and enhance urban biodiversity values and the ecological systems that support them.
- Create and enhance corridors in urban areas to provide connectivity and refuge for wildlife and ecosystem services functions.

4. Natural Area Restoration & Protection

- Invest in strategic restoration activities to re-establish corridor linkages through the landscape, including using offsets or partnerships programs.
- Implement sound environmental management principles on Council owned or managed land, focusing on long term protection, practical actions with foreseeable outcomes.
- Manage protected natural areas and partner with private landholders in core habitat areas to provide refuge for native plants and animals from the impacts of changing climate.

5. Experiencing Nature

- Support Traditional owners with maintaining connection to cultural lands and sites.
- Encourage community to connect with nature to foster a conservation ethic and develop environmental stewards.
- Promote and provide for sustainable outdoor/nature-based recreational activities, environmental education and eco-tourism opportunities within natural areas, recognising the significant community benefit these areas provide.
- Invest in infrastructure and management activities that supports sustainable provision of nature experiences.

- Provide, plan, develop, manage, maintain and activate high quality sustainable outdoor/nature-based recreation opportunities in natural areas.
- Assess the need for the provision of outdoor/nature-based recreation activities based on demand and the identification of suitable sites to ensure a sustainable fit between natural values and outdoor/nature-based recreation activities.
- Provide, manage and maintain outdoor/nature-based recreation activities, facilities and settings that are complementary to and protect the natural values of the settings within which they are positioned.

6. Community Awareness & Support

- Embrace opportunities to partner with Indigenous Land Management Businesses, government agencies, universities, research organisations, regional bodies and other local governments on collaborative projects.
- Work closely with the community through collaboration, partnerships and support programs that empower and build capacity as environmental stewards.
- Support community contribution of information through citizen science programs.
- Increase recognition within the community and council of natural environment ecosystem services as well as Cultural Heritage and Cultural Landscape values.

7. Governance, Measuring & Reporting

- Implement outcome based, priority driven and adaptive investment of council funds, including Ipswich Enviroplan Levy, general revenue and external grants.
- Comply with relevant statutory responsibilities, legislation, policy & plans, while pursuing new approaches, continual improvement, environmental excellence and demonstrating leadership in operations and activities.
- Identify, collect, monitor, review and report about natural values, environmental performance and visitation
- Operate programs and undertake priorities driven by best available knowledge and data, cross-referenced with community interest and capability to ensure confidence in achieving outcomes.

3. Strategic Plan Links

The policy supports the Natural and Sustainable theme within council's iFuture Corporate Plan (commencing the 1st July 2021).

This policy also contributes to achieving the themes within council's Advance Ipswich community plan including:

- Caring for the Environment
- · Caring for the Community
- · Listening, Leading and Financial Management
- Managing growth and delivering key infrastructure
- · Strengthening our local economy and building prosperity

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The policy shares links with the following key corporate documents:

- Employee Code of Conduct
- Ipswich Enviroplan Program & Levy Policy (and Procedure)
- Ipswich Planning Scheme
- Nature Conservation Strategy
- Open Space & Recreation Strategy
- Sustainability Policy
- Waterway Health Strategy

4. Regulatory Authority

Implementation, application and governance of the policy will give consideration to the following regulatory instruments:

- Aboriginal and Torres Strait Islander Heritage Protection Act 1984
- Environmental Protection Act 1994
- Environmental Protection & Biodiversity Conservation Act 1999
- Fisheries Act 1994
- Local Government Act 2009
- Native Title Act 1993
- Nature Conservation Act 1992
- Planning Act 2016
- The Biosecurity Act 2014
- Vegetation Management Act 1999
- Water Act 2000

5. Scope

The policy relates to council's natural environment management activities including delivery of services, strategic planning, regulation, facilitation, advocacy, education and facilities.

The policy guides decision making and the development of all future council policy, strategy and plans in relation to the natural environment.

The policy applies to all councillors, council staff, contractors, and others that act on Council's behalf to ensure they work in accordance with the policy principles and in accordance with the relevant legislation.

These policy principles are also aspirational for Ipswich's community whereby, through the commitment and actions of Council, they will be realised.

6. Roles and Responsibilities

Role	Responsibility
Chief Executive Officer and General Managers	The CEO and General Managers' are responsible for advocating, promoting and supporting the principles of the Natural Environment Policy as a business as usual practice.
Environment &	Branch/ Natural Environment & Land Management

Sustainability	Section Manager
Branch	Responsible for overall development, implementation and monitoring of the Natural Environment Policy.
	Natural Environment & Land Management Section
	Responsible for the development, drafting and implementation and review of the policy and its related strategies, plans and programs.
	Provision of technical support and expertise to assist in the implementation of this policy.
	Provision of regular reporting and analytics.
	Liaison and education with key internal and external stakeholders.
All Ipswich City Council Employees	Responsible for understanding the principles outlined in the policy and applying these principles in planning, decision making, delivery activities and reporting.

7. Key Stakeholders

The policy applies broadly across all Council departments. Key stakeholders sit within each department and branch. However, stakeholders of note are those in the following teams:

- Infrastructure & Environment Department City Maintenance, Infrastructure Strategy & Planning, Emergency Management & Sustainability and Natural Environment & Land Section.
- Planning & Regulatory Services Department Strategic Planning, Local Laws & Regulated Parking and Environment Assessment.
- Coordination & Performance Department Integrated Planning & Reporting.
- Community, Cultural & Economic Development Branch Sport & Recreation and Destination Development.

8. Monitoring and Evaluation

The following measures will determine the success and effectiveness of the policy:

- · Access to the natural environment
- Progress implementing strategies
- Increased connected corridors
- Extent of protected area
- Increased nature-based recreation opportunities and activation
- Improvement in waterway condition
- Extent of protection of Aboriginal cultural heritage and cultural landscape features
- Preservation of traditional cultural practices
- Improvement of natural environment health
- Amount of area under active restoration
- · Extent if canopy cover

• Level of staff awareness of the importance of natural environment

An annual update about the policies implementation and council's performance will be published on council's web, and the community made aware of its availability.

9. Definitions

Conserve/conservation (nature): terms generally used to describe an approach to protect natural resources and their values and seeks for the proper, sustainable and renewable use of nature – ensuring its continued availability.

Manager: includes persons appointed to positions with the title Supervisor, Principal, Section Manager, General Manager and Chief Executive Officer.

Natural Environment: With reference to this policy, the natural environment is a collective term used to describe the diverse terrestrial and aquatic ecosystems that make up the city's habitat network.

Natural Values: With reference to this policy, natural values are special qualities such as uniqueness, rarity, typicality, representivity, scientific or education importance, have useful features or recreation value. Includes:

- habitat for iconic, significant and threatened species;
- · core habitat areas as home for a diverse range of wildlife;
- nodes of remnant vegetation in urban areas providing wildlife refuge;
- strategic remnants vegetation patches as stepping stones for wildlife movement;
- corridors providing connectivity for wildlife, recreation and active transport;
- increasing vegetation condition and animal abundance within core habitat areas;
- biological diversity, natural capital and ecosystem services;
- waterways, wetlands, riparian and aquatic ecosystems and floodplains;
- · improving health of waterways;
- Aboriginal cultural heritage and cultural landscape features; and
- scenic amenity.

Sound Environmental Management Principles: With reference to this policy, sound environmental management principles includes:

- Natural values should be protected, managed and enhanced to conserve their natural condition;
- Best practice pest plant, animal and fire management should be implemented;
- Maintaining and enhancing natural values and cultural landscapes for inspirational, educational, cultural and nature-based recreation; and
- Scientific and educational enquiry should be provided and promoted at ecologically sustainable levels.

Urban Biodiversity: Refers to the variety and variability among living organisms found in the city's highly developed areas and the ecological systems in which they are found.

10. Policy Owner

The General Manager (Infrastructure & Environment) is the policy owner and the Environment & Sustainability Manager is responsible for authoring and reviewing this policy.

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Appendix B: Feedback from Draft Natural Environment Policy Consultation

No.		
1.	Implement some citizen science programs & fund groups to conduct the surveys. Eg Platypus	Recommend no change be made to the policy.
	Watch, drone surveys of koala habitat to collect d.	Principle in Focus Area 6. Community Awareness & Support states:
		"Support community contribution of information through citizen science programs."
2.	More north-south corridors from the Brisbane River to White Rock Reserve to link to the Flinders-	Recommend no change be made to the policy.
	Karawatha corridor (Woogaroo / 6-Mile Ck)	Biodiversity corridor locations to be considered as part of implementation actions.
3.	Changes to the planning act to reduce approvals of high density living. All trees are cleared with these developments. Destroys the area.	Recommend no change be made to the policy.
	these developments. Bestioys the area.	Focus Area principle states:
		"Implement sustainable land-use planning practices that concentrates urban
		development within the urban footprint in a compact development form as a
		desirable outcome, relative to meeting the need for housing, employment and other
		facilities and services for the city's growing community."
4.	Consider the Brisbane Valley Rail Trail as a linear conservation corridor-regrowth/remnant	Recommend no change be made to the policy.
	vegetation patches stepping stones for wildlife.	Biodiversity corridor and node locations to be considered as part of implementation
		actions.
		actions.
5.	Less talk about wanting to do the right thing by the environment and more action to protect and	Recommend no change be made to the policy.
	preserve what little we have left.	Policy includes the statement:
		"Council is committed to conserve, protect, enhance and restore the health of the
		City's natural environment values both on public and private lands for the benefit, use
		and lifestyle of current and future generations."
6.	Community education on biodiversity corridors and their conservation	Recommend no change be made to the policy.
		Principle in Focus Area 6. Community Awareness & Support states:
		"Increase recognition within the community and council of natural environment
		ecosystem services as well as Cultural Heritage and Cultural Landscape values."
7		
/.	-	Recommend no change be made to the policy.
	natural area status quo.	Focus Area principle states:
		"Enhance and protect key habitat corridors to maintain or increase regional and local
		connectivity for threatened species and priority wildlife."
		Also, Principle in Focus Area 6. Community Awareness & Support states:
		"Embrace opportunities to partner with Indigenous Land Management Businesses,
		government agencies, universities, research organisations, regional bodies and other
		local governments on collaborative projects".
	 4. 5. 	3. Changes to the planning act to reduce approvals of high density living. All trees are cleared with these developments. Destroys the area. 4. Consider the Brisbane Valley Rail Trail as a linear conservation corridor-regrowth/remnant vegetation patches stepping stones for wildlife. 5. Less talk about wanting to do the right thing by the environment and more action to protect and preserve what little we have left. 6. Community education on biodiversity corridors and their conservation

Focus Area	Submission	Submission	Response
	No.		
	8.	Ban all clearance of native trees unless they are dangerous. Organise communities to remove exotic weeds and pests, and to plant natives.	Recommend no change be made to the policy. Policy includes the statement: "Council is committed to conserve, protect, enhance and restore the health of the City's natural environment values both on public and private lands for the benefit, use and lifestyle of current and future generations." Also, Principle in Focus Area 6. Community Awareness & Support states: "Work closely with the community through collaboration, partnerships and support programs that empower and build capacity as environmental stewards."
	9.	Begin a comprehensive education piece on keeping cats inside. Whilst its law, people don't pay attention	Recommend no change be made to the policy. Principle in Focus Area 6. Community Awareness & Support states: "Work closely with the community through collaboration, partnerships and support programs that empower and build capacity as environmental stewards."
	10.	Diversity of natives in new estates, education & incentives to rate payers to increase native flora & fauna & permaculture practices at home	Recommend no change be made to the policy. Focus area principle states: "Develop and implement regulatory (e.g. local laws) and non-regulatory (e.g. incentives) tools that supports natural environment outcomes on public and private land."
	11.	Agree with above, also need residential streets and parks filled with native trees/shrubs - for people and fauna - no more clearing!	Recommend no change be made to the policy. Focus area principle states: "Identify, protect, maintain & rehabilitate priority natural environment values of the city."
	12.	Restrict predatory pets in and around nature reserves. Install nesting boxes. Increase local knowledge of valued species and their habitats.	Recommend no change be made to the policy. Principle in Focus Area 4. Natural Area Restoration & Protection states: "Implement sound environmental management principles on Council owned or managed land, focusing on long term protection, practical actions with foreseeable outcomes."
	13.	Protect existing and plant native sp. Manage weeds. Protect bushland: verges, corridors, riparian etc. Stop developers wide scale clearing.	Recommend no change be made to the policy. Focus area principle states: "Identify, protect, maintain & rehabilitate priority natural environment values of the city."

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Focus Area	Submission	Submission	Response
	No.		
	14.	ICC already has the data on threatened sp in there (sic) reserves, needed is weed control, seed collection, propagation, and planting in reserves.	Recommend no change be made to the policy. Principle in Focus Area 4. Natural Area Restoration & Protection states: "Implement sound environmental management principles on Council owned or managed land, focusing on long term protection, practical actions with foreseeable outcomes."
	15.	Its not fair to only allow 140 characters worth of feedback for such an important issue. I feel really frustrated and upset by this.	It was considered that 140 characters was sufficient to provide feedback on the principles.
	16.	Advertise the frog hotel idea more to general public, more footpath trees.	Recommend no change be made to the policy. Education & awareness and street tree planting priorities to be considered as part of implementation actions.
			Increasing footpath trees to be considered as part of Urban Greening strategy/plan. Feedback provided to Project Officer (Natural Environment) for consideration.
SUBMISSION SUB TOTAL: 17	17.	Perhaps add more clusters ot (sic) tall trees in parks , including the species koalas eat.	Recommend no change be made to the policy. Focus area principle states: "Protect and improve habitat value within large areas of intact threatened species and priority wildlife habitat, including koalas."
2. Wetlands & Waterways Improvement	18.	Riparian corridors need to be wider than current plans - 50-100m each side rather than 30m, otherwise won't be sustainable - easily impacted	Recommend no change be made to the policy. Focus area principle states: "Enhance and protect key habitat corridors to maintain or increase regional and local connectivity for threatened species and priority wildlife."
	19.	Increase penalities (sic) for pollution	Recommend no change be made to the policy. Focus area principle states: "Develop and implement regulatory (e.g. local laws) and non-regulatory (e.g. incentives) tools that supports natural environment outcomes on public and private land."
	20.	Good flood mitigation is achieved through use of natural vegetation and proper hydrology practices. Need to slow down the water in waterways	Recommend no change be made to the policy. Principle in Focus Area 2. Wetlands & Waterways Improvement states: "Invest in waterway recovery projects at priority sites targeting improved in-stream habitat condition, aquatic connectivity and riparian weed management and revegetation."
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Focus Area	Submission No.	Submission	Response
	NO.		
	21.	Prevent sediment run off from unsealed driveways.	Recommend no change be made to the policy.
			Erosion and sediment management priorities to be considered as part of implementation actions.
	22.	"Working with 4WDers to prevent or offset erosion damage. Managing waterway weeds and	Recommend no change be made to the policy.
		planting preferred sp."	Erosion and sediment management priorities to be considered as part of implementation actions.
			Principle in Focus Area 2. Wetlands & Waterways Improvement states: "Invest in waterway recovery projects at priority sites targeting improved in-stream habitat condition, aquatic connectivity and riparian weed management and revegetation."
	23.	Small Creek was a great project, i (sic) think we need to do more of these projects in urban areas,	Recommend no change be made to the policy.
		don't bury creeks, slow the water, lots of reed	Principle in Focus Area 2. Wetlands & Waterways Improvement states: "Invest in waterway recovery projects at priority sites targeting improved in-stream habitat condition, aquatic connectivity and riparian weed management and revegetation."
SUBMISSION	24.	Create a feature waterhole for wetland birds at limestone/queens park	Recommend no change be made to the policy.
SUB TOTAL: 7			Wetland bird prioritisation to be considered as part of implementation actions.
3. Urban	25.	Information stations along urban walks with QR codes for fauna sights and sounds and Virtual	Recommend no change be made to the policy.
Biodiversity Enhancement		Reality history.	Principle in Focus Area 5. Experiencing Nature states:
Elliancement			"Provide, plan, develop, manage, maintain and activate high quality sustainable
			outdoor/nature-based recreation opportunities in natural areas."
	26.	Recognise and assist the role of native bees in our environment. Declare Cadagi a weed. Our	Recommend no change be made to the policy.
		mental and physical health depends on nature.	Focus area principle states:
			"Create and enhance corridors in urban areas to provide connectivity and refuge for
			wildlife and ecosystem services functions."
	27.	Having wildlife corridors also improves the streetscape with housing separated creating a lesser	Recommend no change be made to the policy
		impact from heat islands.	Focus area principle states:
			"Create and enhance corridors in urban areas to provide connectivity and refuge for
			wildlife and ecosystem services functions."

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Focus Area	Submission No.	Submission	Response
			Contribution of natural vegetation in wildlife corridors is recognised as an ecosystem services function.
	28.	Infill open grasslands around the city with trees. It will cut mowing costs & provide habitat.	Recommend no change be made to the policy
			Focus area principle states: "Create and enhance corridors in urban areas to provide connectivity and refuge for wildlife and ecosystem services functions."
			Prioritisation of investment in corridor enhancement will be considered as part of implementation.
	29.	Reduce car speed in corridors, install overhead access for gliders. Plant suitable street trees and	Recommend no change be made to the policy
		prioritise use of local native species.	Focus area principle states: "Create and enhance corridors in urban areas to provide connectivity and refuge for wildlife and ecosystem services functions."
			Prioritisation of investment in corridor enhancement will be considered as part of implementation.
	30.	Love to see more local natives, host plants for butterfly's, bird attracting plants.	Recommend no change be made to the policy
			Focus area principle states: "Create and enhance corridors in urban areas to provide connectivity and refuge for wildlife and ecosystem services functions."
			Prioritisation of investment in corridor enhancement will be considered as part of implementation.
SUBMISSION	31.	Get more serious about indian (sic) miner and cane toad managementalso, educate public on	Recommend no change be made to the policy
SUB TOTAL: 7		what can be done	Focus area principle states: "Create and enhance corridors in urban areas to provide connectivity and refuge for wildlife and ecosystem services functions."
			Prioritisation of pest plant management in corridors will be considered as part of implementation.
			Principles in Focus Area 6. Community Awareness & Support encapsulates education direction.
4. Natural Area	32.	Consider the Brisbane Valley Rail Trail as a corridor providing connectivity for wildlife across the	Recommend no change be made to the policy.

Focus Area	Submission No.	Submission	Response
Restoration & Protection		landscape-Pine Mtn dryvine scrub etc.	Focus area principle states: "Invest in strategic restoration activities to re-establish corridor linkages through the landscape, including using offsets or partnerships programs." Biodiversity corridor locations to be considered as part of implementation actions.
	33.	Ensure the corridor linkages line up with corridor linkages in neighbouring councils. Increase bushcare programs in the council area.	Recommend no change be made to the policy. Focus area principle states: "Invest in strategic restoration activities to re-establish corridor linkages through the landscape, including using offsets or partnerships programs." Biodiversity corridor locations to be considered as part of implementation actions. Direction of Bushcare Program delivery will be further considered as part of implementation.
	34.	Long range planned recurring planting schedules to replace tree loss and offer range of tree maturity over time. Promote native sp gardens	Recommend no change be made to the policy. Focus area principle states: "Implement sound environmental management principles on Council owned or managed land, focusing on long term protection, practical actions with foreseeable outcomes."
	35.	Strong goals, plans, regeneration/revegetation by skilled teams scheduled in and daily work report sheets.	Recommend no change be made to the policy. The policy relates to Council natural environment management activities including delivery of services, strategic planning, regulation, facilitation, advocacy, education and facilities.
SUBMISSION SUB TOTAL: 5	36.	Incentivise, educate and advertise further for more people to plant natives in their yard and on front nature strips.	Recommend no change be made to the policy. Principle in Focus Area 6. Community Awareness & Support states: "Work closely with the community through collaboration, partnerships and support programs that empower and build capacity as environmental stewards."
5. Experiencing Nature	37.	there are some really lovely examples of verge plantings eg Rotherdam (sic) but we have unclear rules need Council advice/help plus community good	Recommend no change be made to the policy. Assistance and education regarding revegetating verges to be considered as part of Urban Greening strategy/plan. Feedback provided to Project Officer (Natural Environment) for consideration.
	38.	Create a from Ipswich to Oxley Common and include walking tracks	Recommend no change be made to the policy.

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Focus Area	Submission No.	Submission	Response
			Links to neighbouring destinations to be furthered considered as part of implementation. Feedback provided to Nature-based Recreation Officer.
	39.	Increase bushcare and indigenous education programs showing the importance of the natural	Recommend no change be made to the policy.
		environment.	Principle in Focus Area 6 Community Awareness & Support states:
			"Increase recognition within the community and council of natural environment ecosystem services as well as Cultural Heritage and Cultural Landscape values."
			Direction of Bushcare Program delivery will be further considered as part of implementation.
	40.	When developing new suburbs (along Centenary Hwy in particular) maintain the bush buffer. So much bio diversity (sic) along that road	Recommend no change be made to the policy. Principle in Focus Area 1. Biodiversity & Threatened Species Recovery states: "Identify, protect, maintain & rehabilitate priority natural environment values of the city."
	41.	When upgrading roads or constructing new ones include bike ways.	Recommend no change be made to the policy. Bike ways not within scope of policy. Feedback provided to iGO Transport plan contact.
	42.	Longer opening hours in existing parks. Improve access roads & parking options. Manage loos & trash well. Complete Ips/Boonah trail.	Recommend no change be made to the policy. Feedback provided to Team Leader (Land Management and Natural Area Planning) for consideration.
SUBMISSION	43.	Make denmark hill a less dodgy place with greater eg. Police prescence (sic)	Recommend no change be made to the policy.
SUB TOTAL: 7			Feedback provided to Team Leader (Land Management and Natural Area Planning) for consideration.
6. Community	44.	Approach community organisations with the view to get them involved in programs, like	Recommend no change be made to the policy.
Awareness & Support		bushwalking clubs maintaining the tracks and trails.	Focus area principle states: "Work closely with the community through collaboration, partnerships and support programs that empower and build capacity as environmental stewards."
	45.	Blank	Recommend no change be made to the policy.
SUBMISSION SUB TOTAL: 3	46.	Free workshops to public on natives and wildlife support in backyardsalso recycling and waste minimisation etc.	Recommend no change be made to the policy. Recycling and waste minimisation not in scope. Feedback provided to Senior
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Focus Area	Submission No.	Submission	Response
			Sustainability Officer to consider.
			Backyard workshop feedback provided to Team Leader (Environment and
			Sustainability Education and Awareness) to consider as part of implementation.
7. Governance,	47.	This policy should be the framework upon which development decisions can be made properly	Recommend no change be made to the policy.
Measuring &		balanced with the evidence from improvements, etc.	Scope of the policy is to guide decision making and the development of all future
Reporting			council policy, strategy and plans in relation to the natural environment.
	48.	Provide to the community audit results. Show improvements from baseline data - do we have	Recommend no change be made to the policy.
		baseline data?	An annual update about the operation of the policy will be published on council's
			website, and the community made aware of its availability.
	49.	Regular weed control to better maintain the corridors providing connectivity for wildlife across	Recommend no change be made to the policy.
		the landscape	Principle in Focus Area 4. Natural Area Restoration & Protection states:
			"Invest in strategic restoration activities to re-establish corridor linkages through the
			landscape, including using offsets or partnerships programs."
	50.	Waste reduction, reuse and better recyclingmake e.g glass recycling easier again.	Recommend no change be made to the policy.
			Waste reduction, reuse and recycling not in scope. Feedback provided to Senior
			Sustainability Officer to consider.
SUBMISSION	51.	All Community groups (including charities) must be audited every year	Recommend no change be made to the policy.
SUB TOTAL: 5			Process for reviewing council supported community environment groups to be
			considered by Team Leader (Environment and Sustainability Education and
			Awareness) as part of implementation.
Submissions Rec	eived Separate	ly Via Email	
General	52.	I have some feedback.	Recommend no change be made to the policy.
	Objective		'Green procurement' is reflected in a principle in Focus Area 5. Experiencing Nature:
	Ref:	Establishment of a community compost, Ipswich residents drop off biodegradable waste, their	Invest in infrastructure and management activities that supports sustainable
	A6921677	details are documented & the worm food is sold back to the residents for a small fee. Those who do contribute to the compost can receive free compost (as they are the ones contributing, hence	provision of nature experiences.'
		their details being documented.)	Compositing and waste management is not within the course of the walker for all and
		then details being decumented.	Composting and waste management is not within the scope of the policy. Feedback provide to Senior Sustainability Officer for consideration with implementation of
		Residents who have green waste bins receive subsidies or cheaper rates.	Sustainability Policy.

Focus Area Submission Submission		Submission	Response	
	No.			
		Sourcing 'green' companies which manufacture earth friendly products (eg: counter benches) for future builds. (This is off topic but something for council to consider)		
General	53. Objective Ref: A6921702	Thank you for trying to involve me in assisting in part at least in the Natural Environment Policy. I would have liked to provide a detailed response, especially with my long involvement and interest in Smith Park, but with only 140 characters permissible in just one of the many survey areas of the questionnaire, this was simply not possible and accordingly, I consider my enforced curt response as somewhat ludicrous. Be that as it may, I provide the following for your/s information. • Smith Park was a dumping ground for debris removed from the old Cribb & Foote Building	Recommend no change be made to the policy. Submission concerns site specific management matters. Feedback provided to Coordinator (Natural Areas) to follow-up.	
		 (i.e. Reids Dept Store) following the fire in 1985. John Birbeck (ICC Parks Curator) approached me in 1988 to see what we could organise to cover up the massive impact of this dumping that resulted in effectively ring-barking many Eucalypt species including Eucalyptus acmenoides (White Mahogany or White Stringbark) and others, some of which still stand as stark reminders of this derelict action by the then Ipswich Council. 		
		A number of such discussions followed and were conducted at our residence leading up to the Smith Park revegetation that commenced in 1990.		
		Together with Envirocare members and many residents of Smith Park and nearby following a mail box drop by me, car bodies, woody weeds, other weeds were removed		
		Over 6 successive plantings up until Sept 1993 5286 plants were planted. These were maintained by me and one other resident for a number of years until the 4 watering stations were disconnected in the Park. The watering lines are still there somewhere, but no taps.		
		Since that time, I have endeavoured to have ICC more vigilant in their management of the 13 acre park – this was promised by John Birbeck before the work commenced.		
		Years of total neglect to the Park proper have since followed with limited path way clearance by a small gang of willing ICC park employees.		
		I have had councillors Kev Dwyer, Gerard Pender, Andrew Antonelli, Dave Martin and the present deputy Mayor Marnie Doyle inspect the terrible weed infestation in the Park over the time we have been living in Lingard Street since 1987 and many ICC employees sent by way of follow up by some of these councillors.		
		I have forwarded weed lists to Gerard, Andrew, Dave and someone else in Council whose name escapes me.		
		Lots have been promised; little has been delivered.		
		There were some weed control measures taken last year after meeting with Cr Doyle, but that seems to have ceased. What was done was good, but much, much more needs		

	 attention. The statement that "Councillors and Council staff must abide by when making decisions and setting priorities" Is to me after all these years just words. I would like to see action taken, regularly followed up and vigilantly maintained forthwith, This 13 acre areas meets a number of ICC's proposed new policy agenda items viz Habitat and populations of threatened species; (eg Euc. dunni, Syzygium moorei) Core habitat areas as home for a diverse range of wildlife; (A number of Koala food trees grow here) Nodes of remnant vegetation in urban areas providing wildlife refuge; (there is nothing else within our suburb of this size in our suburb) Strategic remnants vegetation patches as stepping stones for wildlife movement; 	
	 Corridors providing connectivity for wildlife across the landscape; (there is a big stormwater pipe connecting Smith Park to the area on the other side of MacRae street enabling this connectivity, but it could be improved) Increase vegetation condition and animal abundance within core habitat areas; (We used to regularly see Koalas and bandicoots in the park and there are more than 100 species of birds) 	
	 Biological diversity, natural capital and ecosystem services; Waterway and riparian ecosystem; 	
	 Scenic amenity. (there are many walkers, cyclists, school kids, joggers, dog walkers that traverse the surrounds of the park and some who venture through its pathway on the Ladley Street side; by the way, there used to be a path through the park on the Lingard street side too before the Reid's rubbish was dumped there covering it up) 	
	I trust the above is informative. I believe it will much better reflect the passion and commitment over a long time to get the park looking as it could and should. I look forward to your response/s in due course.	
	Please note in hopefully your positive deliberations that most of the interested residents of Smith Park are too old to do the work required to restore this important area.	
54. Objective Ref: A7141855	Thank-you for the opportunity to review your Draft Natural Environment Policy. Resources has reviewed the document, and can advise that it does not conflict with any of our State Interests.	Recommend no change be made to the policy. Submission provided to City Design Manager for note.
	This is a great document that clearly leads the direction that the City of Ipswich Council will take with their Planning Scheme and future shaping of your council area.	

Focus Area	Submission No.	Submission	Response
	1101	As you move towards implementing the aspects of this document into your planning scheme, the	
		Department of Resources would be available to discuss any issues up front to assist with the	
		drafting, particularly around native vegetation protection and management.	
Section 9.	55.(A)	The second dot point under Natural Area Restoration and Protection refers to the	Recommend change as suggested. Dot point proposed to read as follows:
Definitions	Objective Ref: A7152611	 implementation of "sound environmental principles" on council owned and managed land. The third dot point under the definition of Sound Environmental Management Principles says that "visitor use should be managed for inspirational, educational, cultural and nature-based recreation at a level that will maintain natural values and cultural landscapes". This wording seems to be an action (visitor management), rather than a principle. We suggest that this could be re-worded as follows: Maintaining and enhancing natural values and cultural landscapes for inspirational, educational, cultural and nature-based recreation This suggested modified wording could reduce potential conflict between the Natural Area Restoration and Protection policy principles and the Experiencing Nature policy principles. We do not believe that there is a binary choice between either restoring/protecting natural areas or experiencing nature. Outdoor activities, when facilitated correctly and managed appropriately, lead to preservation of the natural environment. When people benefit from positive experiences 	"Maintaining and enhancing natural values and cultural landscapes for inspirational, educational, cultural and nature-based recreation."
		in nature, they become advocates for the restoration and protection of natural areas.	
5. Experiencing Nature	55. (B) Objective Ref: A7152611	Outdoors Queensland strongly supports the Policy Principles set out under the "Experiencing Nature" heading	No change to policy required.
7. Governance, Measuring & Reporting	55. (C) Objective Ref: A7152611	We suggest that the third dot point under Governance, Measuring and Reporting could be improved by including measurement and reporting on visitation, as follows: Identify, collect, monitor, review and report about natural values, environmental performance and visitation	Recommend change as suggested. Dot point proposed to read as follows: "Identify, collect, monitor, review and report about natural values, environmental performance and visitation."
		Measurement and reporting on visitation to natural areas is an important aspect of understanding these experiences. If visitation is not measured, it is not valued.	

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ITEM: 5

SUBJECT: IPSWICH PLATYPUS E-DNA MONITORING REPORT FOR 2020-2021

AUTHOR: WATERWAY HEALTH OFFICER

DATE: 20 JULY 2021

EXECUTIVE SUMMARY

This is a report concerning the results of Ipswich City Council's 2020-2021 platypus eDNA (environmental DNA) monitoring program. This sampling represents the fifth and most extensive platypus monitoring event council has undertaken across the city's waterways.

RECOMMENDATIONS

- A. That the platypus eDNA monitoring program be continued annually to monitor the city's existing populations, as well as transient individuals moving throughout systems.
- B. That habitat protection and improvement be conducted around key strongholds such as the Woogaroo, Sandy and Opossum Creek catchments to ensure the long-term sustainability of these populations.
- C. That detailed habitat assessments be undertaken to identify areas of high-quality habitat and better understand key threats to platypus sustainability.

RELATED PARTIES

There are no related party matters nor conflicts of interest associated with this report.

IFUTURE THEME

Natural and Sustainable

PURPOSE OF REPORT/BACKGROUND

Platypus eDNA monitoring involves filtering a sample of water from a waterway and analysing the filter for the presence of platypus DNA. This is then used to indicate the presence or absence of platypus from the site of the sample being taken. Through strategic site selection, we are developing an understanding of the key strongholds where platypus persist, and also continuing to monitor sites they are not inhabiting in the hope of new populations establishing.

The most recent monitoring program was undertaken in May 2021, at 24 sites across 8 of the city's major waterways. Results obtained were in alignment with previous results,

showing the catchments of Woogaroo Creek, Opossum Creek and Sandy Creek as the primary strongholds.

No positive records were confirmed at any other sites outside of these systems. This is despite the habitat quality index scores of many other sites being equal to, or higher, than systems where platypus persist. This suggests there may be a range of other issues such as in-stream barriers and low source population numbers impacting their ability to access and colonise new areas with good habitat such as Bundamba Creek and the Bremer River.

Of particular note in this years' sampling was the degradation of water quality and habitat condition in Woogaroo and Opossum creeks. The primary threat identified in the report at these sites is water turbidity, which was significantly worse than previous years. This is resultant from sediment which is eroded and washed into the waterways. Excessive turbidity and sedimentation can impact pool depth, food availability, habitat condition and streambank stability which is critical to maintain burrows. The primary source of turbidity in developing areas such as Woogaroo and Opossum Creek Catchment is disturbed land associated with development, construction and clearing.

LEGAL/POLICY BASIS

This report and its recommendations are consistent with the following legislative provisions: Local Government Act 2009

RISK MANAGEMENT IMPLICATIONS

The rapidly deteriorating water quality and habitat conditions of Woogaroo and Opossum creeks present a significant risk to the platypus populations, and broader aquatic ecology of these systems. With these systems recognised as being the city's remaining strongholds for platypus since 2016, continued degradation of these systems will be detrimental to platypus.

The recommendations regarding continued platypus monitoring and habitat improvements will involve investment on council's behalf. However, the likely alternative to not maintaining a strong focus on improving these waterways and riparian areas will be the loss of platypus to our local environment.

HUMAN RIGHTS IMPLICATIONS

OTHER DECISION		
(a) What is the	The report attached has three (3) key recommendations.	
Act/Decision being	Recommendation A proposes that the platypus eDNA	
made?	monitoring program is continued annually to monitor the city's	
	populations. Recommendation B proposes that habitat	
	protection and improvement is conducted around key	
	strongholds such as the Woogaroo, Sandy and Opossum	
	catchments to ensure the long-term sustainability of these	
	populations. Recommendation C proposes habitat assessments	

	are undertaken to identify areas of high-quality habitat and better understand key threats to platypus sustainability.
(b) What human rights are affected?	No human rights are affected by these recommendations.
(c) How are the human rights limited?	Not applicable
(d) Is there a good reason for limiting the relevant rights? Is the limitation fair and reasonable?	Not applicable
(e) Conclusion	The decision is consistent with human rights.

FINANCIAL/RESOURCE IMPLICATIONS

The 2020-2021 platypus eDNA monitoring program cost approximately \$6,000 (excl. GST) to sample 24 sites across the city's waterways. It is anticipated that a similar annual expenditure will be required to continue the program across a similar number of sites each year.

The broader recommendations put forward of habitat improvement works will require significantly greater annual investment. Some of the required actions will be delivered through the operational and capital programs associated with the Waterway Health Strategy.

COMMUNITY AND OTHER CONSULTATION

No internal or external consultation has been undertaken as part of this report. Some distribution of the results has occurred specifically to landholders who allowed council to access waterways for sampling through their property. All private landholders contacted for access were extremely supportive of this monitoring program and all had hopes of platypus becoming established once again through our waterways.

CONCLUSION

The 2020-2021 platypus monitoring program has confirmed that platypus populations are persisting in the Woogaroo, Opossum and Sandy Creek catchments. On-going threats associated with urban development such as habitat degradation continue to threaten their long-term sustainability.

It is hoped through continued monitoring and delivery of waterway rehabilitation programs, the city's platypus populations can persist in their current locations and become established at a range of new areas throughout our waterways.

ATTACHMENTS AND CONFIDENTIAL BACKGROUND PAPERS

1. 2020-2021 Platypus eDNA Monitoring Report 🗓 🖺

Jack McCann

WATERWAY HEALTH OFFICER

I concur with the recommendations contained in this report.

Phil A. Smith

NATURAL ENVIRONMENT AND LAND MANAGER

I concur with the recommendations contained in this report.

Kaye Cavanagh

MANAGER, ENVIRONMENT AND SUSTAINABILITY

I concur with the recommendations contained in this report.

Sean Madigan

ACTING GENERAL MANAGER - INFRASTRUCTURE AND ENVIRONMENT

"Together, we proudly enhance the quality of life for our community"



Environmental DNA (eDNA) Analysis of Platypus

Distribution Across Ipswich

2021

16th July 2021

Prepared for:

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Review Table

Version Number	Reviewed By	Date	Status
V1	Tamielle Brunt	14/07/2021	Draft
V2	Matt Cecil	14/07/2021	Revised
Final	Tamielle Brunt & Matt Cecil	16/07/2021	Published

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Summary

The Wildlife Preservation Society of Queensland (Wildlife Queensland) is a not-for-profit, non-Government wildlife advocacy organisation. Wildlife Queensland manage the PlatypusWatch Network, a focus group for community engagement, conservation, education and research on the platypus in Queensland.

To better understand the platypus distribution in the Ipswich region, Wildlife Queensland has partnered with the Ipswich City Council who have provided funding for an environmental DNA (eDNA) project. This project is in its sixth year, collating important distribution data on local platypus populations.

This year (2021), 24 sites were sampled across eight waterways. Platypus DNA was identified in samples collected at four sites (Woogaroo Creek, Sandy Creek and Opossum Creek). These three waterways have continuously had positive DNA over the six years of sampling. New areas in the lower Bremer River, Deebing Creek, Six Mile Creek and Franklin Vale Creek were negative for platypus DNA. Bundamba Creek did not record a positive sample in2021 despite platypus DNA being found in the 2018 and 2019 surveys.

Habitat quality index varied across the sample locations and no major changes were recorded at resampled sites, apart from noticeable sedimentation build up in Woogaroo and Opossum Creeks. Implementation of habitat protection and rehabilitation around positive waterways such as Woogaroo Creek, Sandy Creek and Opossum Creek is recommended as a priority action to ensure the immediate long-term viability of the local population. Platypus preferred habitat features should be protected or rehabilitated in these areas to better conserve platypus populations.

The results from the 2021 Platypus eDNA survey indicate that there is a strong hold area for platypuses within Woogaroo Creek, Sandy Creek and Opossum Creek and that individual platypus are transient within these waterways (and associated tributaries). On-going eDNA surveys will remain essential for monitoring this cryptic species and will help determine persistence and changes in populations in the region.

Introduction

Platypus are listed as 'near threatened' on the International Union for Conservation of Nature Red List (IUCN) (Woinarski and Burbidge 2016). Continued monitoring of platypus populations across their range is vital to understand their future conservation requirements. The species is found in freshwater habitats of varying quality. However, they require key habitat requirements including deep pools, high consolidated sloping banks and cobbled stony substrates to carry out their life history events (Grant 2007).

The platypus' elusive behaviour, making species distribution and abundance difficult to confirm through observation surveys; they may not be observed in an area but may still be present (Grant 2012). Environmental DNA (eDNA) analysis is a powerful tool to detect platypus DNA within waterways without the time and labour constraints of using traditional techniques. This method of detecting a species is cost effective, accurate and has an absolute minimal environmental disturbance (Goldberg et al. 2011). The Wildlife Preservation Society of Queensland in partnership with the Melbourne based consultancy EnviroDNA have developed this sampling program over the last six years for the purpose of defining the current distribution of platypus across the south east Queensland region.

In 2016 an environmental DNA project targeting platypus was developed within the Ipswich City Council region. This survey has occurred once annually for six years, providing Wildlife Queensland with a clear indication on the distribution of platypus across the region.

In Ipswich, 50 sites across 11 waterways have been sampled (Appendix 3) over six consecutive years. In 2016, 13 sites, in five waterways were sampled with two positive eDNA results being recorded, both from Woogaroo Creek. In 2017, 16 sites were sampled and platypus DNA was not located in any creeks or waterways. In 2018, 19 sites were sampled across eight waterways which resulted in six positive DNA samples. In 2019, 25 sites in six waterways were sampled with four positive samples being recorded. In 2020, six sites were monitored with three sites positive for DNA. This year 24 sites across eight waterways were eDNA sampled with fourteen new sites being added. This resulted in four positive sites in three waterways (Woogaroo Creek, Opossum Creek and Sandy Creek).

This project important is for identifying platypus persistence and distribution. The ongoing monitoring of platypuses within the Ipswich region may help facilitate the detection of any decline in current populations and help identify key habitat characteristics associated with platypus inhabitation. These results will enable a better understanding of platypus habitat and may help drive future conservation strategies to protect platypuses and their habitat.

Aim

- 1. To accurately identify platypus presence in selected waterways within the Ipswich City Council local government area (LGA) using the eDNA method;
- 2. Establish and contribute to a longitudinal platypus survey in key locations across lpswich;
- 3. Ability to identify platypus distribution changes over time; and
- 4. Determine habitat quality in association with platypus presence.

Methods

Observation data

Queensland State Government Wildnet database, Atlas of Living Australia and Platypus Watch Network records were used to source recent platypus sightings records within Queensland and specifically the Ipswich LGA.

Site selection for environmental DNA sample collection sites

Wildlife Queensland in conjunction with Jack McCann (Waterway Health Officer, Ipswich City Council) selected sites to be sampled based on their history of platypus sightings data. The sample location details are provided in Table 1 and Figure 1. Fourteen new samples sites were added, five sites to the lower Bremer River (BREM06 - 10), two sites at Deebing Creek (DEEB01, 02) and Franklin Vale Creek (FV01, 02), three at Bundamba Creek (BUND07 – 09) and one at Six Mile Creek (SIX06) and Woogaroo Creek (WOOG06).

Table 1: Water sample locations in eight waterways.

Waterway	Site	Latitude	Longitude
Bremer River	BREM06	-27.6026	152.7562
Bremer River	BREM07	-27.6343	152.7346
Bremer River	BREM08	-27.6271	152.6687
Bremer River	BREM09	-27.5915	152.7809
Bremer River	BREM10	-27.6026	152.7443
Bundamba Creek	BUND04	-27.6186	152.8077
Bundamba Creek	BUND07	-27.5913	152.7957
Bundamba Creek	BUND08	-27.6359	152.7908
Bundamba Creek	BUND09	-27.60001	152.7989
Deebing Creek	DEEB01	-27.6251	152.7514
Deebing Creek	DEEB02	-27.6343	152.7543
Franklin Vale Creek	FV01	-27.7323	152.4718
Franklin Vale Creek	FV02	-27.7211	152.4757
Opossum Creek	OPOSS01	-27.6564	152.8997
Opossum Creek	OPOSS02	-27.6453	152.894
Opossum Creek	OPOSS03	-27.6648	152.9073
Sandy Creek	SAND01	-27.6253	152.9209
Sandy Creek	SAND02	-27.6061	152.9279
Six Mile Creek	SIXM03	-27.6068	152.8599
Six Mile Creek	SIXM04	-27.6557	152.84
Six Mile Creek	SIXM06	-27.6394	152.8463
Woogaroo Creek	WOOG02	-27.6178	152.9065
Woogaroo Creek	WOOG03	-27.6322	152.9038
Woogaroo Creek	WOOG06	-27.6095	152.906

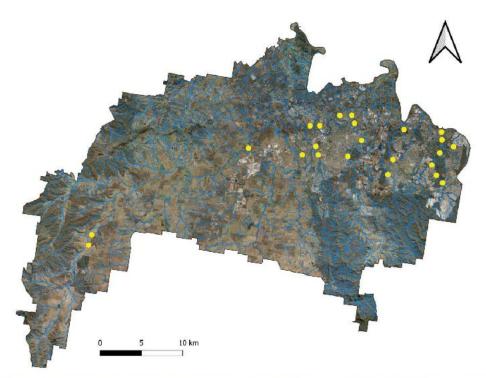


Figure 1: Locations of chosen waterways within Ipswich City Council Region, Bremer River, Bundamba Creek, Franklin Vale Creek, Opossum Creek, Sandy Creek, Six Mile Creek and Woogaroo Creek.

Environmental DNA Sampling to determine platypus distribution

Environmental DNA method as per EnviroDNA method (Griffiths et al. 2015). Water samples were collected in duplicate at one or more independent sites in each identified waterway (i.e., upper, mid and lower sections). Water sample volumes between 80 ml and 500 ml were collected and filtered through a 0.22µm filter (Sterivex) using a 60 ml sterile syringe. Filters containing collected filtrate material were stored at 4°C and transported overnight to the EnviroDNA laboratory (Melbourne) for analysis. Care was taken to avoid contamination between sites following prescribed methods.

DNA was extracted from the filters using DNA extraction kit (Qiagen DNeasy Blood and Tissue kit). Species-specific primers were developed by EnviroDNA to target a small section (57 bp) of the platypus mitochondrial gene *cytochrome b* (CytB) (Life Technologies). Amplification of the target DNA will be completed through the use of real time polymerase chain reaction (PCR) assays. Each sample is prepared in triplicate and all assays contained positive and negative controls.

Water samples were collected 24th and 25th May 2021. The sample period was chosen to take advantage of an expected increase in platypus activity associated with platypus breeding behaviours.

Habitat Quality Index

A selection of habitat characteristics known to be associated and beneficial for platypus requirements was collated into a habitat quality index (Grant 2014), allowing for a quick assessment of the habitat quality of each sample site. Each lpswich eDNA sample location was assessed using the habitat quality index (Table 2).

Table 2: Habitat Quality Index table with known or potential benefit to platypuses (Adapted from Grant 2014).

Habitat variable	Known or potential benefit to platypuses	SCORE					
Bank variables (Score 0 = none, 1 = <25%, 2 = 25-49%, 3 = 50-74%, 4 = >75%)							
Consolidated	Maintenance of burrows, reduced in-stream						
banks	sedimentation						
Large-medium sized trees on	Consolidation of banks, organic input to aquatic						
banks	ecosystem						
Overhanging vegetation <2m	Consolidation of banks, organic input to aquatic						
above water	ecosystem, lower predation risk due to shelter while						
	foraging and entering/leaving burrows						
Earthen banks	Allows construction and maintenance of burrows						
Bank height >1m	Preferred bank morphology for burrows construction and						
	maintenance						
Concave or near vertical	Secure access to burrow, hide entrance, lower predation						
banks	risk						
Absence of	Maintenance of burrows, maintenance of riparian						
erosion	vegetation, reduced in-stream sedimentation						
In-stream variables (Score 0	= none, 1 = <25%, 2 = 25-49%, 3 = 50-74%, 4 = >75%)						
Pool depth (>1m but<5m)	Preferred foraging depth for platypuses, lower risk of						
	predation						
Large woody debris (LWD, >10cm diameter)	Habitat and food for benthic invertebrate prey						
Complex benthic substrate	Favourable habitat for benthic invertebrate prey						
(cobbled, gravel)	, ,						
Coarse organic matter – if	Favourable habitat for benthic invertebrate prey						
visible							
Total		\44					

Results

Environmental DNA

Eight waterways (24 sites) were sampled in the Ipswich LGA during the 2021 eDNA survey. Platypus DNA was detected at three sites (Figure 2, Appendix 1). Woogaroo Creek (WOOG03), Opossum Creek (OPOSS03) and Sandy Creek (SAND01 and SAND02). Equivocal results were recorded at WOOG06, OPOSS01 and SIXM06.

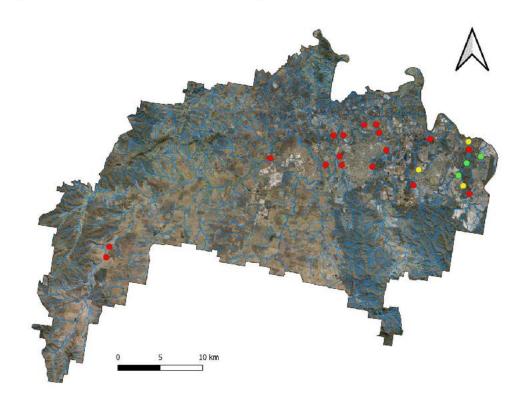


Figure 2: Environmental DNA results for Ipswich City Council sites 2021. Positive samples (green circles), negative samples (red circles), equivocal samples (yellow circles).

Habitat Quality Index

The habitat quality scores (Table 3) ranged from 39% to 86%. Opossum Creek site 3 scored low (39%) due to a lack of deep pools, minimal high stable banks, vegetated by invasive species, including in-stream and had a muddy/sandy substrate. Woogaroo Creek site 2 recorded the highest habitat score quality (86%) and had dense vegetation cover, stable consolidated banks and complex gravel and cobbled substrate. No changes in habitat quality were recorded at sites resampled in 2021. A noticeable feature this year within Woogaroo and Opossum Creeks was the sediment which resulted in low water amounts being filtered.

Table 3: Habitat quality index score and percent for each sample location.

Waterway	Site	HQI score	Percentage (%) (HQI/44)
Bremer River	BREM06	35	80
Bremer River	BREM07	36	82
Bremer River	BREM08	27	61
Bremer River	BREM09	28	64
Bremer River	BREM10	34	77
Bundamba Creek	BUND04	30	68
Bundamba Creek	BUND07	33	75
Bundamba Creek	BUND08	25	57
Bundamba Creek	BUND09	33	75
Deebing Creek	DEEB01	26	59
Deebing Creek	DEEB02	18	41
Franklin Vale Creek	FV01	35	80
Franklin Vale Creek	FV02	34	77
Opossum Creek	OPOSS01	26	59
Opossum Creek	OPOSS02	20	45
Opossum Creek	OPOSS03	17	39
Sandy Creek	SAND01	22	50
Sandy Creek	SAND02	23	52
Six Mile Creek	SIXM03	33	75
Six Mile Creek	SIXM04	21	48
Six Mile Creek	SIXM06	24	55
Woogaroo Creek	WOOG02	38	86
Woogaroo Creek	WOOG03	26	59
Woogaroo Creek	WOOG06	28	64

Discussion and Recommendations

The presence of platypus DNA at sampling sites within the Ipswich region has been found to be intermittent over the past six consecutive years of eDNA sampling (Appendix 3).

However, the data indicates that the Woogaroo Creek catchment has a persistent population of platypus. Platypus DNA has been collected during four out of the six years within Woogaroo Creek and four years in a row for Opossum Creek since 2018. Opossum Creek flows into the system further upstream of Woogaroo Creek and would be an important connection in the catchment. Sandy Creek has also consistently recorded positive eDNA results in years 2018, 2020 and now this year.

Again, this year, Sandy Creek, Woogaroo Creek and Opossum Creek were shown to have platypus presence. The new sites in the Bremer River, Deebing Creek, Franklin Vale Creek and Bundamba Creek did not result in any platypus DNA detection. However, Six Mile Creek (SIXM06) recorded an equivocal sample (statistically insignificant amount of target species DNA in the sample). Bundamba Creek did not record a positive result this year as per previous years 2018 (BUND01) and 2019 (BUND04). However, due to the transient nature of the target species, movement of an individual platypus may have been between sampled sites and would not be detected.

Six Mile Creek (SIXM06) provided in an equivocal sample. The DNA was not enough to confidently be considered positive for platypus presence. This can be due to factors such as:

- Contamination from a previously sampled site. However, there are strict contamination protocols in place to reduce this issue.
- A transient animal may have travelled through the area and may not be a permanent resident. The DNA naturally degrades in the water over a couple of days depending upon temperature, UV and flow
- or the sample site was at the lowest reach downstream of platypuses and the movement downstream and dilution in the water resulted in very small DNA fragments.

Further exploration in the upper reach of Six Mile Creek should be considered to understand more about the occurrence of platypus in the waterway.

Franklin Vale Creek had an anecdotal record of a platypus sighting and it was favourable platypus habitat with the HQI at 80% and 77% (deep pools with vegetated, stable banks). There was very minimal water flow at the time of sample collection that may not have moved any possible DNA through the creek to the sample sites.

The main concern for platypus populations within Ipswich is urbanisation. Urban encroachment threatens habitat and water quality which consequently impacts platypus shelter and food resources (Table 4), making them vulnerable to decline.

Table 4: Urban impacts to platypuses.

Threat	Details	Causing	Impact to platypus	Reference
Habitat destruction	Removal of native vegetation	Erosion of banks	Fewer burrowing sites	Grant (2007)
from land use		Sedimentation	Pool depth become shallower	Grant and Temple-Smith (2003);
				Grant (2007)
			Smother's food source	Boulton et al. (2014)
	Water pollution – chemicals	Stormwater runoff from	Pollutants impact food sources	Serena and Pettigrove (2005);
	and littering	roads	Pharmaceuticals ingested from food	Richmond et al. (2018)
			source	
		Rubbish	Entanglement	Serena and Williams (2021)
	Modification of waterways	Weirs, dams, irrigation	Unfavourable water levels and flow	Grant and Temple-Smith (2003);
			Altered follow regimes	Kolomyjec (2010); Hawke (2020)
		Stormwater runoff from	Change in habitat productivity and	Australian Platypus Conservancy
		roads	female reproductive success	(n.a.); Martin et al. (2014)
			Channel morphology – erosion	Walsh et al. (2005); Martin et al.
				(2014)
			Diving energetics – hard and fast flows	Griffiths et al. (2014b)
			reduce foraging efficiency	

Habitat quality across the region continues to be variable between sites. Sedimentation appeared more prominent in Woogaroo and Opossums Creeks during the 2021 sample collection period. This is a major concern for the longevity of platypuses inhabiting the catchment. Sedimentation will cause deep pools to become shallow as a result of a build-up of silt, in conjunction with the smothering of their food source as silt settles out of the water column (Boulton et al. 2014). Platypuses rely on pools between one and five meters deep to forage effectively and successfully mate (Grant 2007). They forage for up to 12 hours a night/day ingesting 30% of their body weight (Grant 2007), therefore need areas of high food abundance and diversity.

Platypuses rely on waterways for migration (Furlan et al. 2013) consequently, decreased habitat quality and connectivity between catchments will contribute to isolate populations (Furlan et al. 2013; Griffths et al. 2014; Weeks 2014). They are also better protected in deeper water from terrestrial predators (moving through shallower waters risks predation (Grant 2007)). Therefore, water quality and the connectivity between waterways is highly important within the region and may be conserved by maintaining and rehabilitating preferred habitat features in which platypuses depend upon and to reduce further degradation to water quality and riparian habitat.

Over the past six years, platypus DNA has been recorded at sites with a low HQI (Bundamba Creek (BUND01) and Sandy Creek (SAND01) 2017 report)), suggesting that platypuses can tolerate an urban environment. This year, HQI was varied across the sites (39 - 88%), with bank variables observed/recorded to be sufficient at most sites apart from DEEB02, OPOSS03 and SIXM06 as they were sandy and unstable and lacked necessary vegetation cover. Complex benthic substrate was also scored low with sandy stream bed substrates associated with sandy banks. These areas provide only a small assessment of the individual waterway characteristics and other areas up or down stream may favour platypus presence. Male platypuses have been known to exploit less than ideal foraging areas and have a weak association with habitat productivity which may result in greater mobility (Martin et al. 2014). They are also more active and mobile when searching for females or when juvenile males disperse into new territories (Grant 2007). Females, however, need habitat features such as high stable banks to nest and successfully rear young (Grant 2007).

Therefore, habitat rehabilitation may increase the likelihood of platypuses migrating within streams. Invasive weed management within and along the waterways and vegetating the banks with native plant species would greatly improve the habitat for platypus. Other favourable habitat features to conserve or create for platypuses include maintaining or creating water pools between one and five meters, protecting and consolidated high, sloping banks for burrow construction and reducing sediment and pollution ingress from erosion and stormwater to keep waters healthy for platypus prey (aquatic invertebrates).

Barriers or obstructions which impede the movement of platypuses may reduce an individual's ability to migrate within waterways. If the entrances to culverts or stormwater pipes are greater than 20 cm vertically above the stream, it may prevent platypuses from moving safely within the water forcing them to move over land, further risking predation

(Grant 2007; Australian Platypus Conservancy n.a). It is important to consider such barriers to movement when considering habitat improvement projects for platypus.

The six years of platypus occurrence data collected during this project indicate that Woogaroo, Opossum and Sandy Creeks are creeks/systems require increased protection and rehabilitation to maintain the platypus population. The other waterways should still be considered for rehabilitation including the identification of barriers to platypus dispersal/movement within catchments. Water volume and flow is an important contributor to platypus movement and should be considered for mitigation where activities that reduce water volume/flow occur (excessive irrigation allocation, barriers and stormwater management - hard and fast water flow buffered before entering vulnerable waterways, especially in the wet season with rapid water flows impacting juveniles when they emerge from the nest).

Overall, platypuses are persisting in the Ipswich region, however, are still vulnerable to the negative impacts associated with urban land use. PlatypusWatch recommend continuing future eDNA sampling within the Ipswich LGA to continue to monitor extant populations (Woogaroo Creek and Opossum Creek) but also track transient animals moving in and out of systems, as possibly seen in Bundamba Creek. The longitudinal data collected by this project is important not only to track platypus populations over time but to develop and support catchment management programs to rehabilitate areas. It is also recommended that detailed habitat assessments including aquatic macroinvertebrate surveys be implemented, to identify in-stream pool areas, barriers that may inhibit platypus movement within the connected waterways and associated food abundance and diversity.

Preservation of platypuses will be a conservation benefit within the Ipswich region, as they encourage habitat protection and increase the overall quality of the waterways in which they live.

Acknowledgements

The Wildlife Preservation Society of Queensland would like to thank senior ecologist Josh Griffiths from EnviroDNA Australia who has generously given us his time to guide and advise on implementing the eDNA project. We are also grateful to the Ipswich City Council officers, Jack McCann, Tim Shields and Phil Smith for helping develop the project for the Ipswich region over the last six years.

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Appendix 1. Environmental DNA results

Site	Waterway	Latitude	Longitude	Notes	Collection date	Sample code	Volume	Conclusion (for SITE)	Total score (for SITE)	copies DNA per litre for SITE (averaged)
WOOG02	Woogaroo Creek	-27.6178	152.9065	Sediment	24/05/2021	1	300	Negative	0	0.00E+00
					24/05/2021	2	300			
WOOG03	Woogaroo Creek	-27.6322	152.9038	Sediment	24/05/2021	1	300	Positive	2	1.06E+03
					24/05/2021	2	300			
WOOG06	Woogaroo Creek	-27.6095	152.906	Sediment	24/05/2021	1	300	Equivocal	1	7.75E+02
					24/05/2021	2	300			
BREM06	Bremer River	-27.6026	152.7562	Wide	25/05/2021	1	200	Negative	0	0.00E+00
					25/05/2021	2	200			
BREM07	Bremer River	-27.6343	152.7346		25/05/2021	1	180	Negative	0	0.00E+00
					25/05/2021	2	180			
BREM08	Bremer River	-27.6271	152.6687		25/05/2021	1	170	Negative	0	0.00E+00
					25/05/2021	2	150			
BREM09	Bremer River	-27.5915	152.7809		25/05/2021	1	165	Negative	0	0.00E+00
					25/05/2021	2	160			
BREM10	Bremer River	-27.6026	152.7443		25/05/2021	1	200	Negative	0	0.00E+00
					25/05/2021	2	200			
DEEB01	Deebing Creek	-27.6251	152.7514		25/05/2021	1	180	Negative	0	0.00E+00
					25/05/2021	2	180			
DEEB02	Deebing Creek	-27.6343	152.7543		25/05/2021	1	300	Negative	0	0.00E+00
					25/05/2021	2	300			
OPOSS01	Opossum Creek	-27.6564	152.8997	Sediment	24/05/2021	1	300	Equivocal	1	8.92E+02
					24/05/2021	2	300			
OPOSS02	Opossum Creek	-27.6453	152.894	Sediment	24/05/2021	1	300	Positive	2	2.05E+03

					24/05/2021	2	300			
	Onossum Crook			A lot of				Nogativo	0	0.00E+00
OPOSS03	Opossum Creek	-27.6648	152.9073	sediment	24/05/2021	1	90	Negative	0	0.000+00
					24/05/2021	2	80			
SIXM03	Six Mile Creek	-27.6068	152.8599		24/05/2021	1	500	Negative	0	0.00E+00
					24/05/2021	2	500			
SIXM06	Six Mile Creek	-27.6394	152.8463		24/05/2021	1	250	Equivocal	1	1.86E+03
					24/05/2021	2	250			
SAND01	Sandy Creek	-27.6253	152.9209		24/05/2021	1	220	Positive	6	2.55E+04
					24/05/2021	2	220			
SAND02	Sandy Creek	-27.6061	152.9279		24/05/2021	1	400	Positive	6	8.54E+03
					24/05/2021	2	400			
SIXM04	Six Mile Creek	-27.6557	152.84		24/05/2021	1	350	Negative	0	0.00E+00
					24/05/2021	2	350			
	Franklin Vale							Negative	0	0.00E+00
FV01	Creek	-27.7323	152.4718		25/05/2021	1	500	ivegative		0.002+00
					25/05/2021	2	500			
	Franklin Vale							Negative	0	0.00E+00
FV02	Creek	-27.7211	152.4757		25/05/2021	1	500	Negative		0.002100
					25/05/2021	2	500			
BUND04	Bundamba Creek	-27.6186	152.8077		24/05/2021	1	360	Negative	0	0.00E+00
					24/05/2021	2	360			
BUND07	Bundamba Creek	-27.5913	152.7957	Tidal	25/05/2021	1	240	Negative	0	0.00E+00
					25/05/2021	2	240			
BUND08	Bundamba Creek	-27.6359	152.7908		24/05/2021	1	500	Negative	0	0.00E+00
					24/05/2021	2	500			
BUND09	Bundamba Creek	-27.6	152.7989		25/05/2021	1	500	Negative	0	0.00E+00
					25/05/2021	2	500			

Appendix 2. Photographs of New Sample Sites

Bremer River Site 6





Bremer River Site 7





Bremer River Site 8





Bremer River Site 9





Bremer River Site 10





Bundamba Creek Site 7



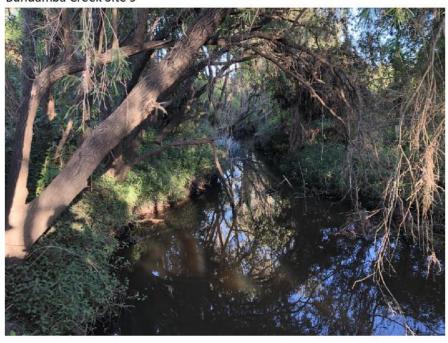


Bundamba Creek Site 8





Bundamba Creek Site 9





Deebing Creek Site 1









Franklin Vale Creek Site 1





Franklin Vale Creek Site 2





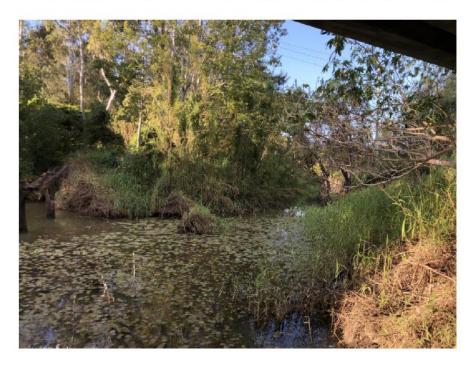
Opossum Creek Site 3





Six Mile Creek Site 6





Woogaroo Creek Site 6





Appendix 3. Ipswich region eDNA site results over six years.

Waterway	Site	Latitude	Longitude	2016	2017	2018	2019	2020	2021
Bremer River	BREM01	-27.61788	152.7413	Negative	Negative	Negative			
	BREM02	-27.62259	152.7429	Negative	Negative	Negative			
	BREM03	-27.63672	152.7461	Negative	Negative	Negative			
	BREM04	-27.64281	152.7437	Negative	Negative	Negative			
	BREM05	-27.6488	152.6354	Negative	Negative	Negative			
	BREM06	-27.60257	152.7562						Negative
	BREM07	-27.63428	152.734609						Negative
	BREM08	-27.62708	152.66868						Negative
	BREM09	-27.59151	152.78093						Negative
	BREM10	-27.60263	152.7443						Negative
Bundamba Creek	BUND01	-27.62493	152.7971	Negative	Negative	Positive	Negative	Negative	
	BUND02	-27.60978	152.8	Negative	Negative	Negative	Negative		
	BUND03	-27.60458	152.8011	Negative	Negative	Negative	Negative		
	BUND04	-27.61858	152.8077				Positive	Negative	
	BUND05	-27.63623	152.79086				Negative		
	BUND06	-27.69946	152.8036				Negative		
	BUND07	-27.591295	152.795659						Negative
	BUND08	-27.635791	152.790683						Negative
	BUND09	-27.600108°	152.798394						Negative
Goodna Creek	GOOD01	-27.6008	152.8804				Negative		
	GOOD02	-27.60741	152.872				Negative		
	GOOD03	-27.61475	152.8692				Negative		
Opossum Creek	OPOSS01	-27.6564	152.8997		Negative	Positive	Negative	Positive	Equivoca
	OPOSS02	-27.6453	152.894				Positive		Positive
	OPOSS03	-27.664777	152.907268						Negative
	OPOSS04	-27.67459	152.9083				Negative		
Purga Creek	PURGA01	-27.71238	152.7333	Negative		Negative			
Sandy Creek	SAND01	-27.62534	152.9209		Negative	Positive	Negative		Positive
	SAND02	-27.6061	152.9279			Positive			Positive
	SAND03	-27.5706	152.93			Negative		Positive	
	SAND04	-27.6347	152.9264			Negative	Negative		
	SAND05	-27.63868	152.9278				Negative		
Six Mile Creek	SIXM01	-27.64161	152.8449	Negative	Negative	Negative	Negative		
	SIXM02	-27.6177	152.847				Negative		
	SIXM03	-27.6068	152.8592			Positive	Negative		Negative
	SIXM04	-27.65569	152.84				Positive		Negative
	SIXM05	-27.63737	152.8454				Negative		
	SIXM06	-27.639423	152.846278						Equivoca
Warrill Creek	WARR01	-27.6575	152.699		Negative	Negative			
	WARR02	-27.7494	152.6858		Negative				
Woogaroo Creek	WOOG01	-27.61517	152.9087			Positive	Negative		
	WOOG02	-27.61783				Equivoca			Negative
	WOOG03	-27.63219				Equivoca			
	WOOG04	-27.64733	152.8881			<u> </u>	Negative		

	WOOG05	-27.65879	152.8808		Negative	
	WOOG06	-27.60948	152.906017			Equivocal
Black Snake	BSC01	-27.552270	152.597829			NA
Deebing Creek	DEEB01	-27.62507	152.75136			Negative
	DEEB02	-27.63432	152.75426			Negative
Franklin Vale Creek	FV01	-27.73232	152.4718			Negative
	FV02	-27.72107	152.47568			Negative

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ITEM: 6

SUBJECT: STORMWATER QUALITY OFFSET PROGRAM ANNUAL REPORT

AUTHOR: WATERWAY IMPROVEMENT OFFICER

DATE: 12 JULY 2021

EXECUTIVE SUMMARY

This is a report concerning the Stormwater Quality Offset's Program status from commencement until June 2021. It consists of an overview of the program's rules, list of water quality improvement projects delivered to date including expenditure, liability, efficiency and most recent implementation plan review.

RECOMMENDATIONS

That the Ipswich City Council Stormwater Quality Offset Program Annual update report be received and the contents noted.

RELATED PARTIES

There are no related party matters nor conflicts of interest associated with this report.

IFUTURE THEME

Natural and Sustainable

PURPOSE OF REPORT/BACKGROUND

New urban development in Queensland is required to manage stormwater to meet the water quality requirements of the *State Planning Policy* (SPP). Ipswich is guided by the *Ipswich Planning Scheme Implementation Guideline No 24: Stormwater Management* to minimise impacts of development on water quality and subsequently regional waterway health. Furthermore, the *ICC Stormwater Quality Offset Program Implementation Plan* (completed in 2015 and reviewed in 2020) provides guidance to ensure the delivery of coordinated water quality improvement projects since 2015.

Over the life of voluntary contributions, Council has received approx. \$19.8M in contributions accruing obligations to remove an equivalent volume of pollutants (e.g. Nitrogen, Phosphorus and Total Suspended solids) from our stormwater. \$3.1M of voluntary contributions from developers were received within 2020-2021 financial year.

Sixteen major projects have been completed since the Stormwater Offset program commenced, with eight (8) of these projects completed within allocated budget and timeframes for the financial year 2020-2021. These are listed below:

- 1. Ironpot Creek Bank Stabilisation
- 2. Small Creek Stage 3 Channel Naturalisation
- 3. Moodai Reserve Floodplain Re-engagement
- 4. Fail Park Bioretention Basin
- 5. Bob Titcombe Park Bioretention Basin
- 6. Sarah Drive Park Bioretention Basin
- 7. Water Smart Street Trees refurbishment of 36 Biopods
- 8. Franklin Vale Creek Initiative Stage 2 Revegetation works

The above listed projects are now on a five (5) year maintenance phase schedule to ensure they are fit for purpose and that the associated vegetation performs the required function regarding pollutant removal.

LEGAL/POLICY BASIS

This report and its recommendations are consistent with the following legislative provisions: State Planning Policy (SPP)

Ipswich Planning Scheme Implementation Guideline No24 (IG24)

ICC Stormwater Quality Offset Program Implementation Plan

Ipswich Planning Scheme Table 2.3.1, Planning Scheme Policy 3, Division 3, Part 2—

Stormwater Drainage Local Government Act 2009

RISK MANAGEMENT IMPLICATIONS

The projects delivered to date are selected from the investment strategies developed as part of the program's implementation plan completed in 2015 and later reviewed in 2020. A multi criteria assessment was undertaken to help prioritise stormwater offset projects in terms of multiple benefits they provide.

In addition, environment and safety risks are assessed for each project during the design phase (e.g. environmental approvals required).

HUMAN RIGHTS IMPLICATIONS

HUMAN RIGHTS IMPACTS

RECEIVE AND NOTE REPORT

The recommendation states that the report be received and the contents noted. The decision to receive and note the report does not limit human rights. Therefore, the decision is compatible with human rights.

FINANCIAL/RESOURCE IMPLICATIONS

Total water quality offset expenditure has been addressed in the annual report with project costs categorised as administrative overheads, design, construction and maintenance.

Projects for the financial year 2020-2021 have been delivered within the allocated budget.

COMMUNITY AND OTHER CONSULTATION

No community and other consultation were conducted for this report. However, it is valid to mention the following:

- Internal stakeholder consultation was conducted as part of the program's implementation plan review between July and November 2020
- A community information session was conducted at Poplar Street Park in Raceview on the 15 March 2020 regarding the design and upcoming works for Small Creek Stage 3 Channel Naturalisation.

CONCLUSION

An update of the Stormwater Quality Offset Program Annual Report has been completed incorporating the financial year 2020-2021 delivery outcomes.

ATTACHMENTS AND CONFIDENTIAL BACKGROUND PAPERS

- 1. Stormwater Quality Offsets Program Annual Update Report 2020-2021 🗓 🖺
- 2. ICC Stormwater Quality Offsets Implementation Plan Review FINAL Oct 2020 🗓 🖼

Jennifer Mackay-Ortiz

WATERWAY IMPROVEMENT OFFICER

I concur with the recommendations contained in this report.

Phil A. Smith

NATURAL ENVIRONMENT AND LAND MANAGER

I concur with the recommendations contained in this report.

Kaye Cavanagh

MANAGER, ENVIRONMENT AND SUSTAINABILITY

I concur with the recommendations contained in this report.

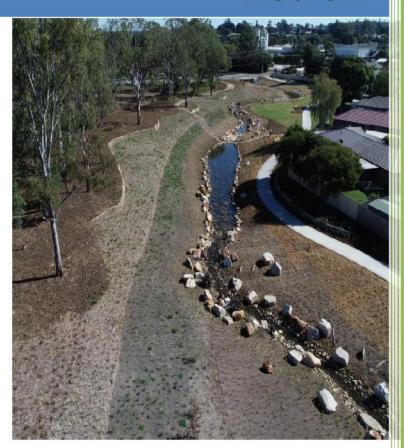
Sean Madigan

ACTING GENERAL MANAGER - INFRASTRUCTURE AND ENVIRONMENT

"Together, we proudly enhance the quality of life for our community"

Voluntary
Stormwater Quality
Contributions:
Program Summary &
Review

2020-2021



Natural Areas & Land Management
Environment & Sustainability

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Executive Summary

In 2012 Ipswich City Council embarked on a pioneering scheme to plan for and deliver coordinated water quality improvements across the city in lieu of developers delivering often problematic treatment devices (typically bioretention basins) on development sites. This scheme has become more commonly known as the stormwater quality offsets program. The Strategy team within the Sport Recreation & Natural Resources branch of the Works Parks and Recreation Department (now Infrastructure and Environment, Environment and Sustainability Branch) has begun the process of planning for and meeting its obligations (liabilities) accrued through the collection of developer contributions and as required by the State Planning Policy.

Guided by the original Offsets Implementation Scheme completed by BMT WBM in 2015, and subsequent reviews and officer investigation, Council is well advanced in the design and delivery of water sensitive urban design and broader initiatives aimed at improved water quality. To the end of the 2020-2021 financial year, Council has received in excess of \$19.8M of contributions and have accrued obligations to remove 346 tonnes of suspended sediment, 1713kg of Nitrogen and 504.97kg of Phosphorus from our stormwater *annually*.

Offsets have completely or partially funded 16 major projects to on ground delivery, with a major investment in the construction of Small Creek Stage 1, 2 and having recently completed stage 3. Despite having achieved high efficiency pollutant reductions, Council still carries liabilities in pollutant reductions having met (at worst) only 75% of the required reductions for total phosphorus. The program has experienced a number of challenges but has demonstrated that water quality offsets can achieve outcomes above and beyond that typically achieved on development sites. However, there are limitations of the offsets approach that will dictate the future of the program, and modifications are required to be made accordingly.

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Introduction

In the early 2000's, the philosophy of Water Sensitive Urban Design (WSUD) emerged in Australia, as a means of protecting our waterways from the adverse effects of increased volumes of stormwater and pollutant loads from urban and industrial development. The design process was in turn intended to provide for resilient communities that viewed stormwater as a resource and protected the ecosystem and social values of our waterways.

As the WSUD concept matured over the course of a decade, load based water quality targets intended to be achieved through WSUD were incorporated into legislation, specifically the State Planning Policy under the *Sustainable Planning Act 2009*, now the *Planning Act 2017*. The broader philosophy of WSUD largely disappeared to be replaced by end of pipe bioretention systems that were lacking in thought, creativity, and community and environmental benefit. Consequently, local governments across the region inherited a number of assets which were often poorly designed and delivered, and which Councils were ill-equipped to manage. In order to address this management issue, Ipswich City Council developed a program to enable a coordinated approach to the management of stormwater quality via a voluntary contribution scheme, more commonly referred to as stormwater quality offsets.

Water Quality Targets & Council's Commitment

The State Government has mandated through the State Planning Policy that developments above certain thresholds achieve load-based pollutant reduction objectives for stormwater for total suspended sediment (TSS), total nitrogen (TN), total phosphorus (TP) and gross pollutants (GP). The policy also provides the opportunity for local government to adopt locally appropriate alternative solutions such as offsets schemes. By committing to the collection of funds through our voluntary contributions, Council is taking on the responsibility to reduce pollutant loads that would otherwise be achieved on site by developers. The Department of Environment are also soon to release a policy for the off-site solutions (offsets) that will provide further rigour around delivery of these programs.

Stormwater Quality Offsets Implementation Plan

Inherent in any environmental offsets scheme is a trade-off: the sacrifice of one ecological asset to deliver a benefit elsewhere. A robust offsets scheme must take account of key guiding principles established under a number of offsets policies and guidelines globally. Specifically, offsets must ensure environmental equivalence, taking account of spatial separation and temporal lags, and be designed to minimise them. If implemented strategically, an offsets scheme such as the water quality offsets can deliver a net benefit to the environment. In the case of water quality offsets, the ecological assets in question are the waterways of the city that may be highly susceptible to changes in hydrological and hydraulic conditions in addition to water chemistry, sediment and nutrient loads.

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In 2015, Council commissioned BMT WBM to develop the *ICC Stormwater Quality Offsets Implementation Plan* and assist Council to determine the most appropriate and cost-effective use of the voluntary offset contributions. The plan provided:

- · Strategic intent for stormwater offsets in Ipswich
- Eligibility mapping (which were superseded by Council's maps);
- Expenditure rules for how and where offset funds could be spent
- Cost effectiveness and reliability of different water quality improvement options
- Decision support system to help prioritise site solutions
- Investment strategy for the next 5 years
 Reporting and Evaluation systems

In 2020, Council commissioned E2Design Lab to review and update the *ICC Stormwater Quality Offsets Program Implementation Plan* developed by BMT WBM in 2015. The main objective of the review was to identify outcomes and recommendations of the existing stormwater offset framework and to update the investment strategy with new offset projects for Council. The priority actions undertaken during this review:

- Review of Strategic Intent
- · Review of eligibility mapping
- Review of expenditure rules
- Review cost effectiveness and reliability of stormwater water quality improvement options
- Development of an updated investment strategy with new offset projects for Council
- · Document implementation plan with recommendations

The ICC Stormwater Quality Offsets Implementation Plan review has been included in Appendix N.

Key Findings & Program Rules

The review conducted by E2Design Lab identified that as population continues to grow in Ipswich, the pressure on waterways associated with urban development is also increasing. Council has several strategies which identify how stormwater can be managed to provide multiple outcomes including improved waterway health, flood mitigation and passive irrigation. These plans include:

- Integrated Water Strategy, 2015
- Waterway Health Strategy, 2020
- Corridor Plans (Bundamba Creek, Ironpot Creek, Deebing Creek and Black Snake Creek)
- Bremer Catchment Action Plan
- Bremer River and Waterway Health Report, 2020
- Bremer Integrated Catchment Plan

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The following outlines the key considerations for the offset program and details how they have been applied and reviewed to date:

Eligibility

To ensure that the program is implemented at a manageable scale and that ecologically and physically sensitive waterways are protected, eligibility mapping was developed in 2015 by BMT WBM to guide the uptake of voluntary contributions by developers in lieu of on-site treatment. This was based on the sensitivity of receiving environments considering factors such as dispersive and easily erodible soils, and those waterways in good health. It also recognized large greenfield areas where the cumulative impact on receiving waterways if not providing on-site treatment is unacceptably large and where good integrated design should be a key outcome for the development. Notable exclusions from the eligibility area include a portion of Bellbird Park, portions of the Springfield Structure Plan area and the Priority Development Area of Ripley Valley. Eligibility mapping is included in **Appendix A**.

The review of eligibility criteria and mapping was undertaken in 2020 by E2Design Lab focused on 3 main elements:

- Review of decision process recommended that sensitive environments are clearly identified or described so
 that it is clear offsets are not possible in these locations.
- Review of eligibility mapping and criteria The mapping can be improved by strengthening the criteria to
 provide more detail on development types and site conditions within the possible offset area which would
 remove eligibility for full offsets.
- Review of the eligibility process and current available information which can be used to update mapping and
 criteria Sub-catchment information from the Waterway Health Strategy 2020 is recommended to be used
 to update the eligibility mapping to protect those waterways which are in good condition.

A summary of all the recommendations identified in the *ICC Stormwater Quality Offsets Implementation Plan review* is located in **Appendix O**.

Demand

Forecast revenue (or demand for offsets uptake) was developed taking into account the eligibility mapping developed. This assumed a 50% uptake of the voluntary contributions in lieu of on-site treatment within the offsets eligible area. To the end of 2023-2024 financial year, this analysis forecasts a total revenue in excess of \$28 million. As of 2018-19 financial year's end, Council is approximately \$1.8M ahead of its forecast position.

Best Management Practices and supply of off-site solutions

The implementation plan incorporated a review of relevant best management practices (BMP's) options available to Council to meet its obligations accrued under the scheme. This includes urban solutions such as bioretention basins, constructed wetlands and channel naturalisation and rural practices such as riparian fencing and revegetation. All of these options are available, however they must be considered in terms of our ability to reliably quantify pollutant reductions for the purposes of the offsets program in order to demonstrate environmental equivalence.

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Using the assumptions proposed in the implementation plan, rural revegetation is a highly cost-effective method of achieving our objectives and can have broader beneficial outcomes in terms of overall waterway health. However, limited data exists to confirm the ability of revegetation to provide water quality improvements, and as such environmental equivalence with a high level of confidence and is difficult to demonstrate. Additionally, this approach has the weakness that it has a large spatial separation from offset sites and a temporal lag of up to twenty years for the vegetation to mature sufficiently for the benefit in pollutant reductions to be realised.

In light of the uncertainty associated with revegetation, it brings into question the validity of their use in the program. However, it is clear that wider benefit to waterway health is very high relative to the cost required to undertake the works. To manage this uncertainty and associated risk, the program has been designed to provide a diverse range of best management practice projects, whilst only sparingly relying on the use of rural revegetation. A reduction ratio of 1:1.5 has also been applied in revegetation works in-line with best practice offsetting procedures to account for spatial separation and uncertainty.

The original implementation plan provided a compiled and prioritised list of offsets delivery (also referred to as supply) sites. The work highlighted that there had been insufficient options available for Council to meet its forecast pollutant reduction obligations within the urban area, suggesting a reliance on rural revegetation to discharge our liabilities accrued under the scheme. Whilst the options for delivery have been reviewed internally identifying additional options, this highlighted a supply limited program. This potential shortcoming was a key matter and trigger for the implementation plan's review. The review process identified and presented an updated investment strategy with new offset project locations and treatment options for Council to deliver in the next 5 years.

Program Status

Contributions

Following the commencement of Implementation guideline No. 24 in December 2012, Council has collected in excess of \$19.8M. Figure 1 below shows the revenue received versus forecast on both an annual and accumulative basis.

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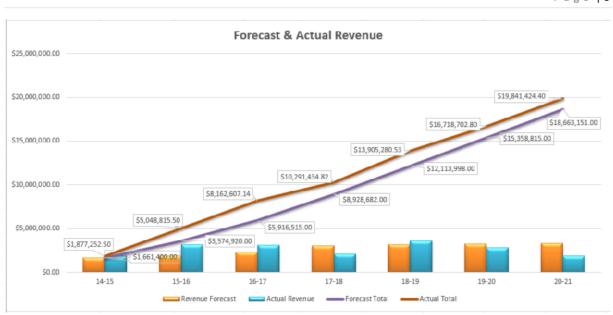


Figure 1: Forecast and actual revenue totals

The current voluntary offsets scheme has been very popular with developers across Ipswich. Overall, the demand for the offsets program has been quite consistent with the forecasted demand. This forecasted demand was based on the forecasted growth in new housing units. In order to project future demand, Council has used assumptions contained within the earlier work undertaken by BMT WBM. This assumes 50% uptake of offsets within the eligible development area.

Liabilities

For each dollar collected, Council incurs pollutant reduction liabilities that must be achieved annually. The summary of these obligations is shown in Table 1 below.

Year	Contributions (\$)	TSS (kg/yr)	TN (kg/yr)	TP (kg/yr)	GP (kg/yr)
2014-2015	\$1,877,252.50	36,268.5	179.5	52.9	5,322
2015-2016	\$3,171,563.00	58,356.8	288.8	85.2	8,563.2
2016-2017	\$3,113,791.64	57,293.8	283.6	83.6	8,407.2
2017-2018	\$2,128,827.68	36,969.84	182.0	54.0	5,424.9
2018-2019	\$3,613,845.71	60,712.61	300.5	88.62	8,908.92
2019-2020	\$2,813,422.27	45,772.89	226.5	66.811	8,183.2
2020-2021	\$3,122,721.60	50805.03	251.46	74.15	7374.42
Total	\$19,841,424.4	346,179.47	1,712.36	505.281	52,183.84

Table 1: Voluntary contributions made and total pollutant liabilities incurred to date.

Water Quality Offset Projects

A number of water quality offset projects have been completed to date intended to discharge our liabilities. These projects have either been fully or partially funded by Stormwater Offsets funding. Projects undertaken include:

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- stabilisation of a tributary of Ironpot Creek (two different sections), a rapidly eroding waterway in Pine Mountain
- Pollard Park Naturalisation stabilisation and naturalisation of an eroding urban waterway and associated filtration systems
- Wallaby Ware Park channel improvement and bioretention basin
- Jim Donald Parklands constructed wetland and harvesting system (partial funding)
- · Redbank Recreation Reserve constructed wetland and harvesting system (partial funding)
- Small Creek channel naturalisation Stage 1
- Small Creek channel naturalisation Stage 2
- Stage Creek channel naturalisation Stage 3
- Fail Park Bioretention Basin
- Bob Titcombe Park Bioretention Basin
- Sarah Drive Park Bioretention Basin
- · Moodai Reserve Floodplain Re-engagement
- Water Smart Street Trees Refurbishment of 36 bipods
- Franklin Vale Creek Initiative Rural Revegetation Stage 1
- Franklin Vale Creek Initiative Rural Revegetation Stage 2

These projects have collectively ensured that we are well on our way towards meeting the majority of our obligations with respect to pollutant reductions, however Council still carries a deficit. Table 2 below contains a detailed account of reductions achieved per project. Specific details of these projects are contained in the appendices of this report.

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Project	TSS (kg/yr)	TN (kg/yr)	TP (kg/yr)	GP (kg/yr)
Ironpot Creek Stabilisation	10,170.00	2.90	0.50	-
Jim Donald Park Wetland & Harvesting	26,660.65	72.66	41.30	4,987.11
Redbank Rec Reserve Wetland & Harvesting	4,666.70	76.58	12.73	2,143.27
Wallaby Ware Park Bioretention	3,613.00	18.60	5.37	614.00
Pollard Park Stabilisation & Infiltration	33,000.00	79.00	48.80	9,148.00
Small Creek Stage 1, 2 and 3	131,932.3	538.3	227.8	47615.0
Ironpot Creek Stabilisation Stage 1	78,600	32.80	6.80	
Fail Park, Bob Titcombe, Sarah Drive and Moodai Reserve Bioretention	3,860.00, 6,570, 6,570, 10,003.00	21.10, 35.80, 40.30, 27.00	5.52, 9.46 10.80, 11.73	791.0, 1,120.00, 1,070.00, 898.00
Water Smart Street Trees	2,268.00	7.57	2.98	153.00
Franklin Vale Creek Initiative Stage 1	7,059	12	285	-
Franklin Vale Creek Initiative Stage 2	14,118	24	22	-
Total	339,090.65	988.61	690.79	68,539.38

Table 2: Pollutant reductions achieved per project, project cost and totals. TSS = Total Suspended Sediment, TN = Total Nitrogen, TP = Total Phosphorus, GP = Gross Pollutants

Table 3 below details Council's net position with regards to liabilities and the percentage of total liabilities accrued that have been met by projects implemented to date. It should be noted that Council is close to ensuring that all outstanding liabilities have been met, however a shortfall remains.

Pollutant Type	TSS (kg/yr)	TN (kg/yr)	TP (kg/yr)	GP (kg/yr)
Total Liabilities	346179.42	1713.37	505.29	52183.93
Credits	339,090.65	988.61	690.79	68,539.38
Outstanding Liabilities	7,088.77	724.76	-185.50	-16,355.45
% Target Met				

Table 3: Council's net position with regard to liabilities accrued and discharged

Whilst there is still a substantial shortfall for meeting our obligations, it is important to note the contribution of the Franklin Vale Initiative revegetation. This project has been heavily discounted based on an assumption of not meeting its full pollutant reductions for 20 years. As such, with no further investment made (and assuming no further revenue for the purpose of providing a snapshot in time) Council will continue to see increases in credits until at maturity the

^{*}Where projects have been partially funded, pollutant reductions have only been claimed for the purposes of the offsets program proportional to total project cost contributed by offsets funding.

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% target met is 167% TSS, 122% TN and 168% for TP. Under this framework, council will be at parity in 5 years for our limiting pollutant, TN.

Expenditure

Sixteen projects have been funded by water quality offsets contributions, which are either fully or partially complete. Table 4 provides a detailed account of stormwater quality offsets expenditure and expenditure type. It should be noted that pollutant claims have only been made proportional to the percentage of the project contributed by water quality offset contributions.

	Administrative				Offsets contributed
Project	Overheads	Design	Construction	Maintenance	totals
Jim Donald Regional Stormwater	\$121,858.20	\$85,750.00	\$734,613.79	\$23,918.35	\$966,140.34
Wallaby Ware Park Bioretention	\$8,086.00	\$20,265.00	\$170,363.54	\$3,185.22	\$201,899.76
Pollard Park Channel Naturalisation	\$23,682.00	\$60,680.88	\$533,631.34	\$6,742.44	\$624,736.66
Ironpot Creek Stabilisation	\$3,112.70	\$33,551.00	\$81,520.00	\$2,000.00	\$120,183.70
Small Creek Naturalisation (Stage 1)	\$109,918.00	\$323,860.09	\$3,755,694.90	\$136,113.12	\$4,325,586.11
Small Creek Naturalisation (Stage 2)	\$208.43	. ,	\$1,487,312.54	\$57,000	\$1,544,520.97
Small Creek Naturalisation (Stage 3)	•	Ć150 245 00	\$924,813.90	\$0	\$1,111,928.17
Redbank Rec Reserve Wetland	\$36,869.27 \$12,117.00	\$150,245.00 \$1,500.00	\$265,050.00	\$79,355.00	\$358,022.00
Ironpot Creek Stabilisation Stage 1	\$23,002.70	\$33,551.00	\$285,469.05	\$2,006.30	\$344,029.05
Fail Park, Bob Titcombe, Sarah Drive, Moodai	\$2,769.02, \$2,769.02, \$2,769.02 and \$2,769.02	\$172,170.00	\$904,939.00	\$0 \$0 \$0 and \$0	\$1,088,185.08
Reserve Water Smart Street Trees	\$2,763.02	\$172,170.00	\$96,720.00	\$0.00	\$96,720.00
Franklin Vale Initiative Stage 1		-	\$385,772.00	\$59, 841.00	\$443,588.00
Franklin Vale Creek Initiative Stage 2		_	\$98,138.00	\$4,480.00	\$102,180.00
Totals	\$349,930.38	\$881,572.97	\$9,724,038.06	\$374,641.43	\$11,330,768.9

Table 4: Total water quality offsets expenditure

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To inform future planning and matters such as a review of the offsets contribution rate, project costs have been categorized as administrative overheads, design, construction and maintenance. Figure 2 below shows this breakdown of costs. As projects mature and enter the maintenance phase, it is expected that the maintenance costs will increase as a percentage of total expenditure.

Table 4 below includes a summary of expenditure of project works to date and the percentage of contributions spent.

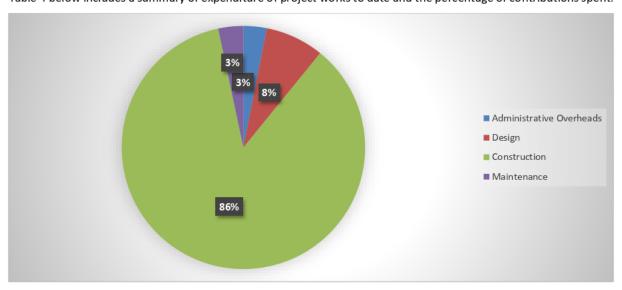


Figure 2: Expenditure categories as percentage of total offsets expenditure.

Offset Locations

In order to adequately consider the success of the program and understand environmental equivalence, spatial separation is a key factor to be considered. Under the Implementation Plan developed, equivalence has been proposed to be measured at the downstream extent of the LGA, however to understand local benefits and impacts, analysis has been undertaken at a local catchment level. An analysis of liabilities incurred within local creek and river catchments as a percentage of total liabilities has been undertaken, the results of which are depicted in Figure 3 below. This highlights spatially where offset impacts are greatest and where delivery sites should be located to most effectively account for spatial separation.

Figure 5 below shows the existing status of TSS liabilities or net benefits by catchment. Whilst all pollutants are slightly different, TSS is a good indicator as to where offsets projects have been spent and the net impact on the catchment.

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Catchment	Project	TSS (kg/yr)	TN (kg/yr)	TP (kg/yr)	GP (kg/yr)
Ironpot Creek	Ironpot Creek Stabilisation	10,170.00	2.90	0.50	-
Ironpot Creek	Ironpot Creek Stabilisation Stage 1	78,600	32.80	6.80	-
Bundamba Creek	Jim Donald Park Wetland & Harvesting	26,660.65	72.66	41.30	4,987.11
Bundamba Creek	Fail Park Bioretention	3,860.00	21.10	5.52	791.00
Goodna Creek	Redbank Rec Reserve Wetland & Harvesting	4,666.70	76.58	12.73	2,143.27
Ironpot Creek	Wallaby Ware Park Bioretention	3,613.00	18.60	5.37	614.00
Ironpot Creek	Water Smart Street Trees Pine Mountain	2,268.00	7.57	2.98	153.00
Pollard Park	Pollard Park Stabilisation & Infiltration	33,000.00	79.00	48.80	9,148.00
Deebing Creek	Small Creek Stage 1, 2 and 3	131932.3	538.3	227.8	47615.0
Mihi Creek	Bob Titcombe Park Bioretention	6,570.00	35.80	9.46	1,120.00
Woogaroo Creek	Moodai Reserve	10,003.00	27.00	11.73	898.00
Bremer River	Sarah Drive Bioretention	6,570.00	40.30	10.80	1,070.00

Table 5: Credits (pollutants reduced) by catchment.

The net position in terms of surpluses and liabilities by catchment is shown in Figure 3 and 4 below. This highlights those catchments that have suffered a net impact and those that have received a net benefit.

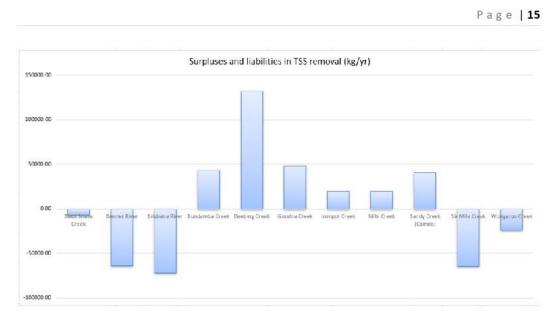


Figure 3: Outstanding liabilities and surpluses in TSS (kg/yr)

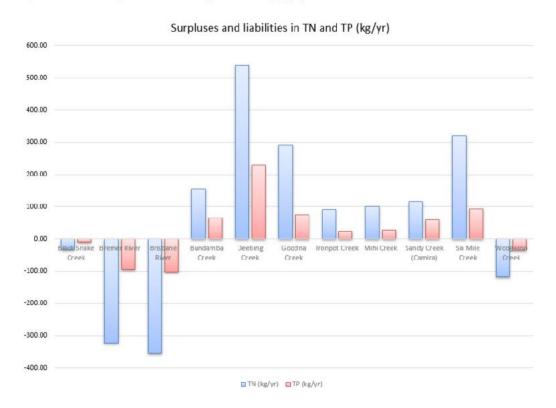


Figure 4: Outstanding liabilities and surpluses in TN and TP (kg/yr)

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Program Efficiency

Under the program rules currently established, Council has achieved a high level of efficiency of project delivery, with a higher pollutant reduction per dollar than required to achieve environmental equivalence under the established program rules.

Many of the projects undertaken have used up some of the least constrained sites that offer legitimate opportunities for integrated stormwater management, delivering multiple benefits to the community. Whilst there are some sites available where bioretention basins could be constructed at end of pipe, these are little better than what is typically being delivered on development sites and do not resolve the challenges that were the catalyst for the development of the offsets scheme. To continue to provide value through the program, serious consideration must be given to extending the search for available sites to private land and easements. However, such a change will significantly increase the costs of the program once land acquisition becomes necessary. The contribution rate may need to be reviewed in light of this fact to account for purchase of land.

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Recommendations

The early success of the offsets program is likely to be short lived as a consequence of reduced economies of scale associated with development of increasingly constrained sites. Developing projects in tandem with other major capital projects offers some potential to continue to achieve economies of scale, however these opportunities are generally ad-hoc and still require that suitable space is available for treatment.

To ensure that Council is able to continue to efficiently meet its liabilities and eliminate the existing shortfall in pollutant reductions achieved, a review and update of the program's implementation plan has been conducted to acknowledge the efficiency of the program going forward. A number of recommendations have been provided to Council. These recommendations are summarised in Appendix N.

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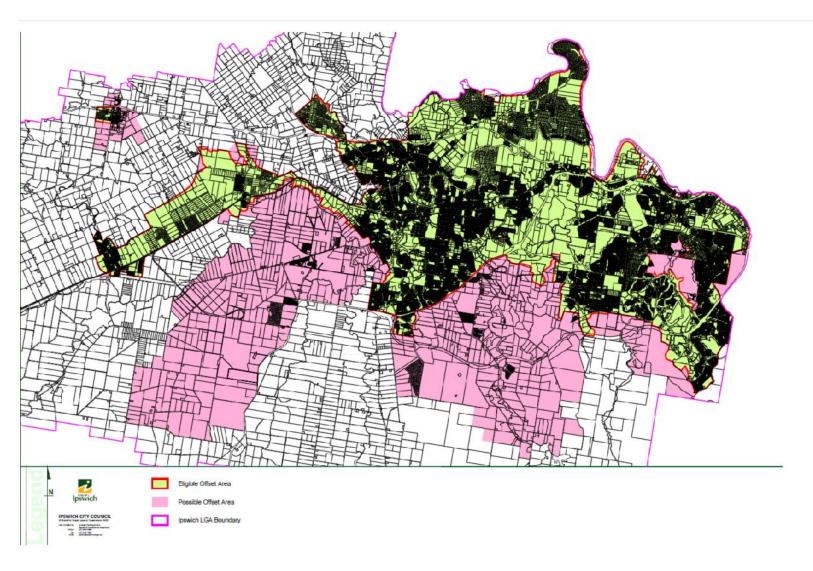
Conclusion

The water quality offset program has achieved a high level of efficiency of pollutant removal per dollar spent to date, highlighting the potential of such a scheme to deliver additional benefits. Having completed sixteen projects either completely or partially funded by stormwater quality offsets, Council has already conducted a thorough review of the program's implementation plan in 2020. These projects have collectively gone a long way towards achieving our pollutant reduction obligations, achieving at worst 80% reduction of our total liabilities accrued under the scheme. This has been achieved with a high level of efficiency, removing more pollutants per dollar spent than required to achieve equivalence. However, Council still carry liabilities that are yet to be met, and it is expected that it will be more difficult moving forward to achieve environmental equivalence as cost effective investment sites are exhausted. This trend has becoming apparent as investment sites have become increasingly difficult to find.

The program has enabled a holistic view of stormwater and waterway management, delivering multiple benefits to Council and the community that transcend water quality outcomes. The high calibre of our projects have been recognized through numerous awards and commendations from industry bodies including Stormwater Queensland, the Australian Institute of Landscape Architects, the River Basin Management Society, Healthy Land and Water and the Minister's Urban Design Awards.

The water quality offsets program is at a level of maturity that makes it appropriate to progressively undertake improvements and optimize the program moving forwards. Last year's review process which provided reachable recommendations is a huge first step towards the continuation of excellent delivery, whilst acknowledging the finite number of potential delivery sites. Whilst some challenges have been identified, these can be overcome to continue to effectively discharge the obligations accrued under the scheme in a responsible manner, whilst optimizing our approach to water quality improvement and waterway management.

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Appendix B – Ironpot Creek Stabilisation

Location: Walter Zimmerman Park, Pine Mountain

Catchment: Ironpot Creek

Works: Construction of rock chute to stabilise a rapidly eroding head cut.

Project Partners: Alluvium Consulting

Pollutants reductions:

TSS - 10,790kg/yr

TN - 2.9kg/yr

TP - 0.5kg/yr

Site Context:

Ironpot Creek is a rapidly eroding waterway in the Bremer River River Catchment. The upper catchment has experienced severe degradation in the years since development in the early 1990's. Some of this disturbance may have been instigated off the back of clearing and the construction of the original Brisbane Valley railway line, however a commencement date has been difficult to determine. Despite retaining a high level of vegetative cover, once the top soil horizons were disturbed, flows have been able to come into contact with the dispersive sub soils, instigating the process of rapid waterway incision and instability.

Following urban development around the waterway increases in runoff volume and concentration of runoff instigated a second wave of erosion. This rapid erosion is now threatening properties and is requiring stabilisation.



Exposed root structure of tree stands testament to the erosion that has occurred around the tree – a common site in Ironpot Creek.

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Example of an eroded bank in Ironpot Creek

Project Details:

Alluvium Consulting were commissioned to assist Council to determine a stabilisation strategy that worked with natural processes to provide improved stability of the waterway, which was threatening properties and providing a major sediment source to the downstream waterways. The project developed a strategy to reduce the grade of overly steepened sections of the waterway through construction of key bed control structures. These structures were designed to reduce the stream power and erosion potential behind the structure, while managing increased velocities over a hardened portion of the waterway. This approach will ultimately result in bed raising, decreasing susceptibility of head cut, bed incision and increasing instability of the waterway.

A Hec-Ras model was developed including key structures and erosion potential both pre and post intervention were determined. The difference between the two represented the pollutant abatement achieved through the works. Large vertical unstable banks have been proposed to be battered back to a stable 1:3 grade. Soil samples were taken to determine the fine particle (suspended) fraction of sediment (ie TSS) and the amount of TN and TP in the soil sample. This allowed a calculation of pollution abatement following the works.

Only the first phase of works have been undertaken, resulting in the abatement of 10,170kg/yr of sediment. Two further reaches are proposed to be stabilised, which will prevent 117,800kg/yr of sediment, 82kg/yr TN and 17kg/yr TP from entering our waterways.



Completed rock chute at Ironpot Creek, stabilising an actively eroding gully.

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Appendix C – Wallaby Ware Park Infiltration Basin

Location: Wallaby Ware Park, Brassall

Catchment: Ironpot Creek

Treatment type: Construction of vegetated channel and stormwater filtration

basin

Project Partners: Engeny Water Management

Pollutant reductions:

TSS - 3,613kg/yr

TN - 18.6kg/yr

TP - 5.37kg/yr

Site Context:

Ironpot Creek is a tributary of the Bremer River. It's upper reaches are severely eroded, while the lower reaches have suffered channel incision with subsequent instability problems. An open channel was flows through Wallaby Ware Park that was overly steep and subject to consistent erosion.

Project Details:

The channel grade was reduced whilst the capacity increased to a 1% AEP event. A bioretention basin was constructed inclusive of a saturated zone with temporarily elevated water level. This is intended to provide moisture to the root zones in dry weather periods. Post establishment, the permanent water level can be reduced to a lower permanent pool depth to eliminate any concerns relating to nutrient leaching, whilst still providing moisture to the root zone via wicking.



Headwall & channel prior to works being undertaken.

Lessons learned:

Pinning jute mat in filter media with is problematic when underlain by thick sugar cane mulch. This causes the matting and mulch to lift during rain events, and smothers tube stock when waters recede. The resulting loss of vegetation set the system back about 12 months.

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Channel and filtration basin 12 months post works completion.

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Appendix D – Pollard Park channel naturalisation & filtration basins

Location: Pollard Park, Camira

Catchment: Sandy Creek (Camira)

Treatment Type: Channel naturalisation & filtration basins

Project Partners: Alluvium Consulting

Pollutants Removed:

TSS - 33,000kg/yr

TN - 79kg/yr

TP - 48.8kg/yr

Site Context:

An overland flow path in Pollard Park has an extensive history of erosion and rectification by Council maintenance crews. The soils are sandy, and a large head cut is prone to forming. In addition to conveying a 120Ha external catchment, a number of local stormwater pipes enter the park.

Project Details:

Stormwater filtration basins have been constructed using the low nutrient in-situ sandy soils. These have been modelled as bioretention basins in MUSIC using low

hydraulic conductivity values that accord with soil testing undertaken. The channel has been re-constructed to a reduced grade with additional capacity, incorporating additional aquatic macrophytes and trees, rock pool and riffle sequences. These assist to reduce the stream power in the waterway below a critical level above which erosion is likely to be a feature of the waterway.



Erosion problems prevalent in Pollard Park pre-works contributing to elevated sediment & nutrient exports from the site.

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Figure 5: Pollard Park post channel naturalisation works completion.

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Appendix E – Small Creek Stage 1 and 2

Location: 39 & 41 Briggs Road, Raceview

Catchment: Deebing Creek

Treatment Type: Channel naturalisation

Project Partners: Bligh Tanner, Landscapology, Streamology

Pollutants Removed:

TSS - 81,000kg/yr

TN - 647kg/yr

TP - 112kg/yr

Site Context:

Small Creek was once a meandering stream characterised by a chain of ponds. It was modified in the early 1980's to be straightened and concreted, to improve the efficiency of the channel and move water quickly out of the waterway corridor. This also eliminated valuable ecosystem services in terms of water filtration, air cleansing and ambient air temperature reduction.

Project Details:

Through the offsets program, Council has a unique opportunity to naturalise Small Creek, turning it back into a living waterway. The project will promote groundwater recharge, recreate habitat for both terrestrial and aquatic fauna and flora and improve water quality. Importantly it has represented the desires of the community and provided opportunities to improve amenity and engage the community in the waterway.

Stage 1 saw the removal of over 30,000m3 of soil and 150,000 plants planted. It is characterised by a meandering vegetated low flow channel, some larger ponds and rock chute grade control structures. Already wildlife is moving back into the waterway, with a variety of water birds, water bugs and fish being sighted in the waterway. The entire concrete channel was salvaged and re-used on site, retaining the embodied energy and improving sustainability credentials by reducing the amount of material sent to landfill and associated transportation.



Figure 6: Small Creek pre-naturalisation

Project Learnings:

The conceptualisation of Small Creek involved a unique co-design process, inviting the community and other stakeholders to have a say in how Small Creek would look, on site at Poplar St Park, Raceview. It generated ideas and aspirations, concerns and realities of maintaining the new creek. It bundled concept design

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and consultation into a seamless process that improved efficiency, provided transparency, was robust and rapid. The process was cheaper and faster than a conventional concept design process, and engaged the community in the project from early in the project. Additional stakeholders such as teachers and students of Bremer State High School and traditional owners were also engaged in the project. For further information and progress updates, visit www.ipswich.gld.gov.au/smallcreek.

Awards:

 Winner - National Landscape Award for Land Management, Australian Institute of Landscape Architects

- Winner Excellence in Strategic or Master Planning, Stormwater Queensland
- Winner Queensland State Award of Excellence for Land Management, Australian Institute of Landscape Architects
- Finalists Government Stewardship, Healthy Land and Water Awards
- Finalist River Basin Management Society Involving Community in Waterway Management
- Commendation Minister's Urban Design Awards

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Figure 7: Small Creek during a minor rain event

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Figure 8: Downstream reach of Small Creek

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Appendix F- Small Creek Stage 3

Location: Briggs Road, Raceview

Catchment: Deebing Creek

Treatment Type: Channel naturalisation

Project Partners: TLCC

Pollutants Removed total for Stage 1, 2 and 3:

TSS - 131,932.3 kg/yr

TN - 538.3 kg/yr

TP - 227.8 kg/yr

Site Context:

Small Creek was once a meandering stream characterised by a chain of ponds. It was modified in the early 1980's to be straightened and concreted, to improve the efficiency of the channel and move water quickly out of the waterway corridor. This also eliminated valuable ecosystem services in terms of water filtration, air cleansing and ambient air temperature reduction.

Project Details:

Through the offsets program, Council has a unique opportunity to naturalise Small Creek, turning it back into a living waterway. The project will promote groundwater recharge, recreate habitat for both terrestrial and aquatic fauna and flora and improve water quality. Importantly it has represented the desires of the community and provided opportunities to improve amenity and engage the community in the waterway.

Stage 3 saw the removal of over 5,690m3 of soil and 48,000 plants planted. It is characterised by a meandering vegetated low flow channel, some larger ponds and rock chute grade control structures. Already wildlife is moving back into the waterway, with a variety of water birds, water bugs and fish being sighted in the waterway. The entire concrete channel was salvaged and re-used on site, retaining the embodied energy and improving sustainability credentials by reducing the amount of material sent to landfill and associated transportation.



Figure 9: Small Creek pre-naturalisation

Project Learnings:

The conceptualisation of Small Creek involved a unique co-design process, inviting the community and other stakeholders to have a say in how Small Creek would

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look, on site at Poplar St Park, Raceview. It generated ideas and aspirations, concerns and realities of maintaining the new creek. It bundled concept design and consultation into a seamless process that improved efficiency, provided transparency, was robust and rapid. The process was cheaper and faster than a conventional concept design process, and engaged the community in the project from early in the project. Additional stakeholders such as teachers and students of Bremer State High School and traditional owners were also engaged in the project. For further information and progress updates, visit www.ipswich.qld.gov.au/smallcreek.

Awards:

- Winner National Landscape Award for Land Management, Australian Institute of Landscape Architects
- Winner Excellence in Strategic or Master Planning, Stormwater Queensland
- Winner Queensland State Award of Excellence for Land Management, Australian Institute of Landscape Architects
- Finalists Government Stewardship, Healthy Land and Water Awards

 Finalist - River Basin Management Society – Involving Community in Waterway Management



Small Creek Stage 3 - June 2021

· Commendation - Minister's Urban Design Awards

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Appendix G – Jim Donald Parkland Constructed Wetlands

Location: 22 Madden St, Silkstone

Catchment: Bundamba Creek

Treatment Type: Constructed wetland and stormwater harvesting

Project Partners: Engeny Water Management

Pollutants Removed:

TSS - 26,660.65 kg/yr

TN - 72.66 kg/yr

TP - 41.3 kg/yr

Site Context:

Jim Donald Park contains two overland flow paths draining the Suburbs of Eastern heights and Newtown. The flowpaths are boggy and weed riddled with a consistent baseflow. A mixed commercial, residential, parkland and sporting field development has occurred adjacent to the site.

Project Details:

A constructed wetland has been designed and built to treat stormwater from the contributing catchment. The wetland is offline from the major flowpath, to protect it from high flows and sediment. In addition to the treatment functionality provided by the constructed wetland, a solar harvesting installation has been provided to irrigate the new playing fields, reducing Council's demand on potable water, diversifying supply in times of drought and enhancing amenity and wildlife habitat for the parkland. The wetland is a first stage of a larger master plan for the parkland.

Lessons Learned:

Planting density needs to be higher in the channel and around the wetland periphery to improve shading and suppress weed growth. Shade trees should be provided closer to the permanent pool level.

Building phase development needs to be closely managed to ensure compliance with sediment and erosion control measures.

Awards:

Winner – Excellence in Integrated Stormwater Design, Stormwater Queensland



Figure 9: Jim Donald Parkland wetland

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Appendix H – Redbank Recreation Reserve Harvesting and Wetland

Location: Redbank Plains Recreation Reserve - 100 Cedar Road Redbank Plains

Catchment: Goodna Creek

Treatment Type: Constructed Wetland and stormwater harvesting

Project Partners: BMT WBM

Pollutants Removed:

TSS - 4,666.70 kg/yr

TN - 76.58 kg/yr

TP - 12.743 kg/yr

Site Context:

The Redbank Plains Recreation Reserve sits within the suburb of Redbank Plains, a developing catchment with a lot of infill medium density development occurring. It adjoins (and treats) the newly expanded Redbank Plains Road and shopping centre.

Project Details:

This integrated project was constructed in conjunction with the widening and duplication of the Redbank Plains Road project. It includes detention functionality to reduce flooding in the local area in addition to containing a constructed wetland for water quality treatment prior to harvesting stormwater for irrigation of the sports fields. The harvesting pump is powered by solar energy and reduces Council's demand on potable water whilst enhancing amenity and wildlife habitat for the parkland.

Lessons Learned:

This project was able to achieve a very high efficiency per dollar spent owing to coupling it with a major infrastructure project, which allowed economies of scale to be achieved.

Birds have proved to be a challenge over the site, reducing the vegetation cover. An appropriate bird management regime is yet to be discovered.

Awards:

Highly Commended – Excellence in Stormwater Infrastructure, Stormwater Queensland



Figure 10: Redbank Plains Wetland and detention basin

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Appendix I – Fail Park Bioretention Basin

Location: Fail Park - 60 Gledson Street, North Booval

Catchment: Bundamba Creek Sub catchment

Treatment Type: Bioretention Basin

Project Partners: E2Design Lab, AWL

Pollutants Removed:

TSS - 3,860.00 kg/yr

TN - 21.10 kg/yr

TP - 5.52 kg/yr

Site Context:

The Fail Park sits within the suburb of North Booval, located downstream of an existing 750mm diameter pipe and headwall. The fully developed external catchment is 6 hectares and comprised of medium to low density residential land use.

Project Details:

This project was constructed as a water quality improvement system providing a suite of benefits for the greater community as well as the area's receiving environments and waterways. It provides water quality treatment of the connected residential catchment prior to discharging into the receiving environment. The system integrates with the existing park landscape through the extension of riparian planting which respond to existing topography. It provides a large and diverse landscape feature incorporating vegetated swales, bioretention basins, rock chutes and overflow control weirs.



Fail Park site in 2020.



Fail Park Bioretention Basin Project – June 2021

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Appendix J – Bob Titcombe Park Bioretention Basin

Location: 28 A Glenelg Drive, Brassall

Catchment: Mihi Creek Sub-catchment

Treatment Type: Bioretention Basin

Project Partners: E2DesignLan and AWL

Pollutants Removed:

TSS - 6,570 kg/yr

TN - 35.80 kg/yr

TP - 9.46 kg/yr

Site Context:

The project site is located downstream of an existing grated stormwater structure with 3x750mm diameter pipes and headwall. The existing channel was unstable due to upstream urbanisation. The fully developed external catchment is 8.5 hectares and comprised medium to low density residential land use.

Project Details:

This project was constructed as a water quality improvement system providing a suite of benefits for the greater community as well as the area's receiving environments and waterways. An objective of this project is to restore some of the connectivity by reinstating the channel including to address existing scour points to protect the proposed stormwater treatment asset and existing vegetation. The system includes an inlet pond, offline bioretention, minor channel reprofiling and scour remediation downstream from the proposed bioretention system.



Bob Titcombe Park, Brassall - 2020



Bob Titcombe Park Bioretention Basin - June 20211

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Appendix K – Sarah Drive Park Bioretention Basin

Location: Sarah Drive Park, Yamanto

Catchment: Bremer River

Treatment Type: Bioretention Basin

Project Partners: E2DesignLab and AWL

Pollutants Removed:

TSS - 6,570.00 kg/yr

TN - 40.30 kg/yr

TP - 10.80 kg/yr

Site Context:

The Sarah Drive Park is located on the corner of Sarah Drive and Jacaranda Drive in Yamanto. The adjoining catchment is stable and is classified as low-density residential use. The existing drainage channel was highly modified and densely vegetated with Typha eventually discharging to the Bremer river. It adjoins (and treats) the newly expanded Redbank Plains Road and shopping centre.

Project Details:

This is a retrofit project constructed as a water quality improvement system providing a suite of benefits for the greater community as well as the area's receiving environments and waterways. The design for this park has been an opportunity to enhance the amenity of the park through native vegetation and nature-based passive education. The system includes an inlet pond to capture sediment and deliver flows evenly to the bioretention system.



Sarah Drive Park Bioretention Basin - June 2021

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Appendix L – Moodai Reserve Floodplain Re-engagement

Location: Moodai Reserve – 269 Jones Road, Bellbird Park

Catchment: Woogaroo Creek Sub-catchment

Treatment Type: Floodplain Re-engagement

Project Partners: E2DesignLab, AWL

Pollutants Removed:

TSS - 10,003.00 kg/yr

TN - 27.00 kg/yr

TP - 6.80 kg/yr

Site Context:

The project site is an existing Melaleuca forest with an area of approximately 5000m2. The site is an undeveloped reserve and is bound by Jones Road to the North-West, and a trafficable maintenance track to the remaining perimeter. An external catchment of approximately 98.6 hectares drains through the site via two open vegetated channels. The majority of the catchment is developed with a range of low-medium density housing and open space.

Project Details:

This project was constructed as a water quality improvement system providing a suite of benefits for the greater community as well as the area's receiving environments and waterways. The completed works included four rock weirs and a rock spillway within the existing drainage channel, and excavation to reduce the height of the existing maintenance track.



Moodai Reserve Floodplain re-engagement – June 2021 – weir constructed

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Appendix M – Water Smart Street Trees – Biopod Refurbishment

Location: Pine Mountain – Shilou Court, Chestnut Drive, Josette Place and Senna

Close

Catchment: Ironpot Creek

Treatment Type: Water Smart Street Trees (36 biopods)

Project Partners: Australia Wetlands Landscapes

Pollutants Removed:

TSS - 2,268.00 kg/yr

TN - 7.57 kg/yr

TP - 2.98 kg/yr

Site Context:

Water smart street trees are an innovative way of using stormwater to nourish street trees. The system works by diverting stormwater runoff from the kerb into biopods, where the water filters to the root zone. The initiative has multiple benefits, from reducing water usage through to removing pollutant loads from our waterways.

Project Details:

The project consisted in rectifying 36 biopopds planting them with a variety of native tree species *Eleocarpus reticulatus* (Blueberry Ash), *Buckinghamia celsissima* (Ivory Curl), *Alectryon coriaceus* (Beach Bird's Eye) and *Tristaniopsis laurina* 'Lucious' (Water Gum) with *Ficinia nodosa* as the

groundcover. A condition assessment was conducted prior to the planting stage.

The residents immediately impacted by these works were notified face to face and provided a factsheet regarding the benefits

Lessons Learned:

Consideration for potential signage and safety fence depending on the type of system to be installed.



Pre-construction – Shiloh Court 2020



Refurbished Biopod June 2021

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Appendix N – ICC Stormwater Quality Offsets Implementation Plan review

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Appendix O – Summary of Recommendations from the ICC Stormwater Quality Offsets Implementation Plan review



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1. Introduction

1.1 Background

New urban development in Queensland is required to manage urban stormwater to meet the water quality requirements of the *State Planning Policy* (SPP) (Department of Infrastructure, Local Government and Planning, 2017). This typically results in the delivery of on-site stormwater treatment devices such as bioretention basins within new urban development.

The SPP also supports flexibility in the adoption of 'innovative and locally appropriate solutions for stormwater management'. To facilitate the pathway for innovative solutions to manage stormwater quality in Ipswich, the *Ipswich Planning Scheme Implementation Guidelines No.* 24 (IG24) (Ipswich City Council, 2013) establishes 'Voluntary Water Quality Nutrient Offsets Payments' as an alternative to site-based treatment for eligible developments. The intent of IG24 is to minimise the impacts on waterways as well as minimise issues which were typically associated with poorly delivered on-site stormwater quality solutions by developers.

The Ipswich City Council Stormwater Quality Offsets Implementation Plan (BMT WBM, 2015) was developed to assist Council to determine the most appropriate and cost-effective use of the voluntary offset contributions. This plan provided:

- · Strategic intent for stormwater offsets in Ipswich
- Eligibility maps (which were superseded by Council's maps)
- · Expenditure rules for how and where offset funds could be spent
- Cost-effectiveness and reliability of different water quality improvement options
- · Decision support system to help prioritise site solutions
- Investment strategy for the next 5 years
- · Reporting and evaluation systems.

Ipswich City Council's stormwater quality offsets program is one of the most mature programs in the region and has set a benchmark for other offsets programs in South East Queensland. It has been

overwhelmingly popular with developers and the funds have been spent on a number of successful off-site projects including:

- · Small Creek naturalisation
- Franklin Vale Initiative rural revegetation program
- Bioretention retrofits in urban parks
- Wetland and stormwater harvesting projects for irrigation of sporting ovals

The number of potential offset project sites however is starting to reduce while the amount of offsets contributions is not. This is a potential issue as it increases potential liability for Council.

Council's offsets program has generated a wealth of data and learnings since its inception which can be reviewed to understand how effective it has been to-date and to help identify areas of improvement moving forward.

1.2 Purpose and report structure

The main purpose of this implementation plan is to present the outcomes and recommendations based on a review of the existing stormwater offsets framework, and to present an updated investment strategy with new offset projects for Council. As part of the project, a number of priority actions were undertaken and are presented in this report:

- 1. Review of strategic intent (Attachment 1)
- 2. Review of eligibility mapping (Attachment 2)
- 3. Review of expenditure rules (Attachment 3)
- 4. Review cost-effectiveness and reliability of stormwater water quality improvement options (Attachment 4)
- Prepare an updated investment strategy with new offset projects for Council (Section 3)
- Document implementation plan with key recommendations (this document)

The document is split into 3 main parts:

- Section 2 Current context of stormwater management in Ipswich and recommended changes to stormwater offsets framework
- Section 3 Proposed new offsets projects
- Attachments Review of existing stormwater offsets framework

1.3 Project approach

Figure 1 presents a summary of the key steps undertaken in the preparation of this Implementation Plan. This shows the 2 main sections of the project which were to review the current offsets framework and to then identify new projects as part of the investment strategy. Council staff from multiple departments were engaged throughout the process in workshops to test and gather ideas. An external review by Water by Design (WBD) was also undertaken on the draft report.



Figure 1

Collaborative approach undertaken in the development of the Implementation Plan

2. Stormwater quality management and recommended use of offsets in Ipswich

2.1 Ipswich waterway health and urban stormwater management

Urban stormwater is the runoff generated from impervious surfaces (e.g. roofs, roads, car parks) and pervious surfaces (e.g. open space, parks and yards) in urban areas. Urban stormwater flows enter waterways at increased volumes and velocities compared to natural flows which leads to bed and bank erosion as well as flooding. They also contain increased pollutants associated with urban land uses which negatively impacts the water quality of waterways. The traditional approach to stormwater management has resulted in the systematic dehydration of our urban landscapes. In addition to poor waterway health outcomes, it has resulted in drier and hotter landscapes, reduced amenity and poor liveability outcomes. This reduces climate resilience and increases vulnerability of citizens to the impacts of extreme heat.

Water Sensitive Urban Design (WSUD) is an approach that aims to integrate urban water flows (including stormwater and wastewater) to reduce impacts on waterways and improve the liveability and amenity of the local urban area.

Solutions include vegetated stormwater treatment (such as bioretention, wetlands etc) and treatment and re-use of water (e.g. rainwater tanks and stormwater harvesting) (see Figure 2). Application of water sensitive urban design not only offers to preserve and improve the health of our waterways, but plays a critical role in preserving the liveability of our urban areas, particularly in cities such as Ipswich that are highly vulnerable to the impacts of extreme heat.

As population continues to grow in Ipswich, the pressure on waterways associated with urban development will also increase. While new development is required to minimise their impact on waterway health by achieving the water quality objectives in SPP, the solutions delivered are often not well designed or delivered. This has resulted in poor urban design outcomes as well as an increased maintenance and rectification costs for Council.

Council has several strategies which identify how stormwater can be managed to provide multiple outcomes including improved waterway health, flood mitigation, passive irrigation etc.

These plans include:

- Integrated Water Strategy, 2015
- Waterway Health Strategy, 2020
- Corridor Plans (Bundamba Creek, Iron Pot Creek, Deebing Creek and Black Snake Creek)
- · Bremer Catchment Action Plan
- . Bremer River and Waterway Health Report, 2020
- Bremer Integrated Catchment Plan (in development)

The vision of the Waterway Health Strategy is

Waterways and wetlands are rehabilitated and protected to provide ecological sustainability by providing good water quality, habitat and fauna connectivity, recreational outcomes and mitigation of major storm and flood events.

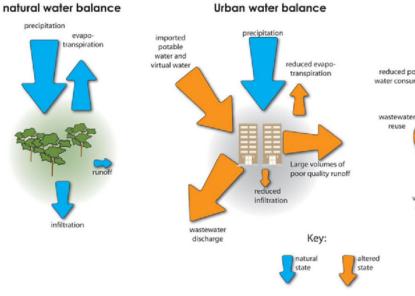
These strategies and plans identify a range of stormwater management solutions which would provide multiple benefits and could be delivered as part of an offset program.

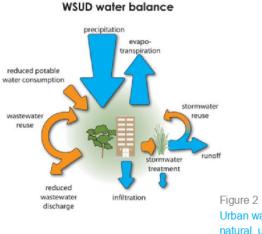
2.1.1 Sub-catchment priority actions

The Waterway Health Strategy 2020 collated all recent data on waterway health across Ipswich to identify priority actions at a subcatchment level. Data which has been considered as part of these sub-catchment condition summaries includes:

- Stream order mapping
- · Fish and platypus studies
- · Microbial pollution studies
- · Waterway condition and geomorphic assessments
- Creek corridor plans (Black Snake Creek, Bundamba Creek, Iron Pot Creek, Deebing Creek)
- Flood and floodplain management studies

Table 1 provides a summary of the sub-catchment condition and priority targeted actions from the Waterway Health Strategy 2020 documents which might be relevant for stormwater quality offsets





Hoban & Wong, 2006

Urban water balance comparing natural, urban and WSUD scenarios. The WSUD scenario shows how stormwater treatment and re-use can be used to reduce runoff entering waterways.

Table 1
Summary of sub-catchment condition and priority actions taken from the Ipswich Waterway Health Strategy Background Report 2020 and Waterway Health Strategy 2020

Catchment	Sub-catchment	,					
		Channel	Riparian	Floodplain	Community	relevant for stormwater offsets	
Bremer River	Bremer River (Estuary)	Major instabilities in CBDLimited aquatic habitatNative and pest fishPoor water quality	Variable widths	Mixed land uses Heavily impacted wetlands	Accessible waterway	 Chanel stabilisation Riparian revegetation and weed control 	
	Bremer River (freshwater)	Generally stableModerate aquatic habitatNative and pest fishGood water quality	VariableWeeds present	Mostly cleared for rural purposesPalustrine wetlands	Mostly private	Channel stabilisationRe-engage floodplainAcquisition of wetlandsLandholder partnerships	
	Bundamba Creek	 High risk erosion areas Good aquatic habitat Platypus detected Native and pest fish Good water quality 	Variable widths	 Mostly cleared and developed Wetlands including Daly's Lagoon 	Important cultural sites Accessible areas of waterway	 Channel stabilisation Riparian improvement works Ensure appropriate development outcomes 	
	Deebing Creek	 Major erosion areas in upper catchment Sandslug present Moderate aquatic habitat 	Mostly in good condition	Large areas of bushland	Important cultural sitesAccessible areas	 Address major erosion (mid catchment) Re-instate Small Creek Ensure appropriate development outcomes 	
	Franklin Vale Creek	Major instabilities in upper areas	Poor to moderate condition	Mostly clearedGood condition wetlands	Important cultural sites Mostly private	Channel stabilisationRiparian revegetation and weed controlFranklin Value Initiative	
	Iron Pot Creek	Major erosion in upper reachesGood aquatic habitat in areas	Mostly in good condition	Larea areas of bushland	Accessible areas	Channel stabilisation (upper catchment)Floodplain engagement (mid catchment)	
	Mihi Creek	Major erosion in upper catchmentModerate aquatic habitat	Mostly good condition	Mixed land uses	Important cultural history Accessible waterway	 Channel stabilisation with landholders (upper reaches) 	
	Purga Creek	Minor instabilitiesModerate aquatic habitatNative and pest fishGood water quality	Poor condition	Mostly clearedWetlands in good condition	Important cultural history Mostly private	 Floodplain re-engagement and revegetation 	
	Sandy Creek (Tivoli)	Generally stableModerate aquatic habitat	Variable condition	Mostly bushland	No community access	No actions	
	Warrill Creek	 Generally stable (erosion upstream of ICC) Moderate aquatic habitat Native fish present 	Moderate condition	Mostly clearedHigh value wetlands	Mostly private	 Floodplain re-engagement Wetland protection (with landholders) Retention and rehabilitation of lower order streams 	
	Western Creek	Minor instabilitiesModerate aquatic habitatNative and pest fishGood water quality	Poor to moderate condition	Mostly cleared	Important cultural sitesMostly private	Riparian vegetation	
Mid Brisbane River	Black Snake Creek	Widespread bed and bank erosionLimited aquatic habitatPoor water quality	Poor condition	Mostly cleared	Mostly private	 Channel stabilisation Riparian and floodplain revegetation 	
	Mid Brisbane River	Some major degradationNative fish presentModerate water quality	Poor condition	Mostly grassland and bushland	Accessible areas	 Sediment management on unsealed roads Bank stabilisation Weed management 	

Catchment	Sub-catchment	Condition				Priority targeted actions which may be
		Channel	Riparian	Floodplain	Community	relevant for stormwater offsets
Lower Brisbane	Goodna Creek	Relatively stableGood aquatic habitat	Condition varies	Mixed land uses	Cultural artefactsAccessible areas	Riparian revegetation and weed control
River	Lower Brisbane River	 Variable with some degraded areas Moderate aquatic habitat Good to moderate water quality Potential platypus detection 	Poor condition	Mostly grassland and bushland	Accessible areas	Channel stabilisation
	Sandy Creek (Camira)	Some active erosionPoor aquatic habitat	Moderate condition	Mostly clearedMapped wetlands	Important cultural sitesAccessible areas	Channel stabilisation
	Six Mile Creek	Bed and bank instabilitiesModerate aquatic habitat	Condition varies	Grassland and bushland areas	Cultural artefacts Accessible areas	Channel stabilisationPlatypus habitatRiparian revegetation
	Woogaroo Creek, including Mountain and Opossum creeks	Varied channel conditionModerate to poor aquatic habitat	Good condition	Mostly grassland and bushland	Important cultural sites Accessible areas	 Channel stabilisation Constructed channel improvements (sediment control) Riparian revegetation and weed control
Lockyer Creek	Lockyer Creek	 Variable with widespread degradation Variable aquatic habitat Some native fish present Moderate water quality 	Moderate to poor condition	Mostly grazing and bushland	Mostly private	Rural BMPs

2.3 Use of offsets to manage stormwater and improve waterway health

The use of stormwater quality offsets to help manage stormwater to improve waterway health has been adopted by a number of local Councils across Queensland including Logan and Mackay City Councils. There have been a number of documents developed by the State Government, Stormwater Queensland and Water by Design which aim to provide some guidance for the collection and use of these offsets

The Queensland Government developed draft implementation guidance for off-site stormwater quality management in 2018 to help set direction for the use of stormwater quality offsets to achieve the post construction phase compliance of the State Planning Policy State Interest Water Quality July 2017. It recognises that off-site solutions may be able to achieve this compliance as well as:

- · Achieve greater environmental outcomes
- · Reduce maintenance burden
- · Provide multiple benefits for the community

Stormwater Queensland also wrote a position statement on the collection and use of stormwater quality offsets in 2016 that represented feedback from its members.

Both documents recommend that stormwater offset programs should have the following:

- · Criteria on where off-site solutions will be considered. This should be based on appropriate total water cycle and catchment planning.
- . Spatial location of offset projects. Ideally these would be delivered in the same catchment to where the offset is being taken. They must impact on the same receiving waters.
- · Temporal and environmental equivalence. Solutions should preferably begin to offset the impact of development from commencement of the impact. The use of an offset ratio (e.g. 1.5 from the Qld Point Source Water Quality Offsets Policy) should also be considered.
- Offset charges Developer contribution metrics should be based on costing off-site implementation of offsets.
- Implementation plan This should outline demonstrated compliance, scheduling and timing of offset solution construction.

. Monitoring, evaluation and annual reporting - This should outline the location, type and size of offsets collected and projects delivered as well as assessment of the outcomes.

Water by Design recently developed recommendations for the update of the Queensland Planning Policy Water Quality State Interest. This Blueprint for Improving Waterway Management (2020) also identifies that offsets can be part of the solution, but these should be informed by a risk assessment of the catchments to prioritise where offsets should be allowed. It also recognises that the current approach to modelling pollutant load reduction targets in MUSIC do not encourage developers to deliver low impact design (e.g. reduced % impervious) and that new targets should be considered which promote the avoidance of stormwater generation on-site.

2.4 Urban stormwater quality management in **Ipswich**

2.4.1 Stormwater quality objectives for urban development

Implementation Guideline No. 24 (IG24) outlines the stormwater management requirements for development including stormwater quality and flow management. It is intended to provide the development industry with guidance on how the requirements for stormwater management in accordance with the State Planning Policy (SPP) and Planning Scheme Policy are to be met. Table 2 outlines the types of developments which are required to achieve the stormwater quality requirements which are shown in Table 3.

Thresholds for Stormwater Quality and Flow Management (from Implementation Guideline No. 24)

Development Type	Threshold			
Material change of use for urban purposes	 Includes newly constructed road (previously unformed road) exceeding 30m in total length¹. 			
	(b) Greater than 2500m² of land².			
	(c) 6 or more additional dwellings (attached or unattached).			
	(d) Located within an identified sensitive receiver area.			
	(e) Consists of 300m² or more uncovered³ impervious car park area including parking bays and circulation driveways for high pollutant generators such as Business Use - Fast Food Premises and Business Use - Service Station.			
	(f) Consists of 600m² or more uncovered³ impervious car park area including parking bays and circulation driveways for all other uses.			
Reconfiguration of a lot for urban purposes	(a) Includes newly constructed road exceeding 30m in total length1.			
	(b) Would result in 6 or more residential allotments or that provides for 6 or more dwellings.			
	(c) Involves greater than 2500m² of land² and will result in six or more lots.			
	(d) Located within an identified sensitive receiver area.			
	(e) Is associated with operational work disturbing greater than 2500m ² of land ² .			
Operational works for urban purposes	(a) Disturbing greater than 2500m² of land.			
	(b) Located within an identified sensitive receiver area.			

Water quality objectives (from Table 2.3.1 in Planning Scheme Policy 3 - General Works, Part 2, Stormwater Drainage)

Indicator	Reduction in the average annual pollutant load discharging from site			
Total Suspended Solids	80%			
Total Nitrogen	45%			
Total Phosphorous	60%			
Gross Pollutants	90%			

Council's voluntary stormwater offsets payment applies to post construction pollution reduction requirements for Total Suspended Solids (TSS), Total Phosphorus (TP) and Total Nitrogen (TN). Where a voluntary payment is made, developments must still achieve the following on-site:

- · stormwater quantity management requirements;
- · construction phase pollutants management and best practice erosion and sediment control:
- · management of gross pollutants; and
- · other stormwater quality requirements (eg hydrocarbons, metals, pathogens) as required by the Environmental Protection Act 1994

. Where a terminating road with no potential for further ext

A carpark is deemed covered where the carpark is integral to a permanent structure (for example a basement carpark) and not directly exposed to rainfall or runoff.

Covered carpark excludes semi-permanent shade tipe structures.

2.4.2 Eligible development for voluntary stormwater offsets

Urban development which exceeds the thresholds in Table 2 must also meet some other criteria to be eligible for stormwater offsets:

- Located within the Eligible Offset Area (see Figure 3)
- Located within the Possible Offset Area (see Figure 3), subject to Council agreement. IG24 outlines the following conditions where this could be possible:
 - the catchment is mostly urbanised or is a small parcel of land within a broad land release area (in essence, infill development); or
 - the waterway downstream is in a poor condition; or
 - the waterway downstream is not sensitive to hydrologic change resulting from development (ie no risk of increased waterway erosion); and
 - the voluntary payment will contribute to an improved subcatchment solution.

Figure 4 presents a flowchart from IG24 which summarises the development thresholds and requirements for stormwater management. This identifies that if developments are within a sensitive receiving area that a stormwater management plan is required and that voluntary offsets payments are not possible.

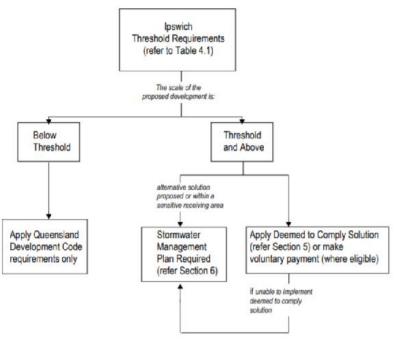


Figure 4
Threshold and development requirements flowchart (from ICC Implementation Guideline No. 24)

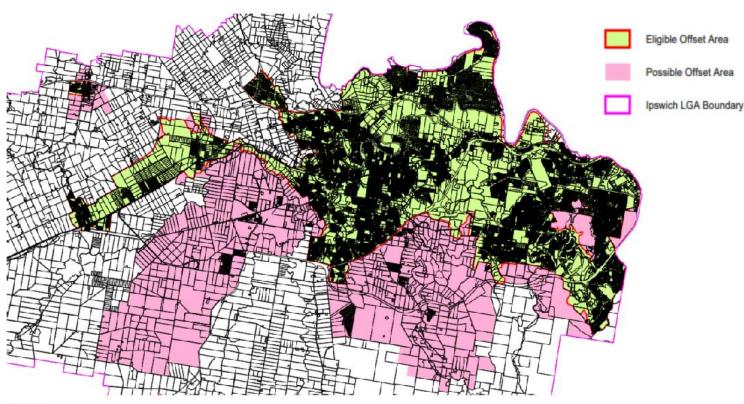


Figure 3

Voluntary Stormwater Quality Offsets Map showing areas eligible (yellow), areas which offsets are possible (pink) and remaining areas which are not eligible for offsets (white) (from ICC Implementation Guideline No. 24 Appendix A)

Text box 1 outlines the description and requirements for sensitive receiving areas in IG24. These sensitive environments can be identified in Council planning studies and can include waterway corridors and natural wetland catchments.

Additional information on the review of Council's offsets eligibility criteria is provided in *Attachment 2 – Eligibility for stormwater quality offsets review*.

TEXT BOX 1 - Sensitive Receiving Areas (from Section 3.2.1 Implementation Guideline No.24):

For the purpose of applying this Implementation Guideline, specific catchments may be identified as sensitive receiving areas. These have a high sensitivity to producing adverse outcomes in terms of water quality or water quantity management with small or incremental changes from development activity. Additionally, such areas may include catchments where discharge is to an unlined gully or stream and in-situ soil conditions which are determined to be of a high dispersion classification.

Where sensitive receiving areas exist, the proposed development must demonstrate negligible change in terms of water quality and flow management measures, ie maintain pre-development conditions in terms of natural hydrology and environmental flows.

The identification of sensitive receiving areas is an output of an ongoing sequence of planning studies across the city. Sensitive receiving areas may include, but are not limited to, a waterway corridor (stream orders 1 to 8 inclusive), the Bremer River and Brisbane River corridors, or the catchment of a naturally occurring wetland.

2.4.3 Demand for stormwater quality offsets

The current voluntary offsets scheme has been very popular with developers across Ipswich. Overall, the demand for the offsets program has been quite consistent with the forecasted demand (see Figure 5). This forecasted demand was based on the forecasted growth in new housing units. See Attachment 6 – Supply and demand assessment for more details on the demand assumptions.

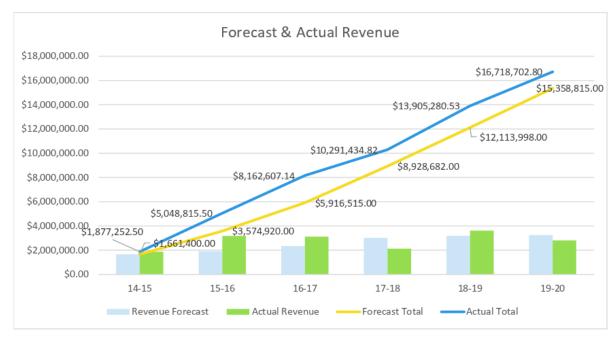


Figure 5
Forecast demand vs actual demand for stormwater quality offsets

2.5 Delivery of stormwater quality offsets across lpswich to-date

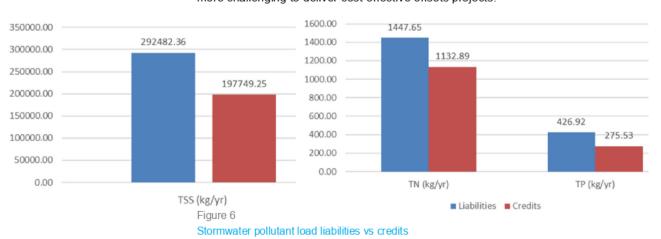
The Ipswich City Council Stormwater Quality Offsets Implementation Plan (BMT WBM, 2015) presented a range of urban and rural stormwater quality offset projects including:

- Bioretention basins
- Wetlands (some with stormwater harvesting)
- · Channel naturalisation
- · Rural riparian revegetation

Attachment 4 – Stormwater quality treatment options cost effectiveness provides a summary of the treatment technologies and their cost effectiveness. It was estimated that these projects would be sufficient to meet the estimated demand for stormwater quality for Ipswich. This also identified that the urban solutions alone could not meet the demand requirements and that rural revegetation was required as part of the solution portfolio.

2.5.1 Overview of demand vs supply up to now

In 2019/20, there had been \$16,718,702.80 collected for stormwater treatment offsets. The program had spent only \$8,907,832.31 on stormwater treatment projects. Figure 6 shows despite only spending around 1/2 of the funding, Council has been able to achieve high pollutant load reductions (based on Council's current demand rates – see Attachment 6). To date Council has met 67.61%, 78.26% and 64.54% of TSS, TN and TP liabilities respectively. This suggests that the offsets framework has been delivered cost effectively to-date. The cost of delivering projects is likely to increase in the future as it become more challenging to deliver cost-effective offsets projects.



2.5.2 Summary of project types delivered

The types of projects that the stormwater quality offsets program has funded to-date include:

- Bioretention
- · Stormwater treatment wetlands and harvesting
- · Channel naturalisation
- · Urban streambank stabilisation
- · Rural channel stabilisation and riparian revegetation

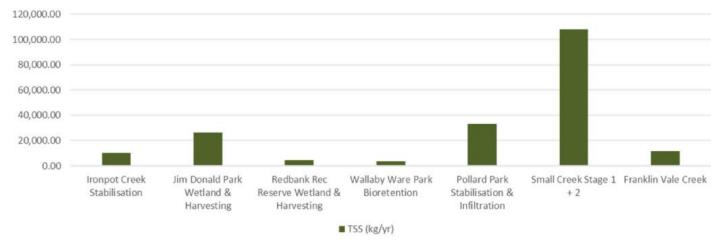
Table 4 presents a summary of the types of projects that council have delivered to-date as part of the stormwater quality offsets program. It also presents the measured cost effectiveness of the systems and also learnings from the delivery of these projects.

Figure 7 presents a breakdown of the pollutant loads achieved for each of the stormwater quality treatment offset projects. This highlights that the Small Creek naturalisation project has achieved the majority of the stormwater treatment to-date. This reflects the scale of this project and its catchment area. It should be noted that the pollutant loads achieved in the Franklin Vale Creek work will increase over time as riparian vegetation establishes.

Figure 8 presents the comparison of where offsets have been taken compared to where they have been spent in terms of TSS load liabilities. This highlights a deficiency of offsets spending in sub catchments such as Six Mile Creek and Woogaroo Creek. The Waterway Health Strategy 2020 identifies that platypus may be present in both of these sub-catchments and recommends priority actions for improving platypus habitat. Figure 8 shows that the current application of the offsets program may not be adequately protecting these waterway values.

Table 4
Summary of the different types of stormwater quality offset projects delivered to-date

Project type and location	Description		Cost effectiveness (see Attachment 4)		Learnings
Bioretention retrofit, - Wallaby Ware Park, Brassall	Conversion of an eroded and weedy channel into a vegetated swale and bioretention system.		Good	•	Ensure bioretention sugar cane mulch is not overly thick, and is pinned with non-lifting pins. This prevents mulch smothering plants. Development of real time forms helps to monitor maintenance and ensure all activities are being undertaken to standard.
Channel naturalisation - Small Creek, Raceview	Conversion of a concrete channel into a natural waterway within the Deebing Creek catchment.		Good	•	Use of coir netting most desirable for flow situations as it doesn't lift. Soil amelioration not performed well in-situ in moist settings Construction in dry season is critical MUSIC modelling has been used to estimate nutrient removal todate for this solution. Ideally water quality monitoring data would be used to verify this.
Wetland and stormwater harvesting - Redbank Plains Recreation Reserve	Retrofit of a 5300m ² stormwater treatment wetland and harvesting scheme into the recreation reserve to address flooding issues and provide an alternative irrigation supply for the sports fields		Good		Management of birds remains problematic in constructed wetlands MUSIC may be over-estimating flows resulting in lower than expected yields Ensure maintenance team have adequate handover for pumping and irrigation equipment
Urban bank stabilisation, Ironpot Creek	Stabilisation of heavily eroding upper reaches of Ironpot Creek.	Existing trees and bank level. Likely pre-erosion condition Existing profile condition	Good for TSS, but poor for TP and TN (based on sediment nutrient loads)	•	Funding urban creek restoration with offsets can be problematic as this may open the door for developers to argue that they can stabilise a waterway to achieve their stormwater treatment requirements.
Rural riparian revegetation and catchment improvement – Franklin Vale Initiative	Partnering with landholders restoring and improving catchment condition through initiatives such as riparian revegetation.		Very good	•	Partnering with committed landholders is critical Clear understanding of expectations regarding stock exclusion required Planting techniques need to allow for low available water for establishment watering



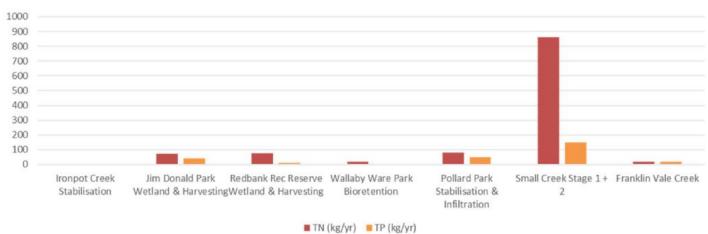
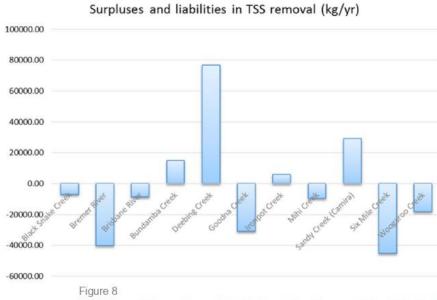


Figure 7
Breakdown of stormwater quality offset projects and associated pollutant load reductions



Breakdown of stormwater quality offset projects and associated pollutant load reductions

2.6 Current best practice stormwater management approaches

There are a number of new stormwater treatment technologies which are now available that have been considered in this project. These are summarised in Table 5.

Attachment 4 – Stormwater quality treatment options cost effectiveness provides a summary of these treatment technologies and their cost effectiveness.

Table 5 Summary of new stormwater quality treatment options included in this project

Project type	Description	Example image	Cost effectiveness (see Attachment 4)
Passively irrigated street trees	These are street trees which have been designed to allow stormwater runoff from the road to enter the tree pit before it flows into the pipe network. These can range from simple approaches such as a subsurface slotted pipe or trench around a tree to a system which has extended detention and underdrainage. More information on the different types of systems and their application can be found here: https://watersensitivecities.org.au/wp-content/uploads/2020/04/200427 V13 CRC-DesigningForACoolCity.pdf	Example tree pit designs	These range depending on the design. The most cost effective options are the leaky pipes around trees, however these are also the highest risk, especially in poorly draining soils where trees can become waterlogged. It can therefore be better to adopt tree designs with underdrainage. These can be cost effectively delivered, especially when integrated into planned road and drainage upgrades.
Wicking lawn	These are turfed areas which are designed to store stormwater at the base on the system which becomes available as soil moisture through capillary rise through the soils. This provides ongoing irrigation for the lawn and also provides a drainage system to prevent lawns getting boggy. These systems were identified as potential irrigation options for open spaces in the Irrigation Options Report for Ipswich (E2Designlab, 2019). These are ideally located into ovals and turfed public open space areas with relatively flat surfaces.	Example wicking design and construction of Gladstone East Shores system	These can have relatively low cost effectiveness. The cost effectiveness can be improved by combining the wicking component (funded by stormwater quality offsets program) to new playing fields which are under construction (funded by open space capital works program). These are also suitable for smaller high profile turfed areas (e.g. forecourts, plazas etc).
Ephemeral / floodplain wetlands	The re-engagement of floodplains has multiple benefits. Floodplain wetlands are typically ephemeral systems which can be used to remove pollutants from stormwater in 2 ways: 1) connected directly to stormwater network (referred to as ephemeral wetlands in the report) 2) accept flows from the adjacent waterways (referred to as floodplain wetlands in this report)	Deebing Heights ephemeral floodplain wetland	These can be cost effective solutions, especially when the floodplain can be engaged effectively without large amounts of earthworks.
Use of surcharge pits to engage stormwater treatment systems	Surcharge pits can be used to divert water from stormwater pipes onto the surface of stormwater treatment systems. These systems should only be used where the surcharge of water will not result in upstream flooding. Incorporating this option opens up additional sites for Council to retrofit stormwater treatment systems.	Surcharge pit and vegetation swale, Brisbane	Adding a surcharge pit to allow stormwater flows to enter treatment systems reduces the cost effectiveness as there are low flows lost and the upfront cost also increases. Ongoing inspections / maintenance is also required to ensure the low flow orifice is not blocked.
Riparian disconnection	Disconnection of stormwater pipes to allow stormwater to infiltrate into the soils, especially along riparian zones where denitrification is likely to occur. This also reconnects these vegetated areas to catchment flows, providing passive irrigation. Note that there were no sites identified for this solution in this project.	Allgas Street riparian disconnection, Logan	These are cost effective designs if the in-situ soils allow for infiltration through the riparian subsoils.
Continuous flow wetland	This wetland option would be designed to accept constant flows from the river to provide water filtering and pollutant removal. This system can be designed to accept brackish flows.	No known examples	This can be cost effective due to the volume of water which passes through the wetland for treatment.

2.7 Recommended changes to SW quality offsets framework

Based on a review of the current stormwater quality offsets framework in terms of eligibility (Attachment 2), expenditure rules (Attachment 3) and cost-effectiveness and reliability of stormwater water quality improvement options (Attachment 4), the following changes are recommended (refer to Table 6).

Table 6

Summary of recommended changes to the Ipswich stormwater quality offset framework

Project type	Recommendation
Eligibility criteria	It is recommended that sensitive receiving environments are clearly identified or described so that it is clear offsets are not possible in these locations. This should be supported by updated waterway condition assessments to fill any current data gaps and to include an understanding of existing value, threatened species etc so they can be used to inform updated eligibility mapping with a robust understanding of sensitive receiving environments.
	It is recommended that partial offsets should be possible (and encouraged in lieu of full offsets) for developers. Minimum on-site requirements could be considered for stormwater quality management as well as provide other benefits including alternative water sources and improved amenity and liveability. Ideally these minimum on-site requirements would be supported by assessments on cost effective on-site stormwater quality treatment solutions and a green infrastructure strategy.
	It is recommended that the criteria are strengthened to provide more details on development types and site conditions which would remove eligibility for full offsets. For example:
	 It is recommended that larger greenfield development and MCUs should have to provide at least partial stormwater quality treatment to meet minimum on-site requirements as this should be cost effective and helps to deliver resilient communities and liveable places. It is recommended that sub-catchment information and updated waterway assessments are used to update eligibility mapping to protect those waterways which are currently in good condition
Expenditure	It is recommended that Council's current position, that all pollutants should be measured and reported on, is retained.
rules	To encourage lower % impervious outcomes within development, it is recommended that the offsets charge could be based on pollutant load generation instead of bioretention treatment area. It is recommended that \$/TN is used as this is consistent with other nutrient trading schemes (such as Melbourne Water). It is recommended that this rate is based on the existing cost for Council to achieve kg of nitrogen reduction through its offset projects (minimum \$7,143/kg TN + administration fee). This will also facilitate ease of calculation of the offset rate for partial offsets approaches.
	It is recommended that developers are requested to provide MUSIC models for their developments to identify the total annual loads (TAL) generated which can then be used to calculate the pollutant load reductions for TSS, TP and TN based on SPP (80%, 60% and 45% reduction respectively). This can also be used to determine partial offsets.
	It is recommended that following preparation of an investment plan that the offsets charge be reviewed to cover all aspects of administration and design and construction for the scheme to ensure that price, equivalence and availability of offset sites inform the basis of the pricing.
	It is recommended that it is acknowledged that stormwater offsets funding can be used on sites where other offsets may also be spent (e.g. use of both stormwater offsets and biodiversity offsets on the same site to deliver multiple outcomes).
	It is recommended that if eligibility criteria are tightened to protect high value waterways, that the current measurement of spatial equivalence could remain at the LGA boundary.
	It is recommended that reference to gross pollutants is removed as this must be managed on-site according to Implementation Guideline No. 24. However, it should be highlighted that it is not clear if this on-site management of gross pollutants is currently being delivered.
Stormwater treatment options	It is recommended that additional stormwater treatment solutions such as passively irrigated street trees be included as eligible offsets projects until these design approaches become standard council practice when delivering trees.

3. Stormwater quality offset projects 2021-2026

3.1 Stormwater offset project types

Based on a review of previous and current stormwater quality treatment technologies (see Attachment 4), the following have been identified as preferred solutions for inclusion in the stormwater quality offsets implementation plan for 2021-2026:

- Bioretention
- Stormwater treatment wetlands
- Floodplain / ephemeral wetlands
- · Vegetated swales
- · Channel naturalisation
- Wicking lawns
- · Passively irrigated street trees
- Rainwater tanks
- · Rural riparian revegetation

Table 7 presents a summary of the types of projects which have been considered for the 2021-2026 stormwater quality implementation plan.

TEXT BOX 2 - Passively irrigated street trees:

Passively irrigated street trees are able to be integrated into any street. These are most cost effective when this is coordinated with a street upgrade where drainage works are already being undertaken. Council currently have a program which is looking for sites where these solutions can be integrated. For the purposes of this project it is assumed that 100 of these will be delivered. It is also assumed these will all require underdrainage due to poorly draining in-situ soils.

Saturated (or wicking zones) can also be included into these systems to improve soil moisture availability during prolonged dry periods. This can also improve the treatment performance of the tree pit in terms of nutrient removal.

Table 7
Summary of recommended stormwater quality offset project types

Project setting	Project types	Description	Cost effectiveness	Confidence rating	Success of current applications	Challenges / limitations
Urban	Passively irrigated street trees	Trees which have been designed with adequate soil volume for healthy trees and to allow water to enter the tree pit before it enters the stormwater network.	Ranges from low to high depending on design	Med	There have been several trials undertaken which have shown that stormwater can support healthy tree growth.	Underdrainage is recommended for sites with poorly draining in-situ soils to reduce waterlogging risk. Stormwater pollutant removal has not been a focus of current trials.
	Rainwater tanks	Use of rainwater tanks on homes for internal uses (toilet flushing and laundry) and irrigation	High	Med/High	Rainwater tanks are a common technology which are well known and understood.	These systems are on private land and therefore the effectiveness will be dependent on the landholders.
	Bioretention	Open garden bed designed to accept stormwater which filters through the soil media for treatment.	Med/high	High	Bioretention systems are a common treatment technology which is well known and understood.	It is important to ensure vegetation establishment is achieved to reduce risk of clogging. Systems should not be sized larger than 1000m ² or in flooded areas to avoid risk.
	Wetlands	Vegetated systems designed to permanently hold water which accept and detain stormwater for a number of days to provide treatment.	Med/high	High	Stormwater treatment wetlands are a common treatment technology which is well known and understood.	Vegetation establishment can be impacted by birds.
	Channel naturalisation	Conversion of concrete drains into natural waterways which may contain a mixture of pools, riffles and vegetated sections.	Med/high	Med	Small Creek naturalisation has been a showcase project for Council	Stormwater treatment effectiveness of this system has not been measured, and is highly dependent on site specific catchment context and design
	Wicking lawns / open space	Turf areas with underground stormwater storage which uses capillary rise in the soil media to irrigate grass.	Low	Med	Gladstone East Shores Parkland	These can be costly solutions if delivered as an isolated stormwater offsets project.
	Floodplain / ephemeral wetlands	Ephemeral wetlands which are designed to capture and treat flows from urban catchments either from stormwater pipe network or from adjacent channel.	Med/high	Med	Deebing Heights floodplain wetlands are establishing well. There are also a number of floodplain wetland examples from Melbourne which have been successful.	These are not commonly used at present and the stormwater reduction rates have not been field validated. Feasibility will depend on levels and flooding risk.
	Continuous flow wetland	Stormwater treatment wetland which is designed to accept constant flows pumped from the adjacent tidal river.	Med/high	Med	Constant flow wetlands have been used in the past for wastewater treatment etc.	We are not aware of other examples where water has been extracted from the river for this purpose.
Rural	Rural riparian revegetation and bank stabilisation	Stabilisation and revegetation of rural channels.	High	Low/med	Success has varied with vegetation establishment being problematic in areas with limited available water.	There are risks associated with these works including: Longevity Temporal lag Treatment effectiveness

TEXT BOX 3 - Rainwater tanks:

Rainwater tanks are a cost-effective way to remove pollutants through capture and reuse of roof water. Council could encourage the uptake of rainwater tanks in a number of ways:

1. Enforce mandatory rainwater tanks for developments.

This could be focused only on high priority waterways where flow management is important for waterway health. The use of rainwater tanks on-site could be used as a minimum for stormwater management on-site, allowing a partial offset in eligible areas to achieve the remaining nutrient reduction (see Section xx). Rainwater tanks can be required with new houses and/or commercial buildings where a local government has been approved to opt-in to the Queensland Development Code. To do this, the council must make an application to the Minister for Housing and Public Works that demonstrates it will result in a net benefit to the community¹.

Toowoomba Regional Council have required mandatory rainwater tanks on new dwellings and commercial buildings and this approval is issued as part of the overall plumbing approval for new residential and non-residential building(s) (See

https://www.tr.qld.gov.au/environment-water-waste/water-supply-dams/water-restrictions-conservation/13320-rainwater-tanks for more information).

2. Develop an incentives scheme for voluntary uptake.

The offsets funds could be used to encourage the use of rainwater tanks through a rebate scheme similar to Little Stringybark Creek and Dobsons Creek in Melbourne or Toowoomba Regional Council in South East Queensland.

Dobsons Creek used a rebate scheme and a reverse auction for 2 rounds of rainwater tank funding. Toowoomba Regional Council have a current water tank scheme to provide rebates for rainwater tanks for residential or commercial properties which are connected to their water supply (see https://www.tr.qld.gov.au/environment-water-waste/water-supply-dams/water-restrictions-conservation/13980-rainwater-tank-rebate for more information)

Similar to these projects, these retrofits could be targeted to sub catchments of Ipswich waterways which have low Directly Connected Impervious (DCI) values and / or have receiving waterways that are sensitive to hydrologic changes.

https://www.hpw.qld.gov.au/ data/assets/pdf_file/0011/4223/installationrequirement sforrainwatertanksfactsheet.pdf

3.2 Project identification

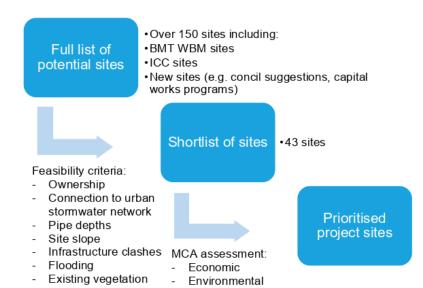
The identification of sites and treatment solutions was undertaken using 2 key steps:

- 1. Identification of feasible sites
- 2. Multi criteria assessment (MCA) to prioritise sites

Over 150 sites were considered as part of this process. These included:

- Original sites identified by BMT WBM (2015) which had not yet been delivered
- Sites that ICC had identified previously and had not yet been delivered
- New sites which were suggested by Council through this process and identified through a review of LGIP and capital works programs.

These sites were assessed for their feasibility using a desktop assessment which considered a range of factors such as slope, infrastructure clashes, existing vegetation etc. Sites deemed likely to be the most feasible were shortlisted. There were a number of sites which were identified as potentially feasible but were not taken forward at this time due to missing information.



SocialDelivery

An understanding of available area for treatment and the benefit and costs associated with the shortlisted sites was undertaken followed by a multi-criteria assessment to prioritise these projects by considering economic, environmental, and social benefits.

Figure 9 presents a summary of this process. *Attachment 5 – Stormwater quality treatment options selection* provides additional detail on this project identification process.

Figure 9
Site identification and prioritisation process

3.2.1 Multi-criteria assessment (MCA)

A multi-criteria assessment (MCA) was undertaken to help prioritise the stormwater offset projects in terms of the multiple benefits that they provide. This approach reflects the strategic intent of the stormwater quality offsets framework which identifies projects should be designed to enhance environmental benefits as well as providing multi-functional green space with enhanced social benefits in a cost-effective manner (see Attachment 1 – Strategic Intent for Stormwater Quality Offsets in Ipswich review). The criteria used in the MCA assessment expanded on the original criteria used by BMT WBM (2015) and is provided in Table 8. Many of these are similar to and align well with the criteria in Water by Design's Living Waterways Framework

(https://livingwaterways.com.au/).

Table 8

MCA criteria

Economic benefits
Reduced potable water use
Energy demand
Cost effectiveness for TSS removal
Cost effectiveness for TP removal
Cost effectiveness for TN removal
Environmental benefits
TSS load removal
TP load removal
TN load removal
Stream order (protection of smaller waterways, tributaries and providing benefits downstream)
Hydraulic and hydrology benefits
Biodiversity improvement
Social benefits
Microclimate and amenity
Awareness and education
Delivery / risk considerations
Ease of construction / maintenance
Compliments other Council works
Design constraints / additional design considerations required

Table 9 presents a summary of the different project options as well as the MCA score and priority. *Attachment 5 – Stormwater quality treatment options selection* provides the detailed MCA scores for each project. There were no weightings applied to the scoring.

Using the MCA, floodplain wetlands are a priority project in terms of the multiple benefits they can provide including nutrient removal, slowing and retaining storm flows, providing habitat / increasing biodiversity, improved amenity and microclimate. Bioretention systems which required surcharge were the lowest priority projects as these are less effective at removing nutrients (some low flows bypass the system) and they can be quite complex to design to ensure no flood impacts.

This MCA also provides scores for the delivery of 100 passively irrigated street trees and 1000 rainwater tanks however they have not been included in the priority scoring as there are no specific sites identified for these options.

3.3 Investment plan 2021-2026

Table 9 presents the stormwater quality offsets investment plan for 2021-2026, outlining the priority projects, costs and proposed implementation. Figure 10 presents the locations of the offsets projects. More detailed mapping has been provided to Council in GIS format.

Table 9

Stormwater quality offsets investment plan 2021-2026

More detail on the projects sites and MCA scores can be found in Attachment 5 – Stormwater quality treatment options selection.

While rural revegetation is not currently included in this table, it is recommended that this continues in the priority catchments of Franklin Vale Creek and Black Snake Creek.

This can be used as an additional option where required by Council to fund and deliver stormwater offsets (see *Attachment 6* for more detail on available rural revegetation projects and pollutant removal rates).

Site ID	Address	Suburb	Sub catchment	Treatment type	Treatment Area (m2)	Estimated Capital Cost	TSS (kg/yr)	TP (kg/yr)	TN (kg/yr)	MCA Priority	Comments
BUN06	7002 Harding Street (Bremervale Park)	Raceview	Bundamba Creek	Floodplain Wetland	16500	\$3,712,500	55000	89	300	1	Floodplain wetlands are new approaches which will require flood modelling to test feasibility.
SIX04	Jumbaljdoo Park	New Chum	Six Mile Creek	Floodplain Wetland	23000	\$5,175,000	123000	230	750	2	Floodplain wetlands are new approaches which will require flood modelling to test feasibility
GOO06	2 - 74 Kruger Parade	Redbank	Goodna Creek	Floodplain Wetland	51000	\$11,475,000	212000	410	1160	2	Floodplain wetlands are new approaches which will require flood modelling to test feasibility. UXO's may be present on site for consideration in budgeting. Seek confirmation of alignment with Rifle Range Master Plan
DEE03	1 Poplar St	Raceview	Deebing Creek	Naturalisation		\$3,447,500	65966	114	269	4	Stage 4 of Small Creek is contingent on acquisition of the land for the purposes of linear park under the LGIP.
GOO03	40 Cedar Rd	Redbank Plains	Goodna Creek	Constructed Wetland	13000	\$2,925,000	52800	86	180	4	Some services conflicts exist with minor sewer lines and a gas pipeline, however these are likely to be manageable. A constructed wetland is likely to be required owing to low grades.
GO007	Pan Pacific Peace Gardens	Redbank	Goodna Creek	Floodplain Wetland	4500	\$1,012,500	19000	30	110	6	Floodplain wetlands are new approaches which will require flood modelling to test feasibility
MIH03	132B Pine Mountain Road	Brassall	Mihi Creek	Naturalisation	4470	\$1,005,750	98000	124	60	7	Detailed flooding analysis will be required to confirm the suitability of this option. A simplistic approach to naturalisation is likely to be required to reduce channel roughness given minimal capacity to increase channel dimensions. Potential conflict with proposed expanded dog off leash area noted. Significant work already undertaken engaging with ISHS in 2015 in relation to naturalisation of this waterway in partnership with HLW.
BRE05	85 Oxford St	North Booval	Bremer River	Continuous flow wetland	10000	\$2,250,000	114500	169	170	8	This solution needs to allow for future sports complex design. Careful plant selection is required to ensure that salt tolerant species are used to withstand expected salinity. Actual water quality data should be used to inform final modelling. Potential to make this larger or smaller depending on treatment effectiveness and available area.

Site ID	Address	Suburb	Sub catchment	Treatment type	Treatment Area (m2)	Estimated Capital Cost	TSS (kg/yr)	TP (kg/yr)	TN (kg/yr)	MCA Priority	Comments
DEE02	5A Dindina St	Flinders View	Deebing Creek	Naturalisation	8079	\$1,817,775	26800	39	37	9	Flooding analysis is required to daylight the low flow pipe. Expected to be sufficient capacity once low flow pipe is excavated.
SIX03	45 Penrose circuit	Redbank Plains	Six Mile Creek	Bioretention	1000	\$375,000	26700	47	138	9	Minimal constraints, low flow needs to be side cast into bioretention from open channel through construction of nib wall or similar.
MIH02	61 Workshops St	Brassall	Mihi Creek	Ephemeral Wetland	3000	\$675,000	8710	15	34	11	Flows side cast into location of ephemeral wetland or similar. Existing park setting, locate outside of root zone of existing mature eucalyptus trees. With use of a pump system, could also support harvesting.
BRE03	Heit Family Park	Willowbank	Bremer River	Bioretention	800	\$300,000	4740	8	30	11	Modifications to the drainage network required to the street to provide a new low flow onto the surface, cutting into existing drainage pit.
BUN07	86 Raceview St	Raceview	Bundamba Creek	Naturalisation	790	\$177,750	5940	9	7	11	This is located within an easement on private school land where Council is planning to undertake works (site was recommended as a potential project by Council).
GOO05	145 Henty Drive	Redbank Plains	Goodna Creek	Ephemeral Wetland	8500	\$1,912,500	9000	16	46	11	Existing location of bonded assets that are intended to be reconstructed. Pollutant gains can only be claimed for over and above treatment required to be achieved by the bonded asset. Option to create an elevated outlet to create ephemeral wetland, however impact on basin capacity is required to be tested.
BUN06	47 Nixon Drive	North Booval	Bundamba Creek	Constructed Wetland	1092	\$245,700	4800	8	16	11	Modification & extension of existing detention basin. Small, poorly functioning bioretention basin is present. Careful spells analysis required for wetland within the floor of a detention basin.
BRE07	1C Old Toowoomba Road	Leichardt	Bremer River	Naturalisation	1930	\$434,250	19400	26	13	11	Moderately constrained by surrounding slope, however not expected to be significant afflux issues. Potential contaminated land considerations, ensure landfill is avoided.
BRE09	Grace Street	Wulkuraka	Bremer River	Naturalisation	1540	\$346,500	16590	22	15	17	Road Reserve, hydraulic analysis required to test afflux.
BUN02	126 Robertson Road	Raceview	Bundamba Creek	Bioretention	1800	\$675,000	11997	23	76	17	Diversion of existing high flow channel may be required to accommodate bioretention basin.
DEE01	125 Equestrian Drive	Deebing Heights	Deebing Creek	Naturalisation	1290	\$290,250	9720	14	9	17	Excavation to daylight low flow required, may result in steeper batters than otherwise desired. Design could extend further than initially proposed.

Site ID	Address	Suburb	Sub catchment	Treatment type	Treatment Area (m2)	Estimated Capital Cost	TSS (kg/yr)	TP (kg/yr)	TN (kg/yr)	MCA Priority	Comments
BRE10	49 Woogaroo St	Goodna	Woogaroo Creek/Brisbane River	Naturalisation	870	\$195,750	17100	23	11	17	Hydraulic assessment required to confirm validity of this option. Challenging grades may make integration with surroundings difficult.
MIH01	33 Caribou Drive	Brassall	Mihi Creek	Bioretention	470	\$176,250	11610	20	58	21	Online diversion structure is required to get water to bioretention, in an area that does not conflict with sewer. Potential for loss of existing vegetation.
BUN03	60 Gledson St	North Booval	Bundamba Creek	Bioretention	100	\$37,500	982	2	6	21	Exact location can move, best located next to creek to allow short lengths of underdrainage to be constructed.
BUN01	2 Creek Street	Bundamba	Bundamba Creek	Bioretention	1417	\$531,375	3250	6	22	21	Relatively unconstrained parcel, careful selection of outlet location to avoid revegetation works and significant trees.
BRE02	Lot 15 Jacaranda Drive	Yamanto	Bremer River	Bioretention	540	\$202,500	11670	21	63	21	Large catchment to small treatment area. Sidecast weir required to get water into basin. Need to ensure reinstatement of pedestrian connection.
BRE07	9 Ernest St	Leichardt	Bremer River	Naturalisation (surcharge)	3500	\$787,500	15800	21	14	21	Hydraulic analysis required to confirm impacts, however not expected to be a significant issue. Best completed in conjunction with 1C Old Toowoomba Rd to provide linear connectivity.
PUR01	63 Powells Road	Yamanto	Purga Creek	Bioretention	430	\$161,250	5260	10	31	21	Asset in the floor of existing detention basin.
BUN05	34 Helen Street	North Booval	Bundamba Creek	Bioretention	256	\$96,000	3860	6	21	21	Fail Park system is already designed.
GOO02	12 Mair Drive	Redbank Plains	Goodna Creek	Bioretention	1300	\$487,500	7376	14	47	21	Inside existing detention basin. Low flow required to connect to existing drainage network, requiring excavations and modification to existing manhole.
SIX05	7A Brenda Court	Collingwood Park	Six Mile Creek	Naturalisation	1500	\$337,500	6970	10	8	21	Few constraints expected, however flooding impact assessment is required.
SIX01	49 Ingles Drive	Redbank Plains	Six Mile Creek	Bioretention	100	\$37,500	758	1.403	5	21	Minimal constraints to this small system.
BRI01	76 Albert St	Goodna	Brisbane River	Naturalisation	1450	\$326,250	12200	16	11	21	Hydraulic assessment required. Some potential to widen this and complement with an ephemeral wetland. Site can extend downstream if desired.
MIH04	Bob Titcombe Park	Brassall	Mihi Creek	Bioretention	441	\$165,375	6570	9	36	21	System already designed.
SIX02	11 Beaver		Six Mile Creek	Bioretention	360	\$135,000	1832	3	12	33	Located in an existing detention basin. Ensure asset is adequately protected.
BUN07	225 Blackstone Rd	Silkstone	Bundamba Creek	Constructed Wetland (surcharge)	4300	\$967,500	1870	3	12	34	Surcharge system is required to get water to the surface of the basin. Could alternatively use a bioretention basin for improved cost-effective treatment, however lower integration into parkland/floodplain setting. Works to avoid community planting.

Site ID	Address	Suburb	Sub catchment	Treatment type	Treatment Area (m2)	Estimated Capital Cost	TSS (kg/yr)	TP (kg/yr)	TN (kg/yr)	MCA Priority	Comments
BRE11	69 Church St / 73A Mount Crosby Road	Tivoli	Bremer River	Passive Irrigation	248	\$372,000	262.94	1	2	35	Passively irrigated trees could be constructed at the extremities of the car park to eliminate the need for destruction of the road. Underdrainage would be required to connect to the existing stormwater pits, or alternatively could freely drain towards the playing field where they could enter a French drain or similar. A new sports ground has also been noted at this location which would potentially include a wicking bed if there is adequate catchment identified in the design.
BRE06	100 Avon St	Leichardt	Bremer River	Ephemeral Wetland	900	\$202,500	1800	3	8	35	Access could be challenging (though not unachievable) to this site, and protection of existing trees will be critical. An existing natural depression could be modified slightly to form an ephemeral wetland.
IRO001	Windle Rd	Brassall	Iron Pot Creek	Wicking Bed	18000	\$2,880,000	909	2	8	35	Small catchment area unless water is to be pumped from nearby waterway.
BUN10	197 Cumner Rd	White Rock	Bundamba Creek	Wicking Bed	18000	\$2,880,000	4241	7	20	35	The site is currently owned by developers, however will be handed to Council as part of a new sports field through the development process. Wicking could be used at these fields, with offsets paying for the additional costs associated with wicking (nonstandard field specs), however offsets can only fund pollutant reduction benefits over and above that required to be met by the development.
BUN04	58 Harding St	Raceview	Bundamba Creek	Constructed Wetland (surcharge)	3500	\$787,500	990	2	7	35	Surcharge is required to get water to surface. Could also be constructed as detention basin. Playing fields present, however appear to be dis-used.
BRE01	9 Ernest St	Leichardt	Bremer River	Bioretention (surcharge)	2900	\$1,087,500	23500	44	129	40	Surcharge structure potentially required, or modifications up the stormwater network to the street to daylight flows. The latter approach may be restricted by presence of sewer.
BRE04	95A Brisbane Rd	Booval	Bremer River	Bioretention (surcharge)	1500	\$562,500	2610	5	15	41	Surcharge requirement to get water to the surface for treatment. Existing very uniform vegetation in the park, potential to introduce diversity and interest. Opportunity to integrate with district recreation space concept plan to be developed in 2020-2021 financial year.
GOO01	56 Lawrie Drive	Collingwood Park	Goodna Creek	Bioretention (surcharge)	700	\$262,500	3281	6	21	42	Within power easement, potentially limiting ability to plant tall trees that are ideally required to create a low maintenance outcome.
	TOTAL					\$51,932,225	1,029,366	1,714	3,986		



Figure 10 Locations of proposed projects

3.3.1 Supply and demand

Overall, the proposed urban stormwater BMPs are able to exceed the required pollutant load reductions (Table 10). It should be noted that the majority of this treatment is being achieved by floodplain wetlands and channel naturalisation (as shown in Table 9). Both of these project types will require additional investigation (e.g. flooding and hydraulic assessments) to determine design and confirm treatment performance. These assessments would continue to be funded by the offsets program as part of the design process. The cost is also highly dependent on the design as the current upper limit costs includes just over \$21M for the floodplain wetlands alone. This figure is highly conservative, and it is likely this can be reduced to under \$10M for these floodplain wetlands. Attachment 6 - Supply and demand assessment provides additional detail and demand and supply assessments.

Table 10 Summary of recommended stormwater quality offset project types

	TSS (kg)	TP (kg)	TN (kg)	Revenue/Cost
Estimated liabilities & available funding	436,859	651	2,008	\$29.212M
Potential load reduction and costs for implementation of proposed urban stormwater BMPs	1,029,366	1,714	3,986	\$51.932M (upper limit)

4. Summary and key recommendations

Based on a review of the current stormwater quality offsets framework, the following major changes are recommended:

- · Tighten the eligibility rules to reflect:
 - Protection of high value waterways using current condition knowledge provided in the Waterway Health Strategy and updated condition assessment data (when available)
 - Development type removing eligibility of full offsets for large greenfield developments and MCU's which should be able to cost effectively provide at least partial treatment of stormwater on-site to provide multiple benefits.
- Change offsets charge rate from bioretention area calculation to calculation of pollutant load reduction required. This has a number of benefits:
 - Incentivises developments to reduce % impervious
 - Easier determination of partial offsets.

Refer back to Table 6 for additional detail on recommended changes to the offsets program.

This project has also identified a range of urban BMP sites that could be used to achieve the estimated demand based on current eligibility and expenditure rules. It should be noted that:

- Floodplain wetlands are removing the majority of the pollutants:
 - These can be a great solution that can provide multiple benefits for floodplain and waterway health. For them to be effective stormwater treatment solutions, these systems should be designed with a side casting weir which allows environmental base flows to pass but divert small storm flow events into the floodplain wetland. Further investigations will be required to confirm these structures can be used to engage the floodplains without impacting on flooding upstream.
- The cost for floodplain wetlands is also unknown as this is highly dependent on the amount of earthworks and planting required. A conservative upper limit (assuming full earthworks) has been included in the investment plan as opposed to a lower limit (assuming minimal bunding required).

- Channel naturalisation is also achieving high pollutant loads. Again, these are great solutions that provide benefits to the environment and the local community, however the ultimate design, pollutant loads and costs will be dependent on flood/hydraulic assessment of the sites. Ideally ongoing monitoring would be undertaken to confirm the treatment effectiveness of these systems.
- The project identification process highlighted that there are many
 opportunities to retrofit stormwater treatment into larger greenfield
 developments which have recently offset their obligations. This
 highlighted that these larger greenfield sites should be required to
 provide at least some level of treatment on-site as this should be
 more cost-effective.
- Passively irrigated street trees provide only small volumes of stormwater pollutant removal overall, however they provide multiple benefits to the community and environment. It is therefore recommended that they are included as part of the portfolio to promote the uptake of these systems across lpswich.

Table 11
Potential future offset project types, benefits and risks

Rainwater tanks also provide small volumes of stormwater pollutant removal, however these can also provide multiple benefits to the community and environment and therefore should be considered by Council for high priority waterway reaches where disconnecting urban flows and reducing DCI is a priority.

- Rural revegetation and stabilisation is also a cost effective option
 that provides multiple benefits. Since the urban BMPs have been
 shown to achieve the current predicted demand, these have not
 been included in the investment plan, however it is recommended
 that this work is continued in partnership with landholders in the
 priority catchments of Franklin Vale Creek and Black Snake Creek.
 Other waterways which are identified as priority stabilisation and
 revegetation projects should also be considered. These can be
 done as required to help deliver stormwater offset outcomes.
- The stormwater offsets program should not be limited to the projects identified in this report and should consider other suitable projects which are identified through other programs. A number of other project types were identified through this process which are not featured in this report. Table 11 provides a summary of these potential future options with benefits and risks.

Type of offset project	Description	Benefits	Risks
Acquisition of land	The use of offsets money to acquire land for offsets projects to be located. This is likely to be required into the future to open up land for Council to undertake work as the supply of Council owned land is diminishing.	Acquiring the land is one way that Council can control the quality of the asset into the future.	This will increase the cost of delivering offsets projects which may require the offsets charge to be increased.
Bonded or failing assets	Bonded assets are assets which Council has budget allocated to complete works which were not undertaken by developers. Failing assets are those which Council is responsible for but require rectification.	Offsets could be used to fund benefits above and beyond what the original asset design would have achieved.	It is not recommended that offsets be used to complete bonded assets or address failing assets to achieve the original design intent only as this is what the bond or separate maintenance budgets should pay for. Offsets should not support ongoing maintenance activities.
Sites identified through other Council programs	Sites which could incorporate stormwater treatment options identified in this report which are identified through other Council programs should be considered for the offsets program.	Offsets can be used to support delivery of multiple outcomes in Council projects.	It needs to be clear which portion of the project is delivering water quality benefits and can therefore be co-funded by the offsets program.
Partnership with others	Partnership may be required with others to deliver water quality treatment outcomes. An example of this is the use of wicking for school ovals to increase turf quality, resilience and provide cooling as well as stormwater treatment. Another example is disconnecting stormwater pipes within State owned road corridors for treatment on Council owned land (Old Gailes Caravan Park).	Multiple benefits achieved by the project.	It needs to be clear which portion of the project is delivering water quality benefits and can therefore by co-funded by the offsets program. On-going ownership and maintenance also need to be clearly understood to ensure the asset continues to operate as designed.

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Attachment 1 – Strategic Intent for Stormwater Quality Offsets in Ipswich review

A review of the Statement of Strategic Intent for Stormwater Quality Offsets (BMT WBM, 2015) (see Text Box 1A) has been undertaken as part of this project. This statement of intent was developed and endorsed in close collaboration with Council and outlines key goals for the stormwater quality offsets program. The current program has been reviewed against these goals in Table 1A.

TEXT BOX 1A - Statement of Strategic Intent for Stormwater Quality Offsets

The liveability of Ipswich is enhanced in the built and natural environments by minimising impacts from urban development upon waterways and by protecting and enhancing natural features and ecological processes. This is achieved in part by protecting environmental values with the aim of achieving receiving water quality objectives including by avoiding operational phase stormwater quality pollution generation (through innovative site design) and the mitigation of stormwater pollution through the following pathways:

Option 1: Operational phase stormwater quality pollution development-based controls provided in accordance with the requirements of the Ipswich Planning Scheme.

Option 2: Operational phase stormwater quality pollution offset controls that, at a minimum, mitigate equivalent pollutant loads compared to development-based controls.

The determination of which pathway applies is made in accordance with Implementation Guideline No.24 – Stormwater. The stormwater quality offsets scheme should be designed so as to achieve the following:

- a. Offsets provide equivalent or more cost-effective outcomes
- b. The overall ongoing maintenance requirements associated with stormwater quality treatment devices are minimised¹
- c. Off-site solutions can feasibly achieve environmental², temporal and spatial equivalence
- d. Risk and uncertainty associated with offsets are accounted for in the voluntary offset contribution charge.

Consideration should also be given to enhanced environmental benefits and maximising opportunities for multifunctional green space with enhanced social benefits.

Decisions informing the delivery of stormwater pollutant controls through the offset pathway will be based on the best available science and will be made in the context of catchment based planning and total water cycle management. Information obtained through periodically reviewing the implementation of the offset controls will be used to update the 'Stormwater Quality Offsets Implementation Plan and Implementation Guideline No.24 – Stormwater' where necessary.

Regardless of whether operational phase stormwater quality is delivered on-site or via an offset, all other stormwater requirements of development must be achieved (in particular compliance with stormwater quantity management requirements and effective erosion and sediment control). Developers and Council will ensure that their general environmental duty is met regardless.

1 Comparing maintenance costs of off-site solutions against the expected maintenance costs associated with assets which would otherwise be inherited from developers.

² Environmental equivalence is measured as the equivalent removal of pollutants as would otherwise be achieved by development-based controls designed and constructed to meet the load-based WQOs

Table 1A

Review of current stormwater quality program against key goals from Statement of Strategic Intent for Stormwater Quality Offsets

Strategic intent for Stormwa	ater Quality Offsets
Goal	Review commentary
a. Offsets provide equivalent or more cost- effective outcomes	On a dollar for dollar basis, the current program is operating quite cost-effectively. However, a review of some pollutant reductions achieved by the current projects (such as Small Creek) highlight this could be optimistic. Also, there is a current shortfall in supply options on Council land and therefore the cost to deliver offset outcomes into the future are likely to increase. This should result in an increased offset rate. Currently the offset rate is priced higher than what can be achieved on-site by developers and there is still high demand for it.
b. The overall ongoing maintenance requirements associated with stormwater quality treatment devices are minimised	The assumption is that offsets will reduce the number of assets (and therefore maintenance burden) through the construction of large end-of-pipe solutions. However, it should be noted that experience shows these systems which are located at the end of large stormwater networks or located in floodprone areas can have increased risk, which can result in increased maintenance or rectification costs.
works are the primary mea as these are cost effective However these solutions h and also carry risk in term	be achieved where rural revegetation or bank stabilisation and by which water quality improvement objectives are met options and maintenance is undertaken by the landholder have a timelag associated with the nutrient removal benefits sof maintenance and longevity. Nutrient removal y variable and site specific.
c. Off-site solutions can feasibly achieve environmental, temporal and spatial equivalence	It is difficult for some offset projects such as rural revegetation to achieve temporal and spatial equivalence. Council's capital budget has been limited, despite available offsets funding, resulting in a significant temporal lag. Low availability of supply sites has also resulted in poor spatial equivalence, with the major demand coming from catchments where there are few supply options.
d. Risk and uncertainty associated with offsets are accounted for in the voluntary offset contribution charge.	Some offset schemes use offset ratios to account for temporal lag etc. In a review of other stormwater offsets schemes in Queensland, Stormwater Queensland identified that ratios were used by other Councils to provide higher levels of pollutant reduction. This approach is currently used for rural revegetation projects in Ipswich but could be more widely adopted to account for this risk.
maximising opportunities f	be given to enhanced environmental benefits and or multi-functional green space with enhanced social include Small Creek naturalisation and integration of

stormwater treatment systems into open space areas.

Attachment 2 – Eligibility for stormwater quality offsets review

A review of the eligibility criteria and mapping has been undertaken. This review has focused on 3 main elements:

- Review of decision process
- · Review of eligibility mapping and criteria
- · Review of the eligibility process and current available information which can be used to update mapping and criteria

Based on the review, recommendations for additional eligibility criteria have been provided.

Decision process

A flow chart maps the decision process associated with stormwater quality management in the Ipswich City Council Stormwater Quality Offsets Implementation Plan (BMT WBM, 2015) (see Figure 2A). This process was developed based on the management hierarchy of avoid, mitigate and offset to be used by developments which are required to provide stormwater quality treatment.

This is a great approach and should be encouraged, but it is rarely achieved.

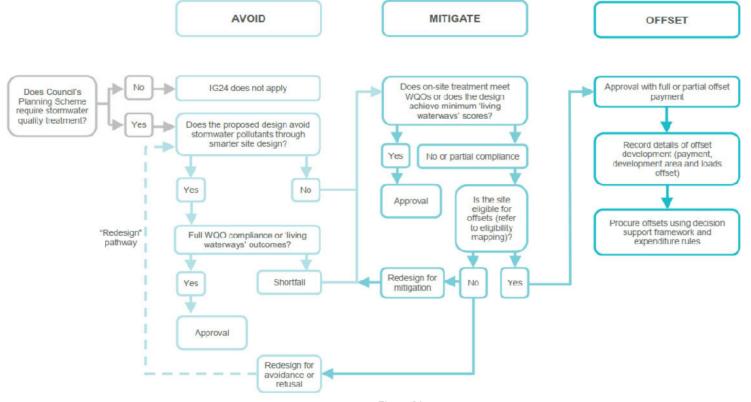


Figure 2A

Stormwater quality management pathways decision tree (from Ipswich City Council Stormwater Quality Offsets Implementation Plan (BMT WBM, 2015)). Figure 2B presents the decision flowchart from Implementation Guideline No. 24 (IG24). This identifies that once developments are required to provide stormwater quality treatment (i.e. are above the threshold) they can either use deemed to comply solutions or voluntary payments (where eligible) unless they want to propose an alternative solution where they are within a sensitive receiving environment.

A sensitive receiving environment is defined as one which is highly sensitive to changes in water quality or quantity associate with development. Where these exist, the proposed development must demonstrate negligible change in terms of water quality and flow. The intent behind this requirement is great, however it is not currently practical for development to maintain pre-development condition hydrology and water quality using best practice stormwater management approaches. They would need to also include solutions which avoid the generation of stormwater in the first place as well as mitigate. There is also no clear identification of Council's sensitive receiving environments.

It is recommended that sensitive receiving environments are clearly identified or described so that it is clear offsets are not

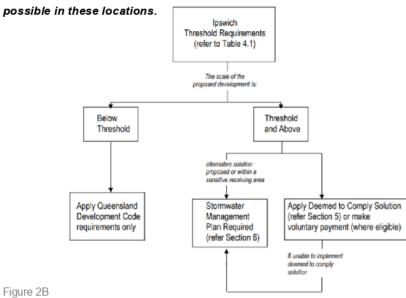


Figure 2B

Threshold and development requirements flowchart (from ICC Implementation Guideline No. 24)

Table 2A presents a summary of the current application of the stormwater quality offsets program against the decision process management hierarchy of avoid, mitigate and offset.

Table 2A Review of current stormwater quality program against decision process management hierarchy of avoid, mitigate and offset.

Process hierarchy	Review commentary
Avoid	To minimise impact on waterways, especially sensitive receiving environments, opportunities to avoid the generation of excess urban stormwater should be prioritised.
	To avoid the generation of stormwater pollutants, smart design is required and this typically requires a reduction in impervious areas to be incorporated into developments. Increasing permeability in developments helps to reduce overall runoff volume, one of the key drivers of waterway decline that has generally not been effectively managed. Methods could include the use of permeable pavements, builder covenants to reduce building footprint and enhance greenspace etc. The Living Waterways framework by Water by Design is a useful tool which can help inform this alternative design approach.
	The current offsets program does not incentivise reduction in impervious area as it is related to dwelling density and area of bioretention required instead of impervious area. Basing the rate on bioretention area does not incentivise reducing impervious area on-site as the current approach to modelling bioretention area includes both pervious and impervious areas. Increasing pervious area using this modelling approach results in a perverse outcome which increases bioretention area required. If the offsets charge was related to pollutant loads produced, this would incentivise increasing % pervious as this would reduce the pollutant loads generated on-site, and therefore the offsets charge.
	It is recommended that the offsets charge be related to quantity of pollutants produced on-site instead of bioretention treatment area.
	The capture and re-use of rainwater and stormwater on-site is also one way to reduce the volume of excess stormwater entering receiving environments. The current application of the offsets program doesn't encourage the use of capture and re-use solutions on-site as a potential partial on-site treatment. There is currently work being undertaken in Melbourne to demonstrate how minimum on-site stormwater treatment can be achieved with devices such as rainwater tanks which could be used as an example.
	It is recommended that on-site capture and re-use of water could be considered as a minimum on-site requirement which would reduce the volume of stormwater pollutants required to be addressed by development or offsets.
Mitigate	The on-site mitigation of stormwater pollutants through treatment also remains an appropriate approach before offsets is considered, especially in areas where there are sensitive receiving environments / areas not eligible for offsets. Stormwater treatment devices such as bioretention or wetlands treat the stormwater before it enters the receiving environment.
	Larger developments (as opposed to infill developments) also have more opportunities to provide successfully integrated and cost effective stormwater management on-site which are able to provide broader liveability and amenity outcomes.
	The decision process flow chart identifies partial on-site compliance, however this is not something that is clearly available in Council's offset framework.
	It is recommended that additional clarifications could be provided to suggest a minimum treatment threshold on-site (e.g. rainwater tanks, passively irrigated landscapes) before offsets are accepted for the balance of the site.
	See "Partial Offsets" on the following page for more information on the potential use of partial offsets or minimum on-site requirements.
Offset	While the decision process shows offsets as the last level of management, the current use of Implementation Guideline No. 24 and eligibility mapping allow any project, regardless of size or scale, to undertake this option within the offsets eligibility area. Ideally the offsets would be left for the smaller, constrained sites which are not located within sensitive environmental areas where the design outcomes would be compromised. These sites are also likely to be in high density areas which have high land value. This funding could then be used by Council to deliver larger, high impact projects elsewhere.

Partial offsets

The use of a partial offsets approach can help to ensure that simple and readily achievable stormwater management practices are undertaken on site, in addition to reducing demand on the stormwater quality offsets scheme. This approach recognises that smaller scale infrastructure (e.g. rainwater tanks and/or passively irrigated landscapes) can provide multiple benefits including nutrient removal, alternative water sources, improved amenity, and liveability. It also recognises that these options may cost effectively achieve a portion of the required stormwater quality outcomes on sites where larger scale solutions, which would be required to achieve full water quality compliance, are more challenging (e.g. steep sites).

Water by Design's Strategic Waterways Framework is underpinned by 9 key strategies to improve waterway management (Browning, 2020), including "Strategy 9 – Minimum requirements" which recognises that a minimum amount of investment and treatment should occur to ensure that:

- · Public safety risks are avoided (e.g. contaminated water)
- Environmental hazards are minimised (e.g. transfer of invasive weeds)
- · Waterway pollution thresholds are not exceeded
- Behaviour change is embedded (setting seeds of change through education and awareness)

Three potential approaches exist to defining acceptable minimum standards for on-site treatment which could be used as a basis for a partial offset. These are described below.

- Minimum treatment thresholds set by Council. Council could undertake analysis to determine a treatment threshold that is efficiently met, with low \$/kg pollutant removed. This would require climate specific analysis and likely use a particular treatment solution as a benchmark technology. See Text Box 2A for an example from Moonee Valley City Council.
- 2. Council define minimum urban and landscape design outcomes. This approach recognizes that small scale treatment can contribute to urban and landscape design outcomes including improved amenity and liveability. This approach could be linked to broader green infrastructure outcomes (ideally linked to a green infrastructure strategy) that defines desirable outcomes for streetscapes, allotments and parks, including links to passive irrigation approaches and the role of stormwater within the landscape. These could be set as minimum design outcomes. The

- pollutant reductions achieved through provision of this minimum standard could then be quantified and the charge be based on the remaining pollutant reductions required to achieve the pollutant reduction objectives.
- 3. Developers identify infrastructure size is not cost effective. On some development sites stormwater quality treatment may be resulting in only incremental gains in pollutant removal with a disproportional increase in treatment area and subsequent cost (i.e. diminishing returns of treatment). In this instance, a minimum treatment threshold could be capped at the treatment area representing a threshold of diminishing returns. The remainder of pollutants could be offset. For example, Stage 2 of the Torhaven development resulted in diminishing returns for the constructed wetland, resulting in a 50% increase of treatment area to remove the approximately 3kg of Total Nitrogen (representing only 3% of the entire nitrogen load). This would have resulted in a poorly integrated wetland and costly maintenance outcomes for Council.

The partial offset approach is supported by a transition to a \$/kg charge, simplifying the calculation of the offsets charge rather than using a % of catchment as an assumed bioretention filter media area.

TEXT BOX 2A - Partial offset examples

Moonee Valley, Melbourne

Moonee Valley Council in Melbourne have a requirement for developers to meet a minimum 80% of their total pollutant reduction targets on site. This is based on an assumption that rainwater tanks (internally plumbed) are capable of achieving 80% reduction in required pollutant removal objectives. Developers are able to use offsets for the remaining 20% of required pollutant removal. This incentivises the use of rainwater tanks as a desirable stormwater management practice that reduces runoff volume, pollutant discharge and encourages potable water savings through stormwater re-use. For more information please refer to:

- https://mvcc.vic.gov.au/work/my-development/sustainabledevelopment/#:~:text=The%20Scheme%20allows%20planning %20applicants,an%20equivalent%20stormwater%20quality%20 benefit
- https://watersensitivecities.org.au/water-sensitive-urban-designvoluntary-contribution-scheme-for-moonee-valley-city-council/

Fraser Coast, Queensland

Fraser Coast Regional Council require that a minimum 50% of the required TSS reduction be achieved on site. They cite the purpose of this minimum threshold as being to:

- Ensure that cost effective measures are implemented onsite;
- Provide a basic level of mitigation of stormwater impacts associated with new developments; and
- Regulate the demand on stormwater quality offsets from Council.

For more information please refer to https://watersensitivecities.org.au/wpcontent/uploads/2020/09/200917 V3 MVCC-Stormwater-Quality.pdf

Eligibility mapping

Table 2B presents a summary of the review outcomes of the eligibility mapping which was initially developed by BMT WBM and the current eligibility mapping which is provided in IG24.

Table 2B

Review of current stormwater quality program against key goals from Statement of Strategic Intent for Stormwater Quality Offsets

Eligibility map Eligibility map Eligibility criteria Review commentary version DRAFT The following mapping layers and assumptions were used to identify The general approach taken by BMT WBM to identify Stormwater sensitive receiving areas for this initial eligibility mapping: sensitive receiving environments is sound. Quality Offsets · Geomorphic condition - streams in good condition Ideally, offsets would not be permitted in areas where Implementation · Stability - Reaches with major or moderate instabilities the waterways are currently in good condition. There Plan (BMT WBM, is additional information that would also be useful to · Wetland classification and sub catchment characteristics -2015) identify those waterways in good general condition, Endangered, of concern or least concern wetlands OR Estuarine and including: riverine areas for Brisbane and Bremer River Water quality Infill mapping was derived from the Planning Scheme Zones and mapping and was based on an assessment of areas which were Platypus and presence of other indicator species considered to be "mostly urbanised" or "a small parcel of land within a These have been considered in the Waterway Health broad land release area consistent with Implementation Guideline No. Strategy 2020 and could therefore be used to help 24 (IG 24). inform updated eligibility mapping. It is noted however that this data is not available across the whole LGA The following areas were considered ineligible for stormwater quality offsets based on the urbanisation criteria of IG24: LEGEN · Large undeveloped allotments within the low density residential zone Local Government Area Boundary - Ipswich City · Large undeveloped allotments within the community residential zone Creek Catchment Boundary · Large undeveloped allotments within the Springfield Town Centre · All areas zones for recreation, conservation and open space Areas eligible for Stormwater Quality Offsets · All areas zoned as regional business and industry including associated buffers · Large undeveloped allotments within the local business and industry zone including associated buffers · All areas zoned as business incubator · All areas zoned as special uses All areas zoned as special opportunities All areas zoned as limited development (constrained) Ipswich Planning The draft eligibility mapping above was superseded by mapping This mapping is very broad and doesn't clearly identify undertaken internally by Council which is now included in IG24. The Scheme locations within these large areas where on-site Implementation following is a summary of the supporting eligibility criteria: treatment (or at least partial on-site treatment) is Guidelines No. 24 beneficial to the environment and community. There · Eligible offset area - a voluntary payment may be made in lieu of (IG24) (Ipswich is also no clear definition of what waterways are in providing nutrient on-site water quality City Council, poor condition or not sensitive to hydrologic change. Possible offset area – a voluntary payment may be possible, subject 2013) The current application of the eligibility criteria and to the agreement of Council, where the development meets the mapping typically allows any development following criteria: applications within both the eligible and possible offset the catchment is mostly urbanised or is a small parcel of land areas to make an offset payment in lieu of providing within a broad land release area (in essence, infill development); on-site water quality treatment. It is recommended that the criteria is strengthened to the waterway downstream is in a poor condition; or provide more details on development types and site the waterway downstream is not sensitive to hydrologic change conditions within the possible offset area which would resulting from development (ie no risk of increased waterway remove eligibility for full offsets. erosion); and the voluntary payment will contribute to an improved subcatchment solution. Ipswich LGA Boundar

Development types and cost effectiveness of stormwater quality treatment

The inclusion of WSUD approaches, including the use of stormwater quality treatment systems such as wetlands, bioretention (including passively irrigated systems) and rainwater tanks can provide multiple benefits including improved waterway health, landscape amenity, cooling and alternative water supply. It is acknowledged that the current application of stormwater treatment solutions has been primarily focused on pollutant reduction and therefore the other benefits are not always achieved which result in problematic assets for Council. This has been especially true in smaller, infill developments where there is typically limited landscaped areas where stormwater treatment assets can be integrated.

A Business Case for Best Practice Urban Stormwater Management: Case Studies was developed by Water by Design in 2010 to present the relative cost effectiveness of implementing best practice stormwater management solutions within different development types. Table 2C presents a summary of this work.

This highlights that it is cost effective for larger greenfield development (especially on sloping land) to implement best practice stormwater management as there are many opportunities for these to be integrated across the development. This can be harder to achieve cost effectively on flat or very steep sites. It is also harder and less cost effective for some infill, commercial and industrial developments to deliver the same outcomes. It should be noted that these all included rainwater tanks (which were a requirement of the Queensland Development Code at the time) and waterway stability and frequent flow requirements were also considered.

Material Change of Use applications require stormwater treatment to be achieved and this would typically be delivered on-site and would not be handed over to Council for ongoing maintenance. Despite this, they are currently eligible to participate in the offsets scheme. By taking on the responsibility of the pollutant reduction liability on behalf of these developments, Council is in fact increasing its maintenance burden. Whilst pragmatically it provides Council with the confidence that the funds are being used to deliver high quality assets which are being maintained, a far more cost-effective approach may be to invest in minimum on-site requirements and a pro-active compliance regime. To date we understand that MCU's have accounted for approximately 3/8 of demand on the offsets scheme. By making them ineligible (or setting minimum thresholds for eligibility) the demand on the scheme can be significantly reduced, as can Council's ongoing maintenance requirements for green infrastructure.

We recommend that larger greenfield development and MCUs should have to provide stormwater quality treatment on-site as this should be cost effective.

Table 2C
Summary of best practice stormwater management approaches and cost effectiveness across different development types (Water by Design, 2010)

Development type	Development description	Best practice stormwater management solutions	Cost effectiveness / life cycle costs
Large greenfield development	Larger urban greenfield which includes internal roads, open space areas and residential allotments.	Rainwater tanks (on-site) with bioretention integrated into streets and open space areas.	GOOD This is the most cost-effective option (especially on sloping land)
Townhouses / urban renewal (residential units)	Larger developments which include internal roads and building allotments	Rainwater tanks (on-site) with bioretention integrated into streets / landscaped areas.	MODERATE This can be cost effective if there is adequate space to integrate treatment into landscaped areas.
Commercial / industrial	Small-scale development including building and carpark.	Rainwater tanks (building) with bioretention integrated into carparks	POOR This was the least cost-effective option and there can be limited space to integrate solutions into landscaping.

Review process and current waterway condition data

The Stormwater Quality Offsets Implementation Plan (Final, BMT WBM 2015) recommended that a regular ecosystem health monitoring program be undertaken and the results from this to be used to revise the eligibility mapping. While this hasn't occurred, the updated Waterway Health Strategy 2020 pulled together all recent data on waterway health across Ipswich which was used to set priority actions at a sub-catchment level. Data which has been considered as part of these sub-catchment condition summaries includes:

- · Stream order mapping
- · Fish and platypus studies
- · Microbial pollution studies
- · Waterway condition and geomorphic assessments
- Creek corridor plans (Black Snake Creek, Bundamba Creek, Iron Pot Creek, Deebing Creek)
- Flood and floodplain management studies

We recommend that this sub-catchment information is used to update eligibility mapping to protect those waterways which are currently in good condition. Table 2D provides an example of how this information could be used.

We understand that the waterway condition and geomorphic assessments which were undertaken in 2014 are due to be updated. It is recommended that these assessments confirm any current data gaps so they can be used to inform updated eligibility mapping with a robust understanding of sensitive receiving environments. These assessments should ideally identify locations and potential habitats of threatened species, especially those which are vulnerable to changes in hydrology and water quality.

Table 2D Example of how WHS ecological condition data could be used to inform updated eligibility mapping

Sub-catchment	Ecological condition / values			Potential overall condition summary	Recommend to restrict the use of offsets?
	Channel	Riparian	Floodplain		
Bremer River (Estuary)	 Major instabilities in CBD Limited aquatic habitat Native and pest fish Poor water quality 	Variable widths	Mixed land uses Heavily impacted wetlands	Poor condition and unstable	
Bremer River (freshwater)	Generally stableModerate aquatic habitatNative and pest fishGood water quality	VariableWeeds present	Mostly cleared for rural purposesPalustrine wetlands	Moderate / good condition	Yes – protect values
Bundamba Creek	 High risk erosion areas Good aquatic habitat Platypus detected Native and pest fish Good water quality 	Variable widths	 Mostly cleared and developed Wetlands including Daly's Lagoon 	Moderate / good condition – Good aquatic habitat and waterway quality but unstable.	Yes – address risk to protect good waterway values
Deebing Creek	Major erosion areas in upper catchmentSandslug presentModerate aquatic habitat	Mostly in good condition	Large areas of bushland	Moderate / good condition – Erosion in upper/mid catchment which are putting lower reaches at risk.	Yes – address risk to protect good waterway values
Franklin Vale Creek	Major instabilities in upper areas	 Poor to moderate condition 	 Mostly cleared Good condition wetlands	Poor condition and unstable	
Iron Pot Creek	Major erosion in upper reachesGood aquatic habitat in areas	Mostly in good condition	Larea areas of bushland	Moderate / good condition – Erosion in upper catchment which are putting lower reaches at risk.	Yes – address risk to protect good waterway values
Mihi Creek	Major erosion in upper catchmentModerate aquatic habitat	Mostly good condition	Mixed land uses	Moderate condition	
Purga Creek	 Minor instabilities Moderate aquatic habitat Native and pest fish Good water quality 	Poor condition	Mostly clearedWetlands in good condition	Moderate condition	
Sandy Creek (Tivoli)	Generally stableModerate aquatic habitat	Variable condition	Mostly bushland	Moderate condition	
Warrill Creek	 Generally stable (erosion upstream of ICC) Moderate aquatic habitat Native fish present 	Moderate condition	Mostly clearedHigh value wetlands	Moderate condition	
Western Creek	Minor instabilitiesModerate aquatic habitatNative and pest fishGood water quality	Poor to moderate condition	Mostly cleared	Moderate / good condition – Good aquatic habitat and waterway quality but some instabiliies	Yes – protect values
Black Snake Creek	Widespread bed and bank erosionLimited aquatic habitatPoor water quality	Poor condition	Mostly cleared	Poor condition and unstable	
Mid Brisbane River	Some major degradationNative fish presentModerate water qualityEvidence of platypus	Poor condition	Mostly grassland and bushland	Moderate condition	
Goodna Creek	Relatively stableGood aquatic habitat	Condition varies	Mixed land uses	Moderate / good condition	Yes – protect values

Sub-catchment	Ecological condition / values		Potential overall condition summary	Recommend to restrict the use of offsets?	
	Channel	Riparian	Floodplain		
Lower Brisbane River	 Variable with some degraded areas Moderate aquatic habitat Good to moderate water quality Potential platypus detection 	Poor condition	Mostly grassland and bushland	Moderate condition	
Sandy Creek (Camira)	Some active erosionPoor aquatic habitatEvidence of platypus	Moderate condition	Mostly clearedMapped wetlands	Moderate condition	
Six Mile Creek	Bed and bank instabilitiesModerate aquatic habitatEvidence of platypus	Condition varies	 Grassland and bushland areas 	Moderate / good condition	Yes – address risk of erosion to protect and enhance platypus habitat
Woogaroo Creek, including Mountain and Opossum creeks	Varied channel conditionModerate to poor aquatic habitatEvidence of platypus	Good condition	 Mostly grassland and bushland 	Moderate / good condition	Yes – address risk to protect good waterway values
Lockyer Creek	 Variable with widespread degradation Variable aquatic habitat Some native fish present Moderate water quality 	Moderate to poor condition	 Mostly grazing and bushland 	Moderate condition	

Attachment 3 – Stormwater quality metrics, voluntary offsets contribution charge, and expenditure rules review

A review of the stormwater quality metrics, contribution charge and expenditure rules has been undertaken. The outcomes of this review are presented on the following pages.

Stormwater quality metrics

The Stormwater Quality Offsets Implementation Plan (BMT WBM, 2015) recommended that TSS be used as a single metric on which to base the offset charge. This was consistent with other papers, including:

- Water by Design's "Off-site Stormwater Quality Solutions Discussion Paper"
- Stormwater Queensland's submission on Water by Design's "Offsite Stormwater Quality Solutions Discussion Paper".
- · SEQ Catchments Draft "Water Quality Offsets Position Paper".

Council's current position is that all pollutants should be measured and reported on. There are a number of reasons for this approach:

Easily measured - TN and TP are readily measurable with any
pollutant quantification approach (including stabilisation) where TSS
abatement is being quantified. This can be done through either
accepted modelling (e.g. MUSIC) or an understanding of
geologically based nutrients bound in sediments within stream
banks through direct sampling. Text Box 3A provides a case study
example of how sediment sampling can highlight varying nutrient to
sediment ratios.

• Not all treatment is the same – Different stormwater treatment approaches remove pollutants using different processes. For example, swales heavily rely predominately on physical filtering processes and therefore provide significant reductions in TSS, with comparatively small reductions in TN and TP. Whereas bioretention and wetlands provide tertiary treatment processes which result in higher rates of TN and TP removal. For example, modelling Small Creek naturalisation as a vegetated swale shows high rates of TSS removal, but lower rates of removal for TN and TP. Therefore it would be easily possible to achieve equivalence for TSS, whilst falling significantly short of TN and TP based on a single metric approach.

It is therefore recommended that Council's current position that all pollutants should be measured and reported on is retained.

Offsets charge

The voluntary offsets payment is currently calculated based on the charge rate per square metre of water quality treatment area (bioretention filter area) that would otherwise be required by the development (see Text Box 3B).

Text Box 3B – Voluntary payment calculations - From Implementation Guideline No. 24

The bio-retention filter area is to be determined for residential development in accordance with Table 3.1. For other development types refer to the Healthy Waterways Deemed to Comply Solutions for determination of filter area.

The voluntary payment rate is as specified in Council's Register of General Charges. Where a voluntary payment is elected to be made the management of gross pollutants in accordance with this guideline will also be required for the development.

Table 3.1: Filter area determination percentages for residential development

Proposed Residential Density (dwellings/ha)	Percentage of Contributing Catchment
Large Lot Residential	0.25%
Less than 15 (excluding large lot)	0.8%
15 to < 20	1.0%
20	1.1%
>20 to < 40	Range between 1.1 to 1.5%
> 40	1.5%

The Stormwater Quality Offsets Implementation Plan (BMT WBM, 2015) recommended that Council's existing rate / charge for stormwater quality offsets at the time (\$400/m² of bioretention area) be reviewed and in particular include an appropriate administration charge. Following this recommendation, Council's charge has been increased in line with indexing for the remainder of Council's fees and charges (approximately in line with CPI). The current charge of

Text Box 3A - Ironpot Creek - A Case Study in nutrient ratios

A bioretention basin in Ipswich, when treating stormwater to best practice can be expected to remove 0.038kg/yr TN and 7.73kg/yr of TSS per square metre of filter media, according to modelling undertaken by BMT WBM (2014). This represents a TN:TSS efficiency ratio of 1:202, where for every 202kg of TSS removed, at least 1kg of TN is required to be removed to achieve equivalence.

The upper reaches of Ironpot Creek are highly unstable and require stabilisation to reduce the amount of sediment and nutrients being eroded and transported downstream. Offsets were used to fund this project and therefore an understanding of the pollutant reductions achieved was required. As part of the stabilisation offset project, Alluvium (2015) measured the nutrient content of the soils in Ironpot Creek to estimate the pollutant reduction achieved. These removal rate ratios of TN to TSS for Ironpot Creek were as high as 1:3,500, (ie 3,500kg of TSS is required to be removed to remove 1kg of TN).

This case study highlights that using TSS as a single metric is not an appropriate method to use, particularly when using stabilisation or other revegetation works as an offset.

\$465/m² is in line with an assumed inflation rate of 2% since 2012, however the charge has not been modified to specifically incorporate an administration charge.

Using the equivalent bioretention area rate is a sound approach. However, this does not incentivise developers to avoid the generation of stormwater runoff through the use of increased permeable surfaces etc. Water by Design recently developed recommendations for the update of the Queensland Planning Policy Water Quality State Interest. This recognised that the current approach to modelling pollutant load reduction targets in MUSIC do not encourage developers to deliver low impact design (e.g. reduced % impervious) and that new targets should be considered which promote the avoidance of stormwater generation on-site. To encourage lower % impervious outcomes within development, it is recommended that the offsets charge could be based on pollutant load generation instead of bioretention treatment area. It is recommended that \$/TN is used as this is consistent with other nutrient trading schemes (such as Melbourne Water). It is recommended that this rate is based on the existing cost for Council to achieve kg of nitrogen reduction through its offset projects. This value is currently \$7,143/kg TN. This should be considered as a minimum rate as the current delivery of stormwater quality offset projects have been achieved cost effectively. An administration fee should also be added to this. For comparison, the Melbourne Water stormwater offsets rate is \$6,645/kg N + 8.9% administration fee.

It is recommended that developers are requested to provide MUSIC models for their developments to identify the total annual loads (TAL) generated which can then be used to calculate the load reduction volumes for TSS, TP and TN based on SPP (80%, 60% and 45% reduction respectively). The charge can then be set at the \$/kg for rate TN. This approach also allows council and developers to identify partial offsets for projects which have already achieved some of this reduction through on-site initiatives.

BMT WBM (2015) also recommended that a review of the charge rate should consider:

- The willingness of developers to pay which should include consideration of the anticipated 'design and construct' costs (including land costs) associated with stormwater quality treatments designed to meet pollutant load removal targets.
- Price, equivalence and availability of implementing off-site solutions.

We agree that the price, equivalence and availability of offset sites should inform the basis of the pricing. It is therefore recommended that following development of an investment plan that the charge be reviewed to cover all aspects of administration and design and construction of the scheme. This approach would ensure that Council is able to deliver on its stormwater pollution reduction liabilities using designated accrued funding.

Expenditure Rules

Expenditure rules were developed in collaboration with Council for the Stormwater Quality Offsets Implementation Plan (BMT WBM, 2015). These considered:

- · Suitable types of offset projects
- · Spatial, temporal and environmental equivalence
- · Administration fee and reporting

A review of these rules is provided in Table 3A. The following are some suggested additional rules which could also be considered.

Recommended new rules:

- Where offsets investment is made to contribute to existing programs
 or projects, offsets funds can only be used to pay for that element of
 the infrastructure that is over and above BAU approach to
 investment. For example, where sports fields are being
 constructed, offsets could be used to fund the additional cost
 incurred by providing stormwater harvesting for irrigation (e.g.
 creating a wicking zone), not the entire sports field.
- Where offsets projects are undertaken on private land they must be supported by an appropriate mechanism to legally secure the offset in perpetuity, or ensure an alternative mechanism is in place to adequately account for risk that an offset may not continue to achieve the desired outcome in perpetuity. For example, Blacktown City Council requires private property owners to submit an annual stormwater maintenance report detailing the inspection and maintenance activities carried out over the previous 12 months. This is supported by a Positive Covenant authorising Council to enter premises and serve penalty notices for failure to comply with maintenance requirements. In relation to rainwater tanks, some councils rely on property reports provided at the point of sale.

Table 3A

Review of expenditure rules

Expenditure rule

- The use of voluntary stormwater quality offset contribution funds (including the selection and prioritisation of sites) must be undertaken in accordance with the 'stormwater quality offsets Decision Support Framework (DSF)'
- Offset projects are required in addition to 'business as usual' and existing regulatory requirements. For example, offsets cannot be used to manage construction phase erosion and sediment control (ESC) and undertaking construction phase ESC cannot negate the need for operational phase stormwater management.
- Stormwater quality offsets cannot be credited for other types of offsets projects (e.g. koala
 or vegetation offsets) or for projects funded by other contributions or bonds (e.g.
 uncompleted works). Such practice is otherwise known as 'double-dipping' and is not
 supported by this strategy.
- Voluntary stormwater quality offset contribution funds should ideally be allocated to
 projects within the ICC local government area (LGA) except where there is strong
 scientific justification for use of those funds external to the Ipswich LGA.
- 5. Off-site solutions should result in the achievement of environmental, spatial and temporal equivalence or better environmental outcome (measured at the most downstream discharge from the LGA boundary), comparing the pollutant loads (TSS, TP and TN), that would have otherwise been removed through on-site best management practices (BMPs).

- 6. Off-site solutions should result in the achievement of environmental, spatial and temporal equivalence or better environmental outcome (measured at the most downstream discharge from the LGA boundary), comparing the gross pollutant loads that would have otherwise been removed through the use of stormwater treatment at the development site.
- Wherever possible, off-site solutions should deliver integrated outcomes which provide
 multiple benefits beyond just stormwater quality. However, multiple benefits should not be
 delivered at the expense of Council's ability to meet its core obligations with respect to
 pollutant reductions under the scheme.
- Off-site solutions must be designed, where possible, commensurate with the desired standard of service for maintenance for that particular project with the overall aim of minimising maintenance costs.
- 9. An additional administration fee should be applied to the voluntary offset contribution fund charge. The administration fee can be spent on a range of administration activities including for example: the management of funds; related planning; assessment and reporting; capacity building; and staff remuneration directly associated with the administration and planning of stormwater quality offsets funds and offsets funded projects.
- Details of expenditure must be reported internally before final approval by Council Committee in accordance with the reporting rules.
- Details of expenditure must be reported to the public in accordance with the reporting rules.

Review commentary

Updated decision support framework

This decision support framework outlines a good approach to the development of an investment strategy which is based on prioritisation of cost effective options. This approach for project selection and spending is sound, however we recommend a broader Multi Criteria Assessment (MCA) is used to prioritise projects and inform spending.

Leave as is

This is a reasonable rule as activities such as Council's responsibilities for maintenance or regulation should not be funded by offsets unless the work is going above and beyond business as usual.

Update based on current legislation

The principle of 'double-dipping' and the way it has been managed in legislation has changed since the Environmental Offsets Act was first released. Specifically, it now allows a single offset to be delivered that addresses multiple-jurisdictional offsets (e.g. protected species and water quality). So long as the offset is robust in terms of delivering the conservation outcome required and a water quality outcome, there is no reason they could not both be achieved.

Potential to update - priority on tightening eligibility to protect high value waterways

These rules both refer to spatial equivalence. Currently, the expenditure rule for Council is to ensure there is equivalence at the LGA boundary. As all of Ipswich waterways ultimately enter Moreton Bay, this meets to requirement of protecting the same receiving waters. However, it does not encourage the spending of offsets within the sub-catchments where they were collected. This can result in the degradation of certain waterways where no stormwater treatment occurs either through development or offsets.

If the offsets scheme is used within a broader framework of avoid, mitigate and offsets, then we believe that tightening the eligibility rules to protect high value waterways is the first priority. Where offsets are then allowed to be collected, we believe that this funding could be used across the LGA where Council can achieve the most benefit. This should include treatment options which are not within the catchment where offsets was collected. It is recommended that the eligibility rules are tightened to protect high value waterways and then expenditure can continue to be measured at the LGA boundary. It is recommended that reporting identifies the breakdown of where offsets are collected and spent however to identify if large discrepancies occur which should be addressed.

Currently there is a shortfall in the temporal lag between development and the benefits of off-site solutions. Having offset projects identified and ready for construction will assist Council in addressing this lag.

Remove

The off-site solutions (offsets) scheme allowed for in Implementation Guideline No. 24 is specifically only for TSS, TN and TP, therefore this should be removed as an expenditure rule. It should be highlighted that the effective management of gross pollutants is important and at-source management is the preferred solution and therefore it is important to ensure this is being achieved within the development.

Leave as it

The overall intent of the SPP is to improve waterway health, and the focus on water quality at the exclusion of wider waterway health considerations is largely an oversight of the policy. It is important to have the qualifier that this should not occur to the detriment of the program to achieve environmental equivalence

We concur with this principle in theory, however acknowledge that when retrofitting water sensitive urban design measures there are often constraints (e.g. land availability) that may prevent meeting established standards of service for maintenance (e.g. increased cleanout frequency of sediment ponds may be required due to systems being undersized for the catchment).

It is recommended that these remain as a matter for program administration and cost review rather than an expenditure rule. It is important that the administrative costs are factored into the offsets charge such that administrative costs do not diminish funds required to deliver pollutant load equivalence.

Attachment 4 – Stormwater quality treatment options cost effectiveness

Urban BMPs

The following stormwater treatment best management practices (BMPs) have been considered for this project. This includes treatment systems which were previously included in the BMT WBM work (2015) as well as some new technologies. Table 4A presents a summary of these treatment types.

Table 4A

Summary of urban BMPs

Project types	Description	
Passively irrigated street trees	Trees which have been designed with adequate soil volume for healthy trees and to allow water to enter the tree pit before it enters the stormwater network. Ideally, these works will occur when other street drainage upgrades are occurring and / or other street tree planting projects are being delivered to make them cost effective (stormwater offsets would only need to cover the cost of passive irrigation)	New
Rainwater tanks	Use of rainwater tanks on homes for internal uses (toilet flushing and laundry) and irrigation. This could be funded as a rebate or a reverse auction would be used to reduce cost to Council.	BMT WBM
Bioretention	Open garden bed designed to accept stormwater which filters through the soil media for treatment.	BMT WBM
Wetlands	Vegetated systems designed to permanently hold water which accept and detain stormwater for a number of days to provide treatment.	BMT WBM
Vegetated swales	Vegetated open drains which filter stormwater as it is conveyed through the swale.	BMT WBM
Channel naturalisation	Conversion of concrete drains into natural waterways which may contain a mixture of pools, riffles and vegetated sections.	BMT WBM
Wicking lawns / open space	Turf areas with underground stormwater storage which uses capillary rise in the soil media to irrigate grass. Ideally these should be delivered where new sports grounds are planned to make them cost effective. We understand Council currently requires 300mm of topsoil which is the depth of a wicking bed. Additional 200mm sand layer, subsoil drainage (slotted pipe) and liner need to be included in the design to provide the wicking component (which is the component offsets could pay for).	New
Floodplain / ephemeral wetlands	Ephemeral wetlands which are designed to capture and treat flows from urban catchments either from stormwater pipe network or from adjacent channel. These should ideally be located where they can be designed to capture all stormwater flow events from the adjacent waterway or catchment without causing any upstream flooding.	New
Continuous flow wetland	Stormwater treatment wetland which is designed to accept constant flows pumped from the adjacent tidal river. These can be designed to cope with brackish / saline water so they can still treat flows when irrigation is not able to be done.	New
Riparian disconnection	Disconnection of stormwater pipes into infiltration trenches (these can be vegetated) which encourage infiltration of flows through the riparian zone.	New but no suitable sites identified

The cost effectiveness of the different treatment measures was undertaken using 2 approaches:

- CPI corrected data from BMT WBM report (we also tested built projects against these to test validity)
- MUSIC modelling to develop cost abatement data for new technologies.

Tables 4B and 4C present a summary of the modelling assumptions used for the source nodes and treatment nodes in the MUSIC models.

Table 4B

Source node parameters

MUSIC Paramete	er\Value		Land	duse		Units				
Source No	de	Urban Re	esidential	Roof - Rain	water Tanks	Units				
Rainfall Three	shold		1		1	mm				
Soil Storage Ca	pacity	50	00*	50	500*					
Initial Stora	ige	1	10 10				10 10		0	%
Field Capac	ity	20	00	2	00	mm				
Infiltration Capacity	Coefficient A	2	11	2	11	[-]				
Infiltration Capacity	Coefficient B		5		5	[-]				
Initial Dep	th	5	60	5	mm					
Daily Recharge	e Rate	2	8	2	18	%				
Daily Baseflov	Rate	2	27	2	7	%				
Daily Deep Seep	age Rate	(0	(0	%				
Fraction Impe	rvious	5	60	5	0	%				
		Base Flow	Storm Flow	Base Flow	Storm Flow					
TSS Log Values	Mean	1	2.18	N/A	1.3	log mg/L				
133 Log Values	St. Dev	0.34	0.39	N/A	0.39	log mg/L				
TP Log Values	Mean	-0.97	-0.47	N/A	-0.89	log mg/L				
Tr Log Values	St. Dev	0.31	0.32	N/A	0.31	log mg/L				
TN Log Values	Mean	0.2	0.26	N/A	0.26	log mg/L				
Tit Log values	St. Dev	0.2	0.23	N/A	log mg/L					

Table 4B Treatment node parameters

	Bioretention Basins	Bioretention Basins (surcharge)	Naturalisation	aturalisation (surcharg			Constructed Wetland	(surcharge)	phunuous Flow Wetlan	Wicking Lawn	Rainwater Tanks	Passive Imigation (Tree Pit A)	Units
Treatment Node	Bioretention	Bioretention	Swale	Swale	Wetland	Wetland	Wetland	Wetland	Wetland	Rainwater tank	Rainwater tank	Bioretention	
Low Flow By-pass	0	0.1	D	0.1	0	0.5	0	0.1	0	0	0	0	m ³ /5
High Flow By-pass	100	100			100	100	100	100	(Treatable flow rate)	100	100	100	m ³ /s
Extended Detention Depth	0.3	0.3			0.3	0.2	0.35	0.35	0.01			0.1	m
Surface Area	As per available site	As per available site			As per available site	As per available site	As per available site	As per available site	As per available site	As per available site	3.2	As per available site	m²
Surface Area	area	area		L.	area	area	area	area	area	area	0.2	area	""
Filter Area	As per available site	As per available site										As per available site	m ²
Titlet Alex	area	area		L.								area	""
urated Hydraulic Conductivity	200	200										100	mm/hr
Filter Depth	0.4	0.4										0.7	m
TN Content of Filter Media	400	400		\$								400	mg/kg
sphate Content of Filter Media	30	30		8								30	mg/kg
Exfiltration Rate	0	0	D	0	0.36	0.36	0	0	0			0.36	mm/hr
Is Base Lined?	No	No		9								No	[-]
	Vegetated with	Vegetated with										Vegetated with	
Vegetation Properties	Effective Nutrient	Effective Nutrient										Effective Nutrient	[-]
100 miles	Removal Plants	Removal Plants										Removal Plants	0.0
Overflow Weir Width	1	1			Adjusted to achieve a	Adjusted to achieve a	Adjusted to achieve a	Adjusted to achieve a	Adjusted to achieve a			1	m
Equivalent pipe diameter		11						notional detention time					mm
Notional Detention Time					~48	~24	~48	~48	~48				hr
Underdrain Present?	Yes	Yes					1.5					Yes	[-]
d Zone with Carbon Present?	No	No										No	1-1
		1.3	As per available site	As per available site									
Swale - Length			area	area									m
Swale - Bed Slope			1	1									%
Swale - Base Width			2	2									m
			As per available site	As per available site									
Swale - Top Width			area	area									m
			As per available site	As per available site									
Swale - Depth			area	area									m
Swale - Vegetation Height	- 8		0.25	0.25	1								m
Evaporative Loss as % of PET			010	0.23	125	125	125	125	125				% of PE
					10% available system		10% available system						
Inlet Pond Volume					area * 1 m depth	0	area * 1 m depth	area * 1 m depth	area * 1 m deoth				m ³
Established Established		1				_	20% macrophyte zone		(Surface Area) * 0.35				,
Permanent Pool Volume					0	0	area * 1 m depth	area * 1 m depth	m depth				m³
Catholic Control							1000 80 60	900 10 10	(Permanert Pool				3
initial Volume					0	0	As per above	As per above	Volume)/2	0	0		m³/kL
Number of Tanks										1	100		items
										(As per available site			
Volume below overflow pipe										area) x 0.25 x 30%	5		KL
Depth above overflow				j.						0.35	0.2		m
Overflow Pipe Diameter				U.S.						375	90		mm
A1.B										(As per available site	450514.4		14.40
Annual Demand										area) x 3748 kL/ha/yr	4525 kL/yr		KL/yr
Distribution		L.	,							PET - Rain	PET - Rain		[-]
				Naturalisation was							Demand for each		
				modelled as a swale.							rainwater tank was		
				Desktop analysis				Properties were largely			assumed:		
			Naturalisation was	provided indicative				based on the BMT	The treatable flow rate		Laundry = 50 L/p/day		
			modelled as a swale.	total area and length				WBM SQOIP report.	was calculated based	F_0.0000 P.00000	Tollet = 38 L/p/day		
		Eioretention properties	Desktop analysis	for the system. Top	l			The wettand was	on the wet and area,	Demand as per	Average 3 people per		
		were assigned to be	provided indicative	wicth was calculated			Properties were largely	assumed to have	volume and the	Ipswich City Council	bousebold		
		larcely consistent with		by dividing the total			based on the BMT	350mm extended	desired National	Irrigation Options	Irrigation 548 mm/year On residential lots,	0.00	
		the BMT WBM SQOIP		area by the length.			WBM SQOIP report.	detention and the	Detention Time. As	paper (3748 kL/ha/yr).	On residential lots	Tree pit A assumes a	
		report. Surcharge pits	width was calculated	The base was			The wetland was	permanent pool area	treatable flows are	Overflow pipe is 50mm	assume that 75% of	more heavy handed	
	were assigned to be	have low flow bypass	by dividing the total	assumed 2 m for all	l	1	assumed to have		assumed to have	below filter media	the landscape area	approach. The tree pit	
Notes and Assumptions:		to ensure any ponding	area by the length.	sites except "1C Old	l	1	350mm extended	was assumed to be 20% of the	higher sediment loads,	layer. Assumed filter	(pervious area as	is assumed to have	1 ,
Notes and Assumptions.	the BMT WBM SQOIP		The base was		l	1	detention and the		an inlet pond was	media layer of	measured off	underdrainage, some	[-]
	report.	water freely drains. This was assumed to	assumed 2 m for all	Toowoomba Road" (5 m). Batters were			permanent pool area	macrophyte zone area. Surcharge pits	proposed for pre-	300mm, and wicking	development plans),	extended detention	
	eport.	be a 150mm prifice		assumed to be 1:4 for			was assumed to be	area. Surcharge pits are to be designed with	treatment prior to	zone (storage) of	will be irrigated.	and 700mm of fiter	
			sites except "10 Old				20% of the		entering the wetland.	300mm. Assume a	Landscape area is	media.	
		of 1.5 m head (Q ~	Toowoomba Road" (5				m acrophyte zone	low flow bypass. This	The wettand is	30% void ratio in	approximetaly 70% of		
			m). Batters were	depth. Surcharge pits			area.	was assumed to be a	assumed to be of	calculating volume	non-roof area.		
	1	0.10 cumecs).	assumed to be 1:4 for		I			150mm orifice plate,	uniform depth	below overflow pipe.	Average house area of		
								with a maximum of			reverage nouse area of		
		"	calculating channel	low flow bypass. This		l			(350mm) across the				
			calculating channel depth.	was assumed to be a				1.5m head (Q ~ 0.10	(350mm) across the treatment area.		~ 185m². Average lot		
		**		was assumed to be a 150mm orifice plate,					(350mm) across the treatment area.		~ 185m ² . Average lot area of ~ 405m ² .		
		"		was assumed to be a				1.5m head (Q ~ 0.10			~ 185m². Average lot		

Rural BMPs

Riparian revegetation and stabilisation have also been considered as part of this project as this is a cost effective solution which provides multiple benefits to the waterways of Ipswich and engaging the community. It is recognised however that these solutions come with some risk in terms of:

- Longevity Since these works are typically undertaken on private land, there is risk that the current protections are not suitable to ensure these works are not removed.
- Pollutant reductions achieved The pollutant removal will be highly
 dependent on the soil types in the area. There is an ARC Grant
 research project currently underway with Griffith University which is
 looking at effectiveness of different treatment technologies as well
 as what nutrients should be traded. Early work has identified soil
 types that stimulate phytoplankton growth which should therefore be
 targeted for stabilisation projects.
- Temporal lag Riparian revegetation projects will have a time lag associated with the benefits being achieved and therefore should only be considered as a small proportion of supply portfolio.

Based on these risk factors, it is considered appropriate that a ratio of at least 1.5 is used to determine the outcomes any rural revegetation and stabilisation projects need to achieve.

The previous work undertaken by BMT WBM (2015) identified priority catchments for rural revegetation works based on the stability of waterways. It also identified potential pollutant removal rates based on the expected TSS, TP and TN load for both existing riparian cover and proposed riparian cover (assuming all riparian areas in rural and conservation land is vegetated) using the method based on Olley et al (2014). These rates are shown in Table 4D.

These rates can be used by Council to determine pollutant loads of any rural revegetation works to undertaken.

Table 4D

Breakdown of pollutant removal rates for rural riparian revegetation works across Ipswich waterway sub catchments

Catchment	Riparian Area to be revegetated	TSS Reduction	TP Reduction	TN Reduction	TSS/m ²	TP/m²	TN/m²
Franklin Vale Creek	460	15,896,099	27,504	24,356	3.46	0.01	0.01
Black Snake Creek	92	3,825,769	7,027	9,177	4.16	0.01	0.01
Lockyer Creek	95	1,059,599	2,146	3,238	1.12	0.00	0.00
Ironpot Creek	16	542,215	938	8331	3.39	0.01	0.05
Western creek	417	14,421,317	24,952	22,096	3.46	0.01	0.01
Lower and Mid-Brisbane River	159	6,659,653	12,231	159,975	4.19	0.01	0.10
Bundamba Creek	36	1,242,903	2,150	1,904	3.45	0.01	0.01
Purga Creek	251	8,686,226	15,029	13,309	3.46	0.01	0.01
Warrill Creek	201	6,959,064	12,041	10,663	3.46	0.01	0.01
Bremer River	400	13,823,934	23,918	21,181	3.46	0.01	0.01
Deebing Creek	1.1	36,327	63	56	3.30	0.01	0.01
Sandy Creek	0.3	9,722	17	15	3.24	0.01	0.01
Woogaroo Creek (incl. Mountain and Opossum	9.1	378,978	696	909	4.16	0.01	0.01
Six Mile Creek	4.4	182,690	336	438	4.15	0.01	0.01
Mihi Creek	1.5	52,121	90	80	3.47	0.01	0.01
Goodna creek	0.7	30,375	56	73	4.34	0.01	0.01

Treatment cost effectiveness

Cost effectiveness (or levelised cost) was calculated by BMT WBM as the ratio of the average annual net present value of projected capital and operating costs of an option, to the average annual pollutant removed. This data was used to develop cost abatement curves for the different stormwater quality treatment approaches. The previously developed cost effectiveness data was corrected to represent current value (\$2020) using Australian Bureau of Statistics Consumer Price Index (CPI) data. The cost effectiveness of built projects was then assessed to validate these results.

Figures 4A, B and C demonstrates that these CPI corrected values were adequate based on real project cost effectiveness. For example, Small Creek, Wallaby Ware Park, Franklin Vale and Redbank Plains are all close to or within the original (CPI corrected) estimated cost effectiveness bounds.

New cost effectiveness data was generated for new treatment technologies. These are also provided on Figures 4A, B and C. This shows that ephemeral, floodplain and continuous flow wetlands could all be cost effective options. Note this is based on actual costs from 2 projects in Ipswich. The capital costs associated with these wetlands were quite low due to minimal earthworks etc required. For example, the Moodai floodplain wetland was approx \$32/m² and approx. \$63m² for the Torhaven ephemeral wetland. For comparison, a standard capital cost for wetlands is much higher around \$225/m².

Wicking beds are shown with high abatement costs, however this assumes the full cost of the system is required (i.e. cover the whole cost of new playing field + wicking bed). Ideally wicking would be done as an extra component to a playing field or open space which is already planned and funded. Passively irrigated street trees range in the cost abatement depending on the complexity of design. It should be noted that while the leaky pipe option has a lower cost abatement figure, this can be a high risk solution in poorly draining soils.

The lifecycle cost assumptions underpinning the new calculations are provided in Tables 4E and 4F.

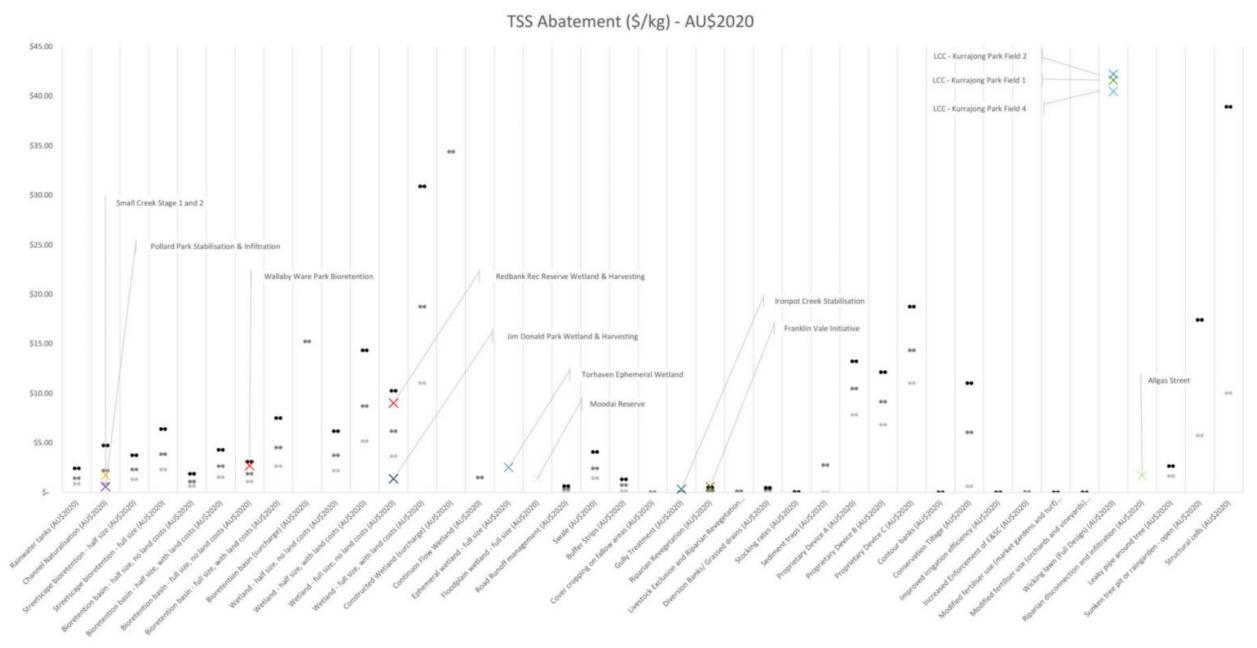


Figure 4B
TP treatment abatement curve

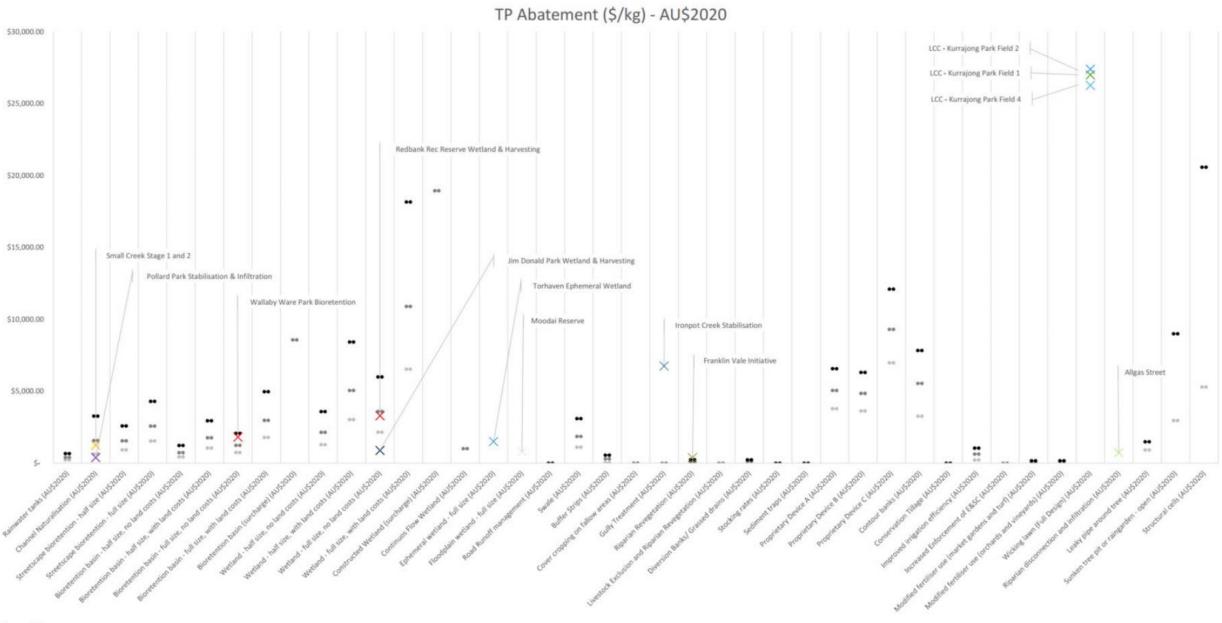


Figure 4B
TP treatment abatement curve

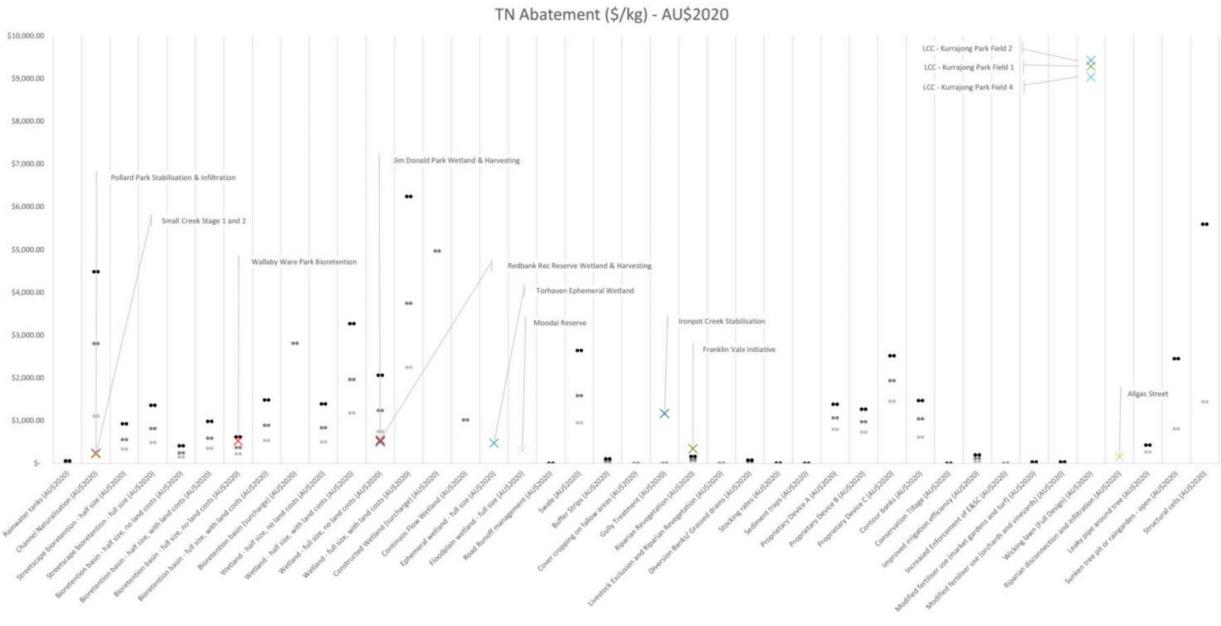


Figure 4C TN treatment abatement curve

Table 4E Lifecycle assumptions used to model built projects

Costing info	Franklin Vale initiative	Ironpot Creek stabilisation	Jim Donald wetland and harvesting	Pollard Park stabilisation and infiltration	Redland Rec reserve wetland and harvesting	Small creek naturalisation stages 1 and 2	Wallaby Ware park bioretention
Life cycle (yrs)	50	50	50	50	50	50	50
Acquisition cost	\$706,024	\$101,975	\$942,222	\$617,994	\$278,667	\$4,985,681	\$199,899
Annual maintenance cost	\$260,000	\$2,000	\$46,773	\$6,742	\$79,355	\$124,909	\$10,181
Annual establishment cost	\$780,000	\$6,000	\$110,319	\$20,226	\$238,065	\$378,727	\$30,543
Establishment period (yrs)	2	2	2	2	2	2	2
Renewal / adaptation cost	\$14,120	\$1,360	\$3,820	\$10,672	\$1,378	\$87,878	\$3,407
Renewal period (yrs)	1	1	1	1	1	1	1
Decommissioning cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Real discount rate (%)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Annual inflation rate (%)	2	2	2	2	2	2	2

Table 4F Lifecycle assumptions used to model new treatment technologies

Costing info	Wicking bed example (3 fields in Kurrajong Park, LCC)	Passively irrigated street trees	Floodplain wetland (Moodai Reserve)	Ephemeral wetland (Torhaven Ephemeral Wetland)	Bioretention (surcharge)	Continuous flow wetlands	Constructed wetland (surcharge)
Life cycle (yrs)	50	50	50	50	50	50	50
Acquisition cost rate	\$549,744 to \$1,028,320	\$600 to \$30,000	\$165,184	\$409,320	\$375/m²	\$225/m ²	\$225/m ²
Annual maintenance cost	\$5/m²	\$50 - \$150	\$17,500	\$7,627	\$5/m²	10% Construction Cost	10% Construction Cost
Annual establishment cost	3 x maintenance cost	3 x maintenance cost	\$ 52,500	\$22,881	3 x maintenance cost	3 x maintenance cost	3 x maintenance cost
Establishment period (yrs)	2	2	2	2	2	2	2
Renewal / adaptation cost	2% construction cost	2% construction cost	\$49,904	\$6,822	2% construction cost	0.52% construction cost	0.52% construction cost
Renewal period (yrs)	1	1	1	1	1	1	1
Decommissioning cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Real discount rate (%)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Annual inflation rate (%)	2	2	2	2	2	2	2

Attachment 5 – Stormwater quality treatment options selection

Treatment selection process

Suitable stormwater quality treatment options have been identified following a review of previously identified sites and new sites using an updated selection process.

The *Ipswich City Council Stormwater Quality Offsets Implementation Plan* (BMT WBM, 2015) used a range of criteria to identify and prioritise sites using a desktop method. These criteria were reviewed as part of this project and updated to separate out the feasibility assessment criteria and the benefit assessment criteria.

The feasibility criteria (Table 5A) were used to shortlist the potentially feasible projects from a long list of over 150 potential projects which included:

- Original sites identified by BMT WBM (2015) which had not yet been delivered
- Sites that ICC had identified previously and had not yet been delivered
- New sites which were suggested by Council through this process and identified through a review of LGIP and capital works programs.

This initial step was important to ensure that the projects taken through into the implementation plan were likely to be delivered. *Attachment* 7 – *Full list of potential projects assessed and feasibility outcomes* provides a full list of the project sites considered and the outcomes of the feasibility assessment. In light of constraints recognized with many of the urban BMP options identified in the initial implementation plan, these options were re-considered to confirm their feasibility.

Table 5A
Updated feasibility criteria

Criteria	Query	
Council-owned	Is the site predominantly (at least 50%) located in Councilowned land.	BMT WBM criteria
Urban stormwater infrastructure	Is the site within 15m of stormwater drainage infrastructure (open drains and stormwater pipes)	BMT WBM criteria
Depth to pipe	Is pipe interception/ disconnection required? If so, what is invert depth of pipe? Is it too deep to effectively disconnect?	BMT WBM criteria
Site slope	Is the site located on reasonably sloping land (<5%)?	BMT WBM criteria
Infrastructure clashes	Are underground services anticipated to significantly reduce works at the site.?	BMT WBM criteria
Flooding / velocities	Are the catchment flows through the site likely to impact any stormwater treatment solutions?	New
Existing remnant vegetation	Is there remnant vegetation on site which would need to be removed?	New

Following the feasibility assessment, the shortlisted feasible sites were assessed in more detail using the Multi-Criteria Assessment framework. This built on some of the 2015 criteria, but expanded it to capture economic, environmental, social and delivery criteria (See Table 5B).

Table 5B Multi-criteria assessment framework

Criteria	Query	Scoring	Potential high score	
Economic			8	
Reduced potable water use	Will the solution reduce potable water demand at the site?	No reduction: 0 Reduction: 1	1	New
Energy demand	Does the solution require energy to support it?	Energy required: 0 No energy required: 1	1	New
Cost effectiveness for TSS removal	What is the cost effectiveness of the site (and associated solution) at removing TSS?	TSS ≤ \$1.7/kg \$1.7/kg ≤ TSS ≤ \$3.4/kg : 1 \$3.4/kg ≤ TSS : 2	2	BMT WBM criteria
Cost effectiveness for TP removal	As per above, for TP	TP ≤ \$1130/kg : 0 \$1130/kg ≤ TP ≤ \$2260/kg : 1 \$2260/kg ≤ TP : 2	2	BMT WBM criteria
Cost effectiveness for TN removal	As per above, TN	TN ≤ \$340/kg : 0 \$340/kg ≤ TN ≤ \$680/kg : 1 \$680/kg ≤ TN : 2	2	BMT WBM criteria
Environmental			10	
TSS load removal	What is the cost effectiveness of the site (and associated solution) at removing TSS?	TSS ≤ 2500 kg/yr : 0 2500 kg/yr ≤ TSS ≤ 5000 kg/yr : 1 5000 kg/yr ≤ TSS : 2	2	New
TP load removal	As per above, for TP	TP ≤ 25 kg/yr : 0 25 kg/yr ≤ TP ≤ 50 kg/yr : 1 50 kg/yr ≤ TP : 2	2	New
TN load removal	As per above, TN	TN ≤ 75 kg/yr : 0 75 kg/yr ≤ TN ≤ 150 kg/yr : 1 150 kg/yr ≤ TN : 2	2	New
Stream order	Will the project help protect local waterways / tributaries (i.e. located in upper catchment) and therefore providing benefit locally and downstream waterways	No: 0 Yes: 1	1	New
Hydraulic and hydrology benefits	Is there a benefit for in-stream flows (e.g. detention / slowing flows)?	Low: 0 Medium: 1 High: 2	2	New
Biodiversity improvement	Is there improved habitat / biodiversity (e.g. in-stream, floodplain etc)	No: 0 Yes: 1	1	New
Social			2	
Microclimate / amenity	Is the project located in a parkland / open space and will improve amenity or provide shade?	No: 0 Yes: 1	1	New
Awareness and education	Does the project provide opportunities to engage with the community (proximity to school or high profile parkland)?	No: 0 Yes: 1	1	New
Delivery / Risk			3	
Ease of construction / maintenance	Is the site/ location easily accessed (e.g. by machinery) for maintenance? Is the system a current standard practice design (i.e. not complex or new technology)? Is a surcharge structure required?	No: 0 Yes: 1	1	Based on BMT WBM criteria
Compliments other Council works	Does the project align with other Council planned projects to provide opportunities for joint investment?	No: 0 Yes: 1	1	New
Design constraints / additional design considerations required	Are there constraints at the site which would need to be overcome with design (e.g. hydraulic design assessments required for natural channel design or use of surcharge pits)?	No: 1 Yes: 0	1	New
			23	

MCA outcomes

Table 5C

MCA results

					Economic						Environ	mental				Soc	cial			Delivery				
			Reduced potable water use	Energy demand	Cost effectiveness for TSS removal	Cost effectiveness for TP removal	Cost effectiveness for TN removal	Total Economic Score	TSS load removal	TP load removal	TN load removal	Stream order	Hydraulic and hydrology benefits	Biodiversity improvement	Total Environmental Score	Microclimate / amenity	Awareness and education	Total Social Score	Ease of construction / maintenance	Compliments other Council works	Design constraints	Total Delivery Score		
Address	Suburb	Treat_type	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		MCA Score	Priority
7002 Harding Street	Raceview	Floodplain Wetland	0	1	2	2	2	7	2	2	2	1	2	2	11	2	1	3	1	0	0	1	22	1
Jumbaljdoo Park	Collingwood Park	Floodplain Wetland	0	1	2	2	2	7	2	2	2	1	2	2	11	2	0	2	0	0	0	0	20	2
2 - 74 Kruger Parade	Redbank	Floodplain Wetland	0	1	2	2	2	7	2	2	2	0	2	2	10	2	1	3	0	0	0	0	20	2
1 Poplar St	Raceview	Naturalisation	0	1	2	2	0	5	2	2	2	1	1	2	10	2	1	3	1	0	0	1	19	4
40 Cedar Rd	Redbank Plains	Constructed Wetland	1	1	1	1	1	5	2	2	2	1	2	1	10	2	1	3	1	0	0	1	19	4
Pan Pacific Peace Gardens	Redbank	Floodplain Wetland	0	1	2	2	2	7	0	1	1	1	2	1	6	2	1	3	1	0	1	2	18	6
132B Pine Mountain Road	Brassall	Naturalisation	0	1	2	2	0	5	2	2	0	1	1	2	8	2	1	3	1	0	0	1	17	7
85 Oxford St	North Booval	Continuous flow wetland	1	0	2	2	0	5	2	2	2	0	0	2	8	2	0	2	1	0	0	1	16	8
5A Dindina St	Flinders View	Naturalisation	0	1	2	2	0	5	1	1	0	1	1	1	5	2	1	3	1	0	0	1	14	9
45 Penrose circuit	Redbank Plains	Bioretention	0	1	2	2	2	7	1	1	1	1	1	0	5	0	0	0	1	0	1	2	14	9
61 Workshops St	Brassall	Ephemeral Wetland	0	1	1	1	1	4	0	0	0	1	2	1	4	2	1	3	1	0	1	2	13	11
Melbury St	Willowbank	Bioretention	0	1	2	2	2	7	0	0	0	1	1	0	2	0	1	1	1	1	1	3	13	11
126 Cascade St	Raceview	Naturalisation	0	1	2	2	0	5	0	0	0	1	1	0	2	2	1	3	1	1	1	3	13	11
145 Henty Drive	Redbank Plains	Ephemeral Wetland	0	1	1	1	1	4	0	0	0	1	2	2	5	2	1	3	1	0	0	1	13	11
47 Nixon Drive	North Booval	Constructed Wetland	1	1	1	1	1	5	0	0	0	1	2	1	4	2	0	2	1	0	1	2	13	11
1C Old Toowoomba Road	Leichardt	Naturalisation	0	1	2	2	0	5	0	1	0	1	1	1	4	2	1	3	1	0	0	1	13	11
Grace Street	Wulkuraka	Naturalisation	0	1	2	2	0	5	0	0	0	1	1	1	3	2	0	2	1	0	1	2	12	17
126 Robertson Road	Silkstone	Bioretention	0	1	2	2	2	7	0	0	1	1	1	0	3	0	0	0	1	0	1	2	12	17
125 Equestrian Drive	Yamanto	Naturalisation	0	1	2	2	0	5	0	0	0	1	1	1	3	2	1	3	1	0	0	1	12	17
49 Woogaroo	Goodna	Naturalisation	0	1	2	2	0	5	0	0	0	1	1	1	3	2	1	3	1	0	0	1	12	17
33 Caribou Drive	Brassall	Bioretention	0	1	2	2	2	,	0	0	0	1	1	0	2	ů	1	1		0	1	1	11	21
60 Gledson St 2 Creek Street	North Booval Silkstone	Bioretention Bioretention	0		2	2	2	, '		0	0			0	2	Ů	0	0	1 :	0		2	11 11	21 21
Lot 15 Jacaranda Drive			1 0	1	2	2	2	,	0	0	0		1	0	2	Ů	0	0	1 ;	0		2	11	21
2A Old Toowoomba Road	Yamanto Leichardt	Bioretention	1 0	1	2	2	0	,		0	0		1	1	2	,		3	1	0	0	0	11	21
63 Powells Road	Yamanto	Naturalisation (surcharge) Bioretention	1 0	1	2	2	3	2	0	0	0	1	1	0	3	2	0	0	ľ	0	1	2	11	21
34 Helen Street	North Booval	Bioretention	"	1	2	2	2	,	,	0	0	,	1	0	2	Ů	0	0	1 ;	0	,	2	11	21
12 Mair Drive	Redbank	Bioretention	0	1	2	2	2	7	0	0	0	1	1	0	2	,	0	0	1 1	0	1	2	11	21
7A Brenda Court	Collingwood Park		0	1	2	2	0	5	0	0	0	1	1	1	3	2	0	2	1	0	0	1	11	21
49 Ingles Drive	Redbank Plains	Bioretention	0	1	2	2	2	7	0	0	0	1	1	0	2	0	0	0	1	0	1	2	11	21
76 Albert St	Goodna	Naturalisation	0	1	2	2	0	5	0	0	0	1	1	1	3	2	0	2	1	0	0	1	11	21
Bob Titcombe Park	Brassall	Bioretention	0	1	2	2	2	7	0	0	0	1	1	0	2	0	0	0	1	0	1	2	11	21
11 Beaver	Redbank Plains	Bioretention	0	1	2	2	2	7	0	0	0	1	1	0	2	0	0	0	1	0	0	1	10	33
225 Blackstone Rd	Silkstone	Constructed Wetland (surcharge)	1	1	0	0	0	2	0	0	0	1	2	1	4	2	1	3	0	0	0	0	9	34
69 Church St	Tivoli	Passive Irrigation (Tree Pit)	1	1	0	0	0	2	0	0	0	1	1	0	2	1	1	2	1	0	1	2	8	35
100 Avon ST	Leichardt	Ephemeral Wetland	0	1	1	1	1	4	0	0	0	1	2	1	4	0	0	0	0	0	0	0	8	35
Windle Rd	Brassall	Wicking Bed	1	1	0	0	0	2	0	0	0	1	1	0	2	1	0	1	1	1	1	3	8	35
197 Cumner Rd	White Rock	Wicking Bed	1	1	0	0	0	2	0	0	0	1	1	0	2	1	0	1	1	1	1	3	8	35
58 Harding ST	Raceview	Constructed Wetland (surcharge)	1	1	0	0	0	2	0	0	0	1	2	1	4	2	0	2	0	0	0	0	8	35
2A Old Toowoomba Road	Leichardt	Bioretention (surcharge)	0	1	0	0	0	1	0	1	1	1	1	0	4	0	1	1	0	0	0	0	6	40
95A Brisbane Rd	Booval	Bioretention (surcharge)	0	1	0	0	0	1	0	0	0	1	1	0	2	0	1	1	0	0	0	0	4	41
56 Lawrie Drive	Collingwood Park	Bioretention (surcharge)	0	1	0	0	0	1	0	0	0	1	1	0	2	0	0	0	0	0	0	0	3	42
100 Street Trees		Passive Irrigation (Tree Pit)	1	1	0	0	1	2	0	0	0	0	1	0	1	1	1	2	1	0	1	2	7	43
1000 Rainwater Tanks		Residential RW Tanks	1	0	2	2	2	7	0	0	1	0	2	0	3	0	1	1	1	0	1	2	13	11



Attachment 6 - Supply and demand assessment

Demand modelling

In order to project future demand Council has used the assumptions contained within the earlier work undertaken by BMT WBM. This assumes 50% uptake of offsets within the eligible development area. Two scenarios have been modelled for the demand forecasting. Both scenarios assume that detached dwelling density of 15/Ha. A scenario has also been modelled for attached dwellings at both 20/Ha and 25/Ha. Given that revenue patterns have largely matched that forecast using this method (see Figure 10 below), it is considered appropriate for the purposes of this analysis to continue with this approach.

The "Lower 20 scenario" (attached dwellings at 20 dwellings/ha and detached dwellings at 15 dwellings/ha) results in a higher pollutant generation, and has been used for the purposes of forecasting (consistent with BMT WBM's assumptions).

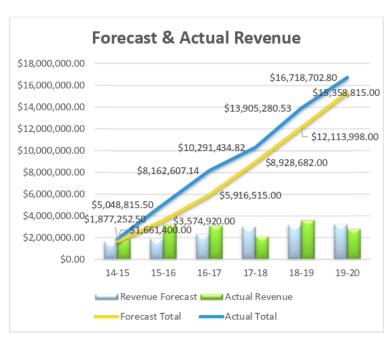


Figure 10
Forecast and actual revenue by financial year and accumulatively.

In order to estimate the demand into the 2025-2026 financial year, the growth rate provided up to 2023-24 has been extrapolated. This provides a consistent growth rate (and hence revenue and pollutant reduction obligations) year on year to the end of the 2025-2026 financial year. Table 6A details the expected equivalent filter media, and the total pollutant reduction liabilities that will have been incurred by the program to the end of 2025-2026 financial year. It also outlines the existing pollutant obligations achieved through projects undertaken to date, outstanding liabilities (obligations that have not been met) and funds available to achieve the pollutant reductions (revenue to date, forecast revenue less expenditure to the end of the 18/19 financial year). It should be noted that revenue is based on the existing charge of \$465.00/m².

Total liabilities expected to the end of 2025-2026 financial year, including actual liabilities incurred to date

	Filter Area (m2)	TSS	TP	TN	GP	Revenue
Pre 20-21 (Actual)	-	292,482	427	1,448	42,919	\$ 16,718,703
2020-2021	7,376	57,002	83	282	8,364	\$ 3,429,840
2021-2022	7,377	57,009	83	282	8,366	\$ 3,430,305
2022-2023	7,378	57,017	83	282	8,367	\$ 3,430,770
2023-2024	7,379	57,025	83	282	8,368	\$ 3,431,235
2024-2025	7,380	57,033	83	282	8,369	\$ 3,431,700
2025-2026	7,381	57,040	83	282	8,370	\$ 3,432,165
Total		634,609	926	3,141	93,122	\$ 37,304,718
**	Credits (pollutant reductions achieved and expenditure)		- 276	- 1,133	- 64,192	-\$ 8,092,424
Current liabilities & Available Funding		436,860	650	2,008	28,930	\$ 29,212,295

Table 6B below provides a detailed account of projects that have been undertaken to date and the relevant pollutant reductions achieved. These reductions were achieved having spent \$8,092,423.54 (less than 1/2 of the funding received). This highlights that projects have generally been cost-effectively implemented to date. It should also be noted that works completed in the Franklin Vale catchment will have annual incremental increases in pollutant reductions as vegetation establishes. There are no known offset projects that were delivered in the 2019/20 financial year, however unreported expenses would have been incurred over this period in design and administration costs. This table also compares these pollutant reductions to the updated liability for Council pre 2020/21. This shows that Council currently has liabilities owing in terms of stormwater quality improvement.

Table 6B
Pollutant removal achieved to-date

Project	TSS (kg/yr)	TP (kg/yr)	TN (kg/yr)
Ironpot Creek Stabilisation	10,170.0	0.5	2.9
Jim Donald Park Wetland & Harvesting	26,660.7	41.3	72.7
Redbank Rec Reserve Wetland & Harvesting	4,666.7	12.7	76.6
Wallaby Ware Park Bioretention	3,613.0	5.4	18.6
Pollard Park Stabilisation & Infiltration	33,000.0	48.8	79.0
Small Creek Stage 1	81,000.0	112.0	647.0
Small Creek Stage 2	27,000.0	37.0	216.0
Franklin Vale Initiative	11,638.9	17.8	20.1
Total	197,749.3	275.5	1,132.9
Total liability (pre 2020- 2021)	292482.4	426.9	1447.7
% liability achieved to-date	68%	65%	78%

Future supply modelling

Urban stormwater BMPs

Urban offset project sites (supply sites) have been determined based on a desktop assessment of the Ipswich City Council area, including a list of pre-screened sites provided by Ipswich City Council, plus others identified by E2Designlab. MUSIC was used to determine pollutant reductions that can be achieved from each supply site identified, based on the treatment type, available area and contributing catchment. Table 6C presents the modelled pollutant reductions for the urban BMPs.

Table 6C
Potential stormwater pollutant removal from proposed urban BMPs

	TSS (kg/yr)	TP (kg/yr)	TN (kg/yr)	GP (kg/yr)
Bioretention	125,996	226	709	23,098
Constructed wetland	60,460	99	216	22,810
Continuous flow wetland	114,500	169	170	2,570
Ephemeral wetland	19,510	34	88	4,821
Floodplain wetland	409,000	759	2320	421,600
Naturalisation	294,486	418	454	101,078
Passively irrigated trees – carpark	263	1	2	39
Wicking beds	5,150	8	28	816
100 passively irrigated trees	1,669	3	113	251
1000 residential rainwater tanks	1,657	9	15	1810
TOTAL	1,032,691	1,726	4,115	578,893

*These forecast reductions do not include existing designed projects in the pipeline (detailed design)

Table 6C demonstrates that urban offsets are capable of achieving all of the required pollutant reduction liabilities accrued by the scheme, given sufficient funding. Table 6D presents a breakdown of the treatment loads achieved for each treatment site. This data is shown in Figure 6B which highlights that naturalisation and floodplain wetlands are removing the majority of the TSS and TP and the floodplain wetlands are removing the majority of the TN.

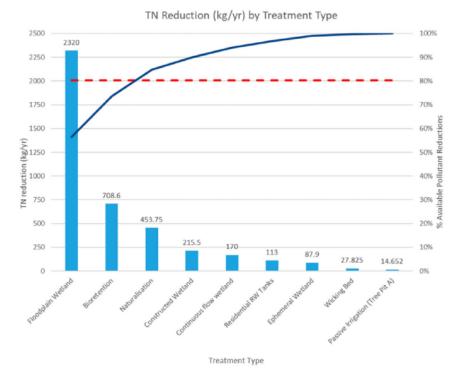


Figure 6B
Breakdown of TN reduction for each treatment type (shown as kg/nutrient removal). The % of the total TN removal is also shown as a cumulative curve to demonstrate that floodplain wetlands contribute almost 60% of the reduction. A red dashed line presents the TN load which needs to be removed to address demand based on current eligibility and expenditure rules.

Table 6D Potential stormwater pollutant removal from proposed urban BMP sites

						Source					Residual Load					Load Reduction				
Address	Suburb	Treat_type	Treat_Area	catch_area	TCAR	Flow (ML/yr)	Total Suspended Solids (kg/yr)	Total Phosphorus (kg/yr)	Total Nitrogen (kg/yr)	Gross Pollutants (kg/yr)	Flow (ML/yr)	Total Suspended Solids (kg/yr)	Total Phosphorus (kg/yr)	Total Nitrogen (kg/yr)	Gross Pollutants (kg/yr)	Flow (ML/yr)	Total Suspended Solids (kg/yr)	Total Phosphorus (kg/yr)	Total Nitrogen (kg/yr)	Gross Pollutar (kg/yr)
33 Caribou Drive	Brassall	Bioretention	470	20	0.2%	77.5	17300	33.8	163	2510	76.5	5690	13.6	105	0	1	11610	20.2	58	2510
1328 Pine Mountain Road	Brassall	Naturalisation	4470	340	0.1%	1320	289000	575	2750	42700	1320	194000	452	2690	0	0	98000	124	60	42700
69 Church St	Tivoli	Passive Irrigation (Tree Pit A)	248	0.31	8.0%	1.2	266	0.521	2.5	38.9	0.62	3.06	0.0199	0.418	0	0.58	262.94	0.5011	2.082	38.9
61 Workshops St	Brassall	Ephemeral Wetland	3000	22	1.4%	85.2	18600	36.3	177	2760	80.5	9980	22.1	143	0	4.7	8710	14.9	34	2760
Grace Street	Wulkuraka	Naturalisation	1540	30	0.5%	116	25500	50.1	242	3770	116	9160	27.5	227	0	0	16590	22.2	15	3770
60 Gledson St	North Booval	Bioretention	100	1.3	0.8%	5.04	1100	2.21	10.4	163	4.83	140	0.456	4.81	0	0.21	982	1.737	5.65	163
126 Robertson Road	Silkstone	Bioretention	1800	15.3	1.2%	59.3	13000	25.3	123	1920	55.5	788	2.93	46.1	0	3.8	11997	22.91	76.4	1920
2 Creek Street	Silkstone	Bioretention	1417	3.78	3.7%	14.6	3200	6.31	30.4	475	12	51.7	0.374	8.4	0	2.6	3249.9	6.051	21.96	475
11 Beaver		Bioretention	360	2.3	1.6%	8.91	1950	3.84	18.5	289	8.18	93.8	0.408	6.73	0	0.73	1832.4	3.466	12.01	289
100 Avon ST	Leichardt	Ephemeral Wetland	900	3.43	2.6%	13.3	2920	5.87	27.6	431	12.1	1100	2.71	19.7	0	1.2	1800	3.11	8	431
Lot 15 Jacaranda Drive	Yamanto	Bioretention	540	20	0.3%	77.5	17300	33.9	160	2510	76.3	5300	12.8	98.4	0	1.2	11670	21.3	63	2510
125 Equestrian Drive	Yamanto	Naturalisation	1290	17	0.8%	65.9	14200	28.5	138	2130	65.9	4580	15	129	0	0	9720	13.8	9	2130
2A Old Toowoomba Road	Leichardt	Bioretention	2900	48	0.6%	186	41000	82.1	387	6030	181	17500	38.4	258	2380	5	23500	43.7	129	3650
Melbury St	Willowbank	Bioretention	800	5.8	1.4%	22.5	5040	9.49	46.7	728	20.8	300	1.08	17.1	0	1.7	4740	8.41	29.6	728
85 Oxford St	North Booval	Continuous flow wetland				631	143000	280	1320	2570	615	28500	111	1150	0	16	114500	169	170	2570
Pan Pacific Peace Gardens	Redbank	Floodplain Wetland	4500	1100	0.0%	4260	942000	1850	8900	138000	4260	923000	1820	8790	20900	0	19000	30	110	117100
2A Old Toowoomba Road	Leichardt	Naturalisation	3500	48	0.7%	186	40500	80.4	386	6030	186	24700	59	372	2380	0	15800	21.4	14	3650
126 Cascade St	Raceview	Naturalisation	790	9.5	0.8%	36.8	8210	16.2	76.9	1190	36.9	2270	7.55	70	0	-0.1	5940	8.65	6.9	1190
Windle Rd	Brassall	Wicking Bed	18000	1.1	163.6%	4.26	919	1.85	8.85	138	0.608	9.52	0.0833	0.925	0	3.652	909.48	1.7667	7.925	138
197 Cumner Rd	White Rock	Wicking Bed	18000	5.4	33.3%	20.9	4660	9	43.2	678	14.3	419	2.28	23.3	0	6.6	4241	6.72	19.9	678
1 Poplar St	Raceview	Naturalisation	10000		33.374	10.5	4000		49.2	0.0	24.3	413	4.40	23.3		0	0	0	0	0
56 Lawrie Drive	Collingwood Park	Bioretention	700	4	1.8%	15.5	3410	6.91	32.3	502	14.1	129	0.642	11	0	1.4	3281	6.268	21.3	502
145 Henty Drive	Redbank Plains	Ephemeral Wetland	8500	13	6.5%	50.4	11300	21.9	105	1630	42	2300	5.85	59.1	0	8.4	9000	16.05	45.9	1630
63 Powells Road	Yamanto	Bioretention	430	7.5	0.6%	29.1	6290	12.7	60.9	942	28.1	1030	3.06	30.4	0	1 1	5260	9.64	30.5	942
47 Nixon Drive	North Booval	Constructed Wetland	1092	18.39	0.6%	71.3	15500	31	147	2310	69.6	10700	23.3	131	0	1.7	4800	7.7	16	2310
34 Helen Street	North Booval	Bioretention	256	40.33	0.4%	25.1	5380	10.8	53	791	24.5	1520	5.28	31.9	0	0.6	3860	5.52	21.1	791
225 Blackstone Rd	Silkstone	and the second s	4300		4.8%	34.9	7510				30.6	5640		59.4	857	4.3	1870	3.4		
		Constructed wetland	3500	5.92			5080	15.1	71.6 47.6	1130			11.7			2.7			12.2	273
58 Harding ST	Raceview	Constructed Wetland		40	5.9%	22.9		10.1		743	20.2	4090	8.16	40.3	616	47	990	1.94	7.3	127
SA Dindina St	Flinders View	Naturalisation	8079		2.0%	155	33300		323	5020	155	6500	28.9	286	0	0	26800	39.1	37	5020
40 Cedar Rd	Redbank Plains	Constructed Wetland	13000	160	0.8%	620	134000	266	1280	20100	600	81200	180	1100	0	20	52800	86	180	20100
12 Mair Drive	Redbank	Bioretention	1300	9	1.4%	34.9	7720	15.2	72.1	1130	32.2	344	1.56	25.4	0	2.7	7376	13.64	46.7	1130
49 Woogaroo	Goodna	Naturalisation	870	45	0.2%	174	38300	73.6	361	5650	174	21200	50.9	350	0	0	17100	22.7	11	5650
7A Brenda Court	Collingwood Park	Naturalisation	1500	11.3	1.3%	43.8	9410	19.2	90.8	1420	43.8	2440	9.27	83.1	0	0	6970	9.93	7.7	1420
45 Penrose circuit	Redbank Plains	Bioretention	1000	47	0.2%	182	39700	79.1	382	5900	180	13000	32.1	244	0	2	26700	47	138	5900
49 Ingles Drive	Redbank Plains	Bioretention	100	1	1.0%	3.87	841	1.67	8.11	126	3.67	83.1	0.267	3.43	0	0.2	757.9	1.403	4.68	126
76 Albert St	Goodna	Naturalisation	1450	27	0.5%	105	22800	45	221	3390	105	10600	28.8	210	0	0	12200	16.2	11	3390
7002 Harding Street	Raceview	Floodplain Wetland	16500	500	0.3%	1940	427000	824	4030	62800	1920	372000	735	3730	15700	20	55000	89	300	47100
Bob Titcombe Park	Brassall	Bioretention	441	8.5	0.5%	35.5	7930	15.6	73.7	1120	34.5	1360	6.14	37.9	0	1	6570	9.46	35.8	1120
95A Brisbane Rd	Booval	Bioretention	1500	10.28	1.5%	39.8	8580	17.3	81.8	1290	38	5970	12.4	66.9	948	1.8	2610	4.9	14.9	342
Jumbaljdoo Park	Collingwood Park	Floodplain Wetland	23000	1300	0.2%	5040	1090000	2210	10400	163000	5010	967000	1980	9650	22700	30	123000	230	750	140300
2 - 74 Kruger Parade	Redbank	Floodplain Wetland	51000	1100	0.5%	4260	927000	1910	8870	138000	4200	715000	1500	7710	20900	60	212000	410	1160	117100
1C Old Toowoomba Road	Leichardt	Naturalisation	1930	66.5	0.3%	258	55000	112	529	8350	258	35600	85.9	516	0	0	19400	26.1	13	8350
100 Street Trees		Passive Irrigation (Tree Pit A)	1000	2	5.0%	7.75	1700	3.42	16.1	251	4.77	31.4	0.203	3.53	0	2.98	1668.6	3.217	12.57	251
1000 Rainwater Tanks		Residential RW Tanks	1000*5kL	10	*	67.7	1980	11.1	143	1810	14.9	323	2.23	30	0	52.8	1657	8.87	113	1810

Urban BMP supply uncertainty

It should be noted that floodplain wetlands are estimated to be capable of removing almost all of the pollutant reductions required over the forecast period at a cost of \$21.375M. However these systems, whilst having significant potential to achieve multiple outcomes, are a relatively untested approach to large scale pollutant reductions. They carry with them inherent uncertainties in terms of modelling pollutant reduction effectiveness at a catchment scale and require a significant amount of investigation in order to have the confidence that constraints can be overcome and that the pollutant reduction claims are rigorously supported by modelling & science. However, they also have potential to achieve these outcomes at a fraction of the estimated cost, depending on configuration and ability to engage existing floodplain vegetation. Some similar systems have been constructed for as low as \$60/m² as compared to an assumed \$225/m² used in this forecast modelling. This lower end of the cost estimate can be achieved where there is potential to reduce the need for extensive earthworks and replanting by designing for existing vegetation systems and topography. This presents a very significant cost saving for these projects, making them highly efficient. Using a \$60/m² rate provides an estimated forecast of \$5.7M. It is therefore recommended that further investigation be taken in developing solutions for these cost effective solutions.

In order to achieve the required pollutant reductions with urban treatment types alone, all other options would be required to be implemented in the absence of implementing floodplain wetlands. Even under this scenario, there would continue to be a shortfall in the amount of TN reduced.

Channel naturalisation is also inherently uncertain in terms of pollutant reductions matching reality, particularly given that no node exists in MUSIC to accurately depict actual reductions likely to be experienced. The treatment effectiveness is likely to vary, and the ability of actual pollutant reductions to match the assumed reduction is dependent on how closely they resemble a swale. It is anticipated that small catchment options are more likely to achieve these outcomes, while at a large scale (eg Small Creek), they are likely to perform less effectively given an absence of vegetation throughout the channel itself.

Rural revegetation and stabilisation

Due to the potential risks associated with rural revegetation projects and the ability of the urban BMPs to achieve Council's required stormwater pollutant reduction, it is recommended that rural revegetation is used as an additional extra where required. The focus of these works should continue in high priority waterways which were identified in the BMT WBM report (2015) or in areas which are identified as priority revegetation and stabilisation in other Council projects. Table 6D presents the area which was identified which could be revegetated compared to the riparian area which has been revegetated to-date through the stormwater quality offsets program. This shows that there are still large areas of rural revegetation available across these sub catchments.

Table 6D Breakdown of cost estimates for different treatment solutions

Priority waterway	Riparian area (ha) to be vegetation (rural and conservation)	Riparian area vegetated to- date (ha)	Area remaining to be vegetated (ha)
Franklin Vale Creek	460	10	450
Black Snake Creek	92		92

It is proposed that the rates in Table 6E are applied to the sub catchments to understand what additional pollutant reduction could be achieved through these works. Attachment 4 - Stormwater quality treatment options cost effectiveness provides additional information on these rates.

Recommended pollutant removal rates for rural riparian revegetation works across Ipswich priority sub catchments

Catchment	TSS/m ²	TP/m ²	TN/m ²
Franklin Vale Creek	3.456	0.006	0.005
Black Snake Creek	4.158	0.008	0.010

Funding vs cost

The supply of potential stormwater treatment solutions is sufficient to meet all the forecasted demand. Additional analysis was also undertaken to understand if the estimated developer contributions were enough to cover the costs of implementing these solutions. Table 6F presents a summary of the estimated cost breakdown for each of the treatment types.

Table 6F

Breakdown of cost estimates for different treatment solutions

Treatment type	Cost assumption (\$/m²)
Passively irrigated street trees	\$1,500
Rainwater tanks	\$2,400 / tank
Bioretention	\$375
Wetlands (stormwater treatment, floodplain and ephemeral)1	\$225
Channel naturalisation	\$225
Wicking lawns / open space	\$160

Table 6G presents a comparison of estimated developer contributions available to fund offset projects compared to the cost to implement options from the implementation plan. This highlights that cost to deliver the outcomes will be dependent on the types of solutions used. Floodplain wetlands could be used to achieve the liabilities for TN and TP within the available funding.

Table 6G

Comparison of predicted developer contribution funds against potential stormwater offset solutions

	Developer contributions to achieve liabilities	Cost to implement floodplain wetlands only (exceed liabilities for TP and TN)	Cost to implement all stormwater quality offset projects (exceed liabilities)
Value	\$ 29.212M	\$21.374M (upper limit)	\$51.932M (upper
(\$)		\$6M (lower limit)	limit)

¹ Note that ephemeral and floodplain wetlands could be delivered more cost effectively than typical stormwater treatment wetlands

Attachment 7 – Full list of potential projects assessed and feasibility outcomes

Address	Suburb	City	Country	Sub_catchm	Feasible_	Initial_Sc	Solution_T	Previously	Depth_to_p	Slope	Flooding	Infrastruc	Existing_V	Contaminat	Catchment_	Land_Owner	Accessibil	Maintenanc	Other_Issu	Complete
1 Cairns ST	Collingwood Park	Ipswich	Australia	Six Mile Creek	Possible	Development has been flagged adjacent to the site. Parcel is not owned by council.	Constructed Wetland			~5%	No	No	No			Not Council				Yes
1 Poplar St	Raceview	Ipswich	Australia	Deebing Creek	Yes		Channel Naturalisation	BMT - Channel Naturalisation												Yes
1 Woogaroo Street	Goodna	lpswich	Australia	Woogaroo Creek	Unlikely	Platypussite - Smaller land parcel and small urban catchment. Steep bank down to Woogaroo Creek. Pipe discharge to invert of creek.	Riparian revegetation, bank stabilisation	WHS - Channel stabilisation (downstream of Augusta Parkway), Address sediment transport / constructed channels along Opossum Creek, Riparian revegetation	~2.1m	~1.5%	Yes	Yes	No			Council	Yes			Yes
10 Conway St	Riverview	Ipswich	Australia	Six Mile Creek	Yes	Open space adjacent to an existing dog park. Opportunity to surcharge catchment flows to bior et ention. Steeper grade from road down to flatter area.	Bioretention	BMT - Bioretention	~1.75m	~3%	Yes	No	No			Council	Yes	Yes	Conflict with existing dog park?	Yes
100 Avon ST	Leichardt	l pswich	Australia	Bremer River	Yes - partial	Large, steep catchment. No conflict with sewer Existing waterway banks appear to be steep. Option to treat portion of catchment to the east.	Catchment flow sidecast into wetland/bioretention		Overland flow	Waterway bank = 25%, East catchment land = 1.75%	Yes	No	Minor		ЗНа	Council	Good	Good	Property appears to be too steep and would require a lot of	Yes
100 Rhondda Rd	New Chum	Ipswich	Australia	Six Mile Creek		Platypus site - Improve		WHS - Channel stabilisation and riparian works (middle reaches), Natural channel features (improve condition of modified channels)												Yes
11 Beaver 114 Henty Drive	Redbank Plains	Ipswich Ipswich	Australia Australia	Six Mile Creek Goodna Creek	Yes	Existing retarding basin?	Bioretention, vegetated swale	BMT - Bioretention	Overland Flow	Appears to be flat base	No	No	Moderate			Council	Good	Good		Yes Yes
11a Brisbane Road	Ebbw Vale	Ipswich	Australia	Bremer River	Moderate	Ebbw Vale Memorial Park. Catchment flows loop around field on way to Bremer river. Opportunity for stormwater harvesting into below ground tanks	Stormwater havesting		Overland Flow		No	No	Yes			Council	Yes	Yes		Yes
12 Jacana Crescent	Flinders View	Ipswich	Australia	Deebing Creek	Unlikely	Larger urban catchment discharging flows into a densely vegetated drainage channel	Bioretention	BMT - Bioretention (Area = 465)			Yes	Yes - Sewer	Yes			Council	No	No		Yes
12 Macartney Street	Booval	Ipswich	Australia	Bundamba Creek	Moderate	Catchment discharges to Bundamba Creek. Existing surcharge field inlets into concrete channel to Bundamba Creek.	Bioretention	BMT - Bioretention	~1.68m (max)	~1%	Yes	Yes - Sewer	No			Council	Yes	Yes	Space constrained, deep pipes making daylighting an issue	Yes
12 Mair Drive	Redbank	lpswich	Australia	Goodna Creel	Yes	Existing weedy wetland/sediment pond/SW treatment pond	Wetland		Open Water		No	No	Yes - Partial			Council	Yes	Yes		Yes
125 Equestrian Drive	Yamanto	Ipswich	Australia	Deebing Creek	Yes	Existing mown grass swale, Once capacity of 375mm stormwater is exceeded, catchment flows surcharge from network into the existing swale	Stormwater Harvesting, wicking lawn, bioretention swale, channel naturalisation		Swale US (SW networi confluence) = 1.38 m	Channel invert ~1.4%	No	Yes (Stormwater along chan nel invert)	No			Council	Good	Good	Catchment adjacent to the Cunningham Hwy. Important to illustrate no afflux.	Yes
126 Cascade St	Raceview	Ipswich	Australia	Bundamba Creek	Yes	Naturalisation	Naturalisation	No	Surface Drain	1.50%			Yes, minimal remnant		9.43Ha	School - state/Private?	Good			Yes
126 Robertson Road	Silkstone	Ipswich	Australia	Bundamba Creek	Yes	Exisitng grassy swale. Treatment already existing upstream (wetland and sed ponds)	Chain of ponds, naturalisation		Overland Flow	~0.8%	No	Yes - Sewer	No			Council	Good	Good	Sewer pipe above invert of existing channel. No freeboard	Yes
129 Brisbane Road	Riverview	Ipswich	Australia	Six Mile Creek	Yes	Catchment flows discharge into channel with moderately steep banks. Flows join onto Six Mile Creek before join Brisbane River.	Wetland	BMT - Wetland	Overland Flow	~2.5% channel invert	Yes	Yes - Sewer	Minor		66На	Council	Yes	Yes		Yes

Address	Suburb	City	Country	Sub_catchm	Feasible_	Initial_Sc	Solution_T	Previously	Depth_to_p	Slope	Flooding	Infrastruc	Existing_V	Contaminat	Catchment_	Land_Owner	Accessibil	Maintenanc	Other_lssu	Complete
13 Gledson	North Booval	Ipswich	Australia	Bundamba Creek	Likely	Very large catchment, large surcharge structure, careful consideration of pipe hydraulics with surcharge	Constructed Wetland	No	2.8m	Moderate	Minor/overland flowpath	Small diameter sewer (150?)	Limited near existing footpath	?	0.002080522	ICC	Good	Nil	Relocation of existing footpath, potential to improve pedestrian route and amenity	Yes
13 Hallets Rd	Redbank Plains	lpswich	Australia	Six Mile Creek	Moderate	Large open grassy swale. Combination of overland flow with stormwater pipe running along the invert of the channel. Appears as through there are several field inlets to "increase" flood conveyance.	Channel Naturalisation, Bioretention		Overland Flow	~3%	No	Yes - Sewer and SW pipe	No			Council	Good	Good		Yes
13/15 Bergins Hill Rd	Bundamba	lpswich	Australia	Bundamba Creek	Moderate	Huge catchment - 3 x 2100 outlet pipes (culverts)	Bioretention basin (diversion)		Concrete Channel	~3.3 %	Yes	No - Check - Electricity	No			Council	Good	Good	Large excavation required and neglibile treatment of large catchment flows.	Yes
132B Pine Mountain Road	Brassall	Ipswich	Australia	Mihi Creek	Yes	Very space constrained for naturalisation. Likely to be 'cheap' version.	Naturalisation		Overland Flow	Moderate	Frequent	Sewer	Yes	No		ICC	Good	Nil	Limited Area available to improve cross sectional capacity	Yes
14 Gledson	North Booval	Ipswich	Australia	Bundamba Creek	Yes	Sewer conflicts with a large portion of the site. Trib sewer line is shallow (depth ~ 1.5m). Main sewer line (1050 @ depth 3.4 m). Adjacent concrete lined channel and large catchment flows.	Bioretention		Overland Flow	Max 9%, Min 2% (riparian)	Minor	Yes - Sewer (min depth 1.46 m)	Minor			Council	Good	Good		Yes
142 Collingwood Drive	Collilngwood Park	Ipswich	Australia	Goodna Creek	Moderate	Land resembling easement, stands of mature trees, mostly grassy.	Bioretention	BMT - Bioretention	Overland Flow	~11%	No	No	Minor			Council	Yes			Yes
145 Henty Drive	Redbank Plains	lpswich	Australia	Goodna Creek	Yes - Works completed?	Three existing basins. One basin receives catchment flows from a large-catchment. Bonded assets, treatement only claimed for over and above requirements of DA.	Bioretention	BMT - Bioretention (x	Overland Flow		No	Yes - Sewer	No			Council	Yes	Yes		Yes
146 Robertson Rd	Silkstone	lpswich	Australia	Bundamba Creek	Moderate	Relatively small parcel with sewer traversing ("2 m deep) Stormwater depth approximately 1.03 m depth. Site experiences flooding, immediately adjacent to Bundamba Creek.	Bioretention	BMT - Bioret ention	Pipe confluence depth ~ 1.03 m	~8.3%	Yes	Yes - Sewer (depth ~ 2m)	No			Council	Good	Good		Yes
15 Drysdale Place	Brassall	Ipswich	Australia	Mihi Creek	Possible	In existing detention basin, may be a constructed bioretention basin already? This basin is not on the system.														Yes
15 Macrae Street	Woodend	Ipswich	Australia	Bremer River	No	Steep grade, remnant vegetation, fauna management issues														Yes
155 Woogaroo Street	Goodna	Ipswich	Australia	Woogar oo Creek	Yes	Existing concrete lined channel?	Wetland	BMT - Wetland	Overland Flow	~1.25%	Yes	Minor - Sewer	No	Yes		Council	Yes	Yes	Old Landfill site	Yes
166 Chalk Street	Wulkuraka	Ipswich	Australia	Warrill Creek	Yes	Portion of property (podium) outside of the flood regulation line. Solution possible, but would require a lot of excavation.			Overland Flow	0.70%	Yes	No	No	Yes		Council	Good	Good	Required earthworks	Yes
17 Hanlon St	Bundamba	Ipswich	Australia	Bremer River	Unlikely	Rural residential land? No clear urban catchment. May be worth looking into development plans here. Earth mound where catchment flows bypass property.	Ephemeral wetland, floodplain re- engagement		Overland Flow		Yes	No	Minor			Council	Possible	Possible		Yes
180-250 Briggs Road Flinders View/37 Lance Drive	Flinders View	lpswich	Australia	Deebing Creek	Yes	Catchment flows into open channel (concrete lined?).	Wetland, Channel Naturalisation, Bioretention	BMT - Wetland (Area = 5704)	Overland Flow	~3%	No	No	No	Yes		Council	Yes	Yes		Yes
19 Mill Street	Goodna	Ipswich	Australia	Woogaroo Creek	Unlikely	Large catchment, narrow parcel, steeper banks.		BMT - Channel Naturalisation	Overland Flow		Yes	No	No			Council				Yes
197 Cumner Rd	White Rock	lpswich	Australia	Bundamba Creek	Yes	Developer solution required, offsets only for 'over and above' reductions.	Harvesting/wicking		Overland Flow	Low	Yes								Only creditable for reductions over and above pollutant reductions that developer has delivered on site. Needs detailed understanding of stor mwater drainage system.	Yes

Address	Suburb	City	Country	Sub_catchm	Feasible_	Initial_Sc	Solution_T	Previously	Depth_to_p	Slope	Flooding	Infrastruc	Existing_V	Contaminat	Catchment_	Land_Owner	Accessibil	Maintenanc	Other_lssu	Complete
1C Old Toowoomba Road	Leichardt	Ipswich	Australia	Bremer River	Yes	Existing concrete channel, chain of	Channel Naturalisation	BMT- Channel Naturalisation	Overland Flow	Moderate	Yes	Yes - Sewer (Depth 3.12 - 4.11 m)	No			Council - Partial	Good	Good	Large catchment flows (1800mm pipe)	Yes
1C Old Toowoomba Road	Leichardt	Ipswich	Australia	Bremer River	Yes	ponds Existing concrete channel, chain of ponds	Constructed Wetland to west of sporting fields	BMT - Channel Naturalisation	Overland Flow	~1.25%	Yes	Yes - Sewer (Depth 3.12 - 4.11 m)	No			Council - Partial	Good	Good	Large catchment flows (1800mm pipe)	Yes
2 - 74 Kruger Parade	Redbank	Ipswich	Australia	Goodna Creek	Yes	Required to get water out of the channel into the waterway	Ephemeral floodplain wetlands	No	Creek flows		Minor	No	Minor	Potential	Verylarge	ICC	Yes		Settlement from undermining, old staging area spoil	Yes
2 Creek Street	Silkstone	Ipswich	Australia	Bundamba Creek	Good	Site immediately adjacent to Bundamba Creek.	engagement		Overland Flow	~3.3%	Yes	Yes - Sewer (minor)	No			Council (mostly)	Good	Good (no formal access)	Council do not own the entire open space parcel	Yes
2 Lawrie Dirve	Collingwood Park	Ipswich	Australia	Goodna Creek	Moderate	Open Space with large mature trees. Opporuntity to integrate a system in with the park.	Surcharge		~2.5m	~3%	Yes	Yes - Sewer (Depth ~3m)	Yes			Council	Yes	Yes		Yes
2 Oakhill Street Park	One Mile	Ipswich	Australia	Bremer River	Yes	Existing weedy drainage channel. Sewer intersects invert of channel around the US end.	Wetland, channel naturalisation, chain of ponds	BMT - Wetland (Area = 14883)	Overland Flow	~1.5%	Yes	Yes - Sewer	No			Council	Yes	Yes		Yes
2 Pitcairn Street	Raceview	Ipswich	Australia	Bundamba Creek	Unlikely	Pitman Park			~1.5m	~4%	No	Minor - Sewer and SW	Yes			Council	Yes	No		Yes
20 Deborah Drive	Collingwood Park	Ipswich	Australia	Goodna Creek	Unlikely	Densely vegetated tree area. Pipe discharging directly into Goodna Creek. Pipe running from 2.5 - 1.6m depth.	Floodplain re- engagement, surcharge into ephemeral wetland		~2m	~1%, and steeper into the creek	Yes - Partial	Yes - Sewer	Yes			Council	Yes	Yes		Yes
20 Queen Street	Dinmore	Ipswich	Australia	Bremer River	Unlikely	Large cachment including the Cunningham Hwy, surrounding urban and some for rest.			Overland Flow	~1%	No	Yes - Sewer (DIA 1050, Dpeth 2.7m)	Minor (mostly weedy)			Council	Moderate (not activated)	Yes (no formal access)		Yes
20 Ronayne Circle	One Mile	Ipswich	Australia	Bremer River	Moderate	Existing retarding basin adjacent to Bremer River. Flow appear to discharge into vegetated riparian zone, prior to flowing into Bremer River.	Bioretention	BMT - Bioretention (Area = 1045)	Overland Flow	Flat base	Yes	No	No			Council	Yes	Yes		Yes
20 Stuart St (22 Madden Street Eastern Heights Qld 4305?)	Goodna	Ipswich	Australia	Bundamba Creek	No	Works completed? New wetland and sediment ponds in this location.		BMT- Wetland w/ harvesting	Overland Flow		No	No	Existing system			Council	Yes	Yes		Yes
200 Bailey St	Collingwood Park	Ipswich	Australia		No	Very limited space, conflict with sewer														Yes
206 Old Ipswich Road	Riverview	Ipswich	Australia	Six Mile Creek	Moderate	Small catchment discharging into moderately steep drainage gully line toward Six Mile Creek. Existing mature trees. No sewer conflict.	Ephemeral Wetland		Overland Flow	~10% gully invert and ~20% banks	Yes	No	Yes			Council	Yes	Yes		Yes
225 Blacktone Rd	Silkstone	Ipswich	Australia	Bundamba Creek	Yes	Stormwater pipe traversing park to discharge into invert of Bundamba Creek. Substantial open space/kick and throw	Stormwater harvesting, bioretention, floodplain re- engagement. Requires stormwater surcharge.	BMT - Bioretention (x 3)	US/DS Depth = 3.30/1.82 m	~1.1%	Yes	No	Minor			Council	Good	Good (no formal access)		Yes
23 Cleary Street	Bundamba	Ipswich	Australia	Bundamba Creek	Yes	Overland flow path through parkland. Steep site, and so may be tricky	Bioretention		Overland Flow	~6%	Yes	No	Minor			Council	Yes	Yes		Yes
254 & 258 Brisbane Road	Bundamba	Ipswich	Australia	Bundamba Creek	Unlikely	Exisitng car park to Sport Centre. Limited space. Deep pipes	Bioretention	BMT - Bioretention	~2.2m	~1.5%	Yes	Minor - Sewer	Minor - Existing trees			Council	Yes	Yes	Space constrained, deep pipes making daylighting an issue	Yes
26 Ash St	Yamanto	Ipswich	Australia	Deebing Creek	Yes	Overland flow into what appears to be a retarding basin. Sewer traverses the invert of the basin. Opportunity to daylight the 375 mm pipe with additional catchment.	Ephemeral Wetland,		Overland Flow	Basin base ≈ 1%	No	Yes (Stormwater and Sewer)	No			Council	Good	Good	Shallow sewer (Depth (4.74 - 5.71m from TOB), DIA 1050). Very shallow stormwater through the site (Depth ~ 0.87 m, DIA 0.375 m)	Tes
26 Fernbrooke Boulevard	Redbank Plains	lpswich	Australia	Six Mile Creek		Platypus site - Improve		WHS - Channel stabilisation and riparian works (middle reaches), Natural channel features (improve condition of modified channels)												

Address	Suburb	City	Country	Sub_catchm	Feasible_	Initial_Sc	Solution_T	Previously	Depth_to_p	Slope	Flooding	Infrastruc	Existing_V	Contaminat	Catchment_	Land_Owner	Accessibil	Maintenanc	Other_Issu	Complete
272 Whitehill Rd	Flinders View	lpswich	Australia	Deebing Creek	Moderate	Existing drainage parcel with weedy, overgrown channel. Sewer running through the invert. Not council owned land. Opportunity to sidecast flows into bioretention. Channel downstream from the parcel is council owned land, but is restricted in area.	Ephemeral wetland, Side-cast flows into bioretention, Floodplain re- engagement		Overland Flow	~1.2%	No	Yes - Sewer through invert of existing channel	No			Not Council	Good	Good	Parcel has potential, but is not council owned land.	Yes
273-295 Jones Road	Bellbird Park	lpswich	Australia		No	Moodai Reserve - Detialed design done														Yes
28A Jacana Crescent	Flinders View	Ipswich	Australia	Deebing Creek	Unlikely	Smaller urban catchments discharging into densely vegetated drainage channel.	Bioretention	BMT - Bioretention (x 2) (Area = 118 & 186)			Yes	Yes - Sewer	Yes			Council	No	No		Yes
29 Holterman Crescent	: Redbank Plains	Ipswich	Australia	Six Mile Creek	Moderate	Existing channel/swale. Portions of dense vegetation (trees). Large catchment	Floodplain re- engagement		Overland Flow		No	No	Yes			Council	Good	Moderate (no formal access)		Yes
29 Monash Rd	Redbank	Ipswich	Australia																	
29 Monash Rd	Redbank	Ipswich	Australia	Brisbane River	Possile	Larger industrial catchment. Existing sediment pond or constructed wetland upstream. Channel has steep batters. Can BCC contribute to a solution here?			Overland Flow	~33% banks	Yes	No	No			Not Council			Would require council purchasing parcel	Yes
2A Collingwood Drive	Collingwood Park	Ipswich	Australia	Goodna Creek	Moderate	Two drainage lines discharging to the Goodna Creek channel invert.	Bioretention	BMT - Bioretention (x 2)	~2m	~2.5%	Yes	MinorSewer	Minor			Council	Yes	Yes (no formal access)		Yes
2A Old Toowoomba Road	Leichardt	Ipswich	Australia	Bremer River	Yes - Partial	large open space area. Possible conflict with kick and throw area. Deep pipes. Sewer runs through side (minor conflict). 1800 stormwater pipe – large urban catchment.	Biotention		1.90 - 3.34 m	~0.8%	Yes	Yes - Sewer	No		47Ha	Council	Good	Good	Above ground sewer conflict	Yes
2A Old Toowoomba Road	Leichardt	Ipswich	Australia	Bremer River	Yes - Partial	large open space area. Possible conflict with kick and throw area. Deep pipes. Sewer runs through side (minor conflict). 1800 stormwater pipe - large urban catchment.	Naturalisation		1.90 - 3.34 m	~0.8%	Yes	Yes - Sewer	No		47на	Council	Good	Good	Above ground sewer conflict	Yes
30 Parkside Drive	Springfield	Ipswich	Australia	Woogaroo Creek	Unlikely	Very steep banks. Pipe discharges to the invert of the channel			4.28m	~30% banks	No	Yes - Sewer	Yes			Council	Yes	Yes		Yes
30 Stephenson Street	Sadliers Crossing	Ipswich	Australia	Bremer River	Unlikley	Steep grade making naturalisation or other options unlikely.														Yes
31 Kirk Street	Bundamba	Ipswich	Australia	Bundamba Creek	Moderate	Platypus site - Protect and enhance	Off-take from creek into constructed wetland	WHS - Channel stabilisation (lower and middle reaches), Floodplain revegetation and engagement (upper reaches)		~696	Yes		No			Council				Yes
31 Knight Avenue	Silkstone	Ipswich	Australia	Bundamba Creek	Moderate	Existing pond of questional water	Bioretention	BMT - Bioretention (x 2)	Overland Flow		Yes	Yes - Sewer	Minor			Not Council	No	No	Private Property	Yes
33 Caribou Drive	Brassall	Ipswich	Australia	Mihi Creek	Yes	quality. Requires online diversion from gully to base of system. Access may be poor. Sewer conflicts can be overcome.	Bioretention	Yes	Overland Flow	Moderate	Major Flood	Sewer	No	No	0.002314701	ICC	Poor	Access		Yes
33 Kirk Street	Bundamba	Ipswich	Australia	Bundamba Creek		Platypus site - Protect and enhance	Off-take from creek into constructed wetland	WHS - Channel stabilisation (lower and middle reaches), Floodplain revegetation and engagement (upper reaches)		~6%	Yes		No			Council				Yes
331 South Station	Raceview	Ipswich	Australia	Bundamba River	Yes	Large open space.	Bioretention		1.3 m (conflluence of SW lines)	~4%	No	No	No			Council	Good	Good		Yes
34 Helen Street	North Booval	lpswich	Australia		Yes	Fail Park Bioretention has undergone detailed design			,											Yes
36A Flint ST	North Ipswich	Ipswich	Australia	Bremer River	No	Depth to pipe is >3m														Yes

Address	Suburb	City	Country	Sub_catchm	Feasible_	Initial_Sc	Solution_T	Previously	Depth_to_p	Slope	Flooding	Infrastruc	Existing_V	Contaminat	Catchment_	Land_Owner	Accessibil	Maintenanc	Other_Issu Likely to require resumption to	Complete
38-40 wildey st to Robertson Rd	Raceview	lpswich	Australia	Bundamba	Low	Naturalisation	Naturalisation	No	Surface Drain	Low	Minor & Major	Sewer	Nil		180Ha	Council & Private			overcome afflux potential. With resumption could be an ideal wetland site, in land that is otherwise constrained by flooding.	Yes
39 Briggs Rd	Raceview	Ipswich	Australia	Deebing Creek	No		Channel Naturalisation	BMT - Channel Naturalisation												Yes
39 Pelican Street	North Ipswich	Ipswich	Australia	Bremer River	Unlikely	Unlikely pending detailed contaminated land asessment	Constructed wetland and/or harvesting	No												Yes
39A Brisbane Rd	Newtown	Ipswich	Australia	Bremer River																Yes
4 Wheeler Street	Gailes	Ipswich	Australia	Woogaroo Creek	No	Conflict with existing BMX track. Open space in a park.	Bioretention	BMT - Bioretention	~1.6m	~1.5%	Yes	No	No			Council	Yes	Yes	Conflict with BMX track	Yes
40 Cedar Rd	Redbank Plains	Ipswich	Australia	Goodna Creek	Yes	1350mm outlet pipe. Large catchment. Unclear as to whether the catchment extends into 100 Cedar Road Redbank Plains (opportunity identified here = SW harvesting)	Bioretention with high flow bypass	BMT - Bioretention	Overland Flow	~p.5%	No	Minor - Sewer	No			Council	Good	Good (possible)		Yes
45 Penrose circuit	Redbank Plains	Ipswich	Australia	Six Mile Creek	Yes	Large Catchment. Mostly overland flow.	Bioretention, Channel Naturalisation, Revegetation		Overland Flow	~1.6%	No	Yes - Sewer crossing invert	Yes			Council	Yes	Yes		Yes
47 Greasley Street	Tivoli	Ipswich	Australia	Tivoli Creek	No	Available area too small, online to significant waterway system (100Ha+)		No							<0.1%					Yes
47 Nixon Drive	North Booval	Ipswich	Australia	Bundama Creek	Yes	Small area of bi oretention filter media, likely undersized.	Constructed Wetland	No	0	Moderate	Major Flood	No	No		0.05555556	Council	Good	Resolve existing typha issues	Potential park location? Unexplained empty land.	Yes
47A Canning St	North Ipswich	Ipswich	Australia	Bremer River	No	Depth to pipe is >3m		Marc Channel												Yes
47a Magpie Crescent	Redbank Plains	Ipswich	Australia	Six Mile Creek	Moderate	Platypus site- Improve. Catchment being developed. Catchment flows are discharge to the top of bank.	(works completed following	WHS - Channel stabilisation and riparian works (middle reaches), Natural channel features (improve condition of modified channels)	Overland	~20% banks, ~1.25% channel invert	Yes	Minor - Sewer	Yes			Council	Yes	Yes		Yes
48 Swanbank Road	Raceview	Ipswich	Australia	Bundamba Creek			Bioretention	BMT - Bioretention											Council land is online a stream order 3 waterway	
49 Creek Street	Bundamba	lpswich	Australia	Bundamba Creek	Moderate	750mm pipe outlet. Steeper site. Discharge points close to invert of the creek. *** 23 Cleary Street Bundamba has better opportunity			~2.14m	~6.5%	Yes	Yes - Sewer	Yes			Council	Yes	Yes	older J water way	Yes
49 Ingles Drive	Redbank Plains	Ipswich	Australia	Six Mile Creek	Yes	Overland flow. Smaller catchment. Looks like concrete channel (unclear). Moderate grade. Community well activated.	Bioretention	BMT - Channel Naturalisation	Overland Flow	~5%	No	No	No			Council	Good	Good		Yes
49 Woogaroo	Goodna	lpswich	Australia	Woogaroo Creek/Brisbane River	Yes	1650 and 1050 pipe outlet into concrete channel, running adjacent to irrigated fields.	Stormwater harvesting, channel naturalisation		Overland Flow	~0.8%	Yes	Minor - Sewer	No			Council	Yes	Yes		Yes
50 Flint St	North Ipswich	Ipswich	Australia	Bremer River	Yes - Small Scale															Yes
504 Kensington Drive	Flinders View	Ipswich	Australia	Deebing Creek	Unlikely	Open space adjacent to existing picnic and playground.	Bioretention	BMT - Bioretention (Area = 472)	~ 4m (along roads edge)	~5%	No	No	No			Council	Yes	Yes		Yes
51 Augustine's Drive	Augustine Heights	Ipswich	Australia	Woogaroo Creek	Yes	Densely vegetated drainage channel into chain of ponds	Wetland, stormwater treatment pond		Overland Flow	~0.8%	No	No	Yes			Council	Yes	Moderate		Yes
51 Hallets Rd	Redbank Plains	Ipswich	Australia	Six Mile Creek	Moderate	Open grassy swale. Large mature trees. Stormwater running through invert with occasional field inlet. Large catchment	Natural channel		Overland Flow and Piped Flow	~2.5	No	Yes-Stormwater pipe running along the invert of the channel.	No			Council	Good	Moderate (no formal access)		Yes
54 Moffat ST	lpswich	tpswich	Australia	Deebing Creek	Moderate	Large catchment discharging through densely vegerated channel into Deebing Creek (DIA1800 outlet). Generally steep banks (10%), Relatively poor accessibility. Minor infrastructure conflicts.	Floodplain re- engagement		Overland Flow	Channel Invert ~ 2.5%, Batter ~ 10%	Yes	Yes - Sewer (Above Ground)	Yes			Council	Poor	Poor	1800 mm outlet pipe. Large catchment.	Yes
55 North High Street	Brassall	lpswich	Australia	Mihi Creek	No	On-line detention function with deep basin. Would require significant flattening (filling) to work)		BMT - Bioretention												Yes

Address	Suburb	City	Country	Sub_catchm	Feasible	Initial Sc	Solution T	Previously	Depth_to_p	Slope	Flooding	Infrastruc	Existing V	Contaminat	Catchment	Land_Owner	Accessibil	Maintenanc	Other Issu	Complete
radicas	Suburb	City	Country	Sub_cutchin	T CUSIDIC_	Existing concrete lined	Jointon_1	Treviousiy	Берит_со_р	зюрс	Trooting	mirastrae	Existing_*	Contaminat	- Cutchinent_	Euna_owner	Piccessin	Wantenane	Otto Sud	complete
56 Bognuda St	Bundamba	Ipswich	Australia	Bremer River	Yes	channel? Existing diversion into retarding basin(?) or treatment system(?).	Bioretention Basin, channel naturalisation		Overland Flow	~3.3%	Yes	Minor - Sewer	Minor			Council	No - Possi ble	Yes		Yes
56 Bradfield Drive	Brassall	Ipswich	Australia	Ironpot Creek	No	Existing weedy/graddy channel into an existing basin (works completed?)	Bioretention	BMT - Bioretention (Area = 583)	Overland Flow	~1.5%	Yes	No	No			Council	Yes	Yes (no formal access)		Yes
56 Lawrie Drive	Collingwood Park	Ipswich	Australia	Goodna Creek	Yes	Opportunity to discharge catchment flows to bioretention surface. Mostly grassy	Bioretention	BMT - Bioretention	~1.45m	~3%	Yes - Partial	Minor - Sewer	No			Council	Yes	Yes (no formal access)		Yes
57 Col lingwood Drive	Collingwood Park	lpswich	Australia	Six Mile Creek	Moderate	open space. Large catchment, going through a grassy/weedy channel with large mature trees on banks. Sewer crosses invert of the channel above the ground level.	Channel naturalisation, chain of ponds		Overland Flow	~1% channel invert	Yes	Yes - Sewer	Yes			Council	Yes	Yes		Yes
58 Harding ST	Raceview	Ipswich	Australia	Bundamba River	Yes	Threestormwater lines.	Surcharge - Bioretention	BMT - Bioretention	1.4m (max), 0.88m (min)	~1% (and shallower)	Yes	No	No			Council	Good	Good		Yes
5A Dindina St	Flinders View	Ipswich	Australia	Deebing Creek	Yes	Existing grass swale. Top of large catchment. Pipe is approximately 1.1 m depth. DIA 375 mm. Parcel approximately 40m wide.	Daylight pipe flows into natural channel/bioretention/ swale		~ 1.1 m DS near culvert	~1.1%	No	Yes - Existing SW pipe through existing invert	Minor			Council	Poor	Poor	Grated field inlets along the invert of the existing channel	Yes
60 Gledson St	North Booval	Ipswich	Australia	Bundamba Creek	Yes	Drainage line recieves flows from a small catchment (cost benefit may be low). Sewer line runs under the existing footpath. Existing footpath. Existing footpath.	Bioretention	BMT - Bioretention x 5	Overland Flow		Yes	Minor (sewer)	No			Council	Good	Good		Yes
60 Hill ST	Tivoli	Ipswich	Australia	Tivoli Creek	No	Available area too small, online to significant waterway system (100Ha+)		No							<0.1%					Yes
60 Sharpless Rd	Springfield	Ipswich	Australia	Woogaroo Creek	Yes	Existing grassy swale. May already surcharge flows in high flow events			1.47m	~2.5%	No	Yes - Sewer and SW	Minor			Council	Yes	Yes		Yes
600 Redbank Plains Rd	Redbank Plains	Ipswich	Australia	Six Mile Creek	Mo derate	Open space - kick and throw. Not a lot of land available to size a wet land for that catchment. Large catchments.	Strormwater harvesting		Overland Flow	~1.6%	Yes	No	Minor			Council (mostly)	Good	Good		Yes
60-74 Albert Street	Goodna	Ipswich	Australia	Woogaroo Creek	Yes	1	Channel Naturalisation	BMT - Channel Naturalisation	Overland Flow		No	Yes - Sewer	No			Council	Yes	Yes		Yes
61 Workshops St	Brassall	Ipswich	Australia	Mihi Creek	Yes	Existing vegetation to be overcome.	Ephemeral Wetland/harvesting		Concrete channel	Low	No	No	Yes - some revegetation to be removed		0.0165	ICC	Yes		Unlikely to be able to daylight bioretention, leading to wetland. Very small treatment area to catchment. Including batters, treatment area likely <1500m2.	Yes
61 Workshops Street	Brassall	Ipswich	Australia	Bremer River		Combined with harvesting		Constructed wetland/channel naturalisation											Flooding, existing vegetation	
62 Russell Drive	Redbank Plains	Ipswich	Australia	Goodna Creek	Unlikely	Large catchment (DIA 1950 mm SW pipe)	Bioretention (surcharge)		(SW pipe: ~ 3 - 3.5 m)	~ 2%	No	No	No			Council	Good	Good	Large dog park and open space, which would be contentious to remove	Yes
629 Redbank Plains Road	Redbank Plains	Ipswich	Australia	Six Mile Creek	Nil - No urban catchment	Platypus site - Improve	Riparian revegetation	WHS - Channel stabilisation and riparian works (middle reaches), Natural channel features (improve condition of modified channels)			Yes					Council				Yes
63 Powells Road	Yamanto	Ipswich	Australia	Purga Creek	Yes	Existing retarding basin. Grassy open space.	Bioretention	BMT - Bioretention (Area = 1077)	Overland Flow		No	No	No			Council	Yes	Yes	Existing Detention Basin	Yes
64 Briggs Rd	Raceview	Ipswich	Australia	Deebing Creek	No		Channel Naturalisation	BMT - Channel Naturalisation												Yes
64 Brisbane Terrace	Goodna	lpswich	Australia	Woogaroo Creek	Possible	Platypus site	Street scape solutions within the catchment	WHS - Channel stabilisation (downstream of Augusta Parkway), Address sediment transport / constructed channels along Opossum Creek, Riparian revegetation	~1.35m	~10% bank to Woogaroo Creek	Yes	Yes	No			Council	Yes			Yes
65 McCorry Drive	Collingwood Park	Ipswich	Australia	Six Mile Creek	Moderate - Low	Densely vegetated drainage channel to a large waterbody at the top of Six Mile Creek. Two 1750 RCP outlet pipes	Bank stabilitation		Overland Flow	Steep banks, shallow graded invert	Yes	Yes - Sewer	Yes			Council	No	No		Yes

Address	Suburb	City	Country	Sub_catchm	Feasible_	Initial_Sc	Solution_T	Previously	Denth to n	Slone	Flooding	Infrastruc	Existing_V	Contaminat	Catchment_	Land_Owner	Accessibil	Maintenanc	Other_lssu	Complete
Address 65 Mill Street	Goodna	lpswich	Australia	Woogaroo Creek	reasible	Platypus site	Solution_1	WHS - Channel stabilisation (downstream of Augusta Parkway), Address sediment transport / constructed channels along Opossum Creek, Riparian revegetation	Depth_to_p	Slope	Flooding	inir astruc	existing_v	Contaminat	Catchment_	Land_Owner	Accession	wantenanc	Other_issu	Complete
66 Goddards Road	Yamanto	Ipswich	Australia	Purga Creek	Unlikely	Agricultural land use. Not council owned property	Bioretention	BMT - Bioretention (Area = 1009)	Overland Flow	~2.5	Parial	No	Pastoral Land			Not Council	No	Yes	Private Property - 750 drainage main	Yes
69 Church St	Tivoli	Ipswich	Australia	Bremer River	Yes - Small Scale	Limited urban catchment, car park treatment for small scale work	Passive irrigation wicking/street trees													Yes
69 Church St	Tivoli	Ipswich	Australia	Bremer River				Wetland/field treatment/provide value to river corridor												
7002 Harding Street	Raceview	Ipswich	Austrlia	Bundamba Creek	Yes	Existing waterbody, existing bioretention	Wetland	BMT - Bioretention	Overland Flow	~1.5%	Yes	No	Minor			Council	Good	Good		Yes
76 Albert St	Goodna	lpswich	Australia	Woogaroo Creek/ Brisbane River	Yes	Disting 750 and 1350mm outlet pipe into sed ponds, prior to overflowing into a concrete channel. Appears to be two sed ponds with drop structure between	naturalisation,	BMT - Channel Naturalisation	Overland Flow	~0.8%	No	No	No			Council	Yes	Yes		Yes
77 Jean Road	Camira	Ipswich	Australia	Sandy Creek	Moderate - Low	them. Existing densely vegetated drainage channel with small adjacent park. Large catchment flowing though (3 x x 1050 pipes) to concrete channel and then Sandy Creek)	Bank stabilisation, channel naturalisation		Overland Flow	~1.25% invert. Steeper banks	No	Yes - Sewer	Yes			Council	Yes	Yes		Yes
7A Brenda Court	Collingwood Park	Ipswich	Australia	Six Mile Creek	Yes	Concrete lined channel running through the channel "14ha catchment ("50% imper). May be an easement (overhead power noted)?	Channel naturalisation, wetland, bioretention	BMT - Channel Naturalisation	Overland Flow	~1.5m	No	No	Minor			Council	Good	Good		Yes
8 Oak Court	Yamanto	Ipswich	Australia	Deebing Creek	Moderate	Location appears to be near the top of the mapped catchment. Small available area of grassy swale/retarding basin.	Bioretention	BMT - Bioretention (Area = 270)	Overland Flow		No	No	No			Council	Yes	Yes		Yes
81 Riverview Road	Riverview	Ipswich	Australia	Bremer River	Yes	Catchment flows through 4x 1500 mm. Large catchment flows. Existing concrete channel.	Channel Naturalisation		Overland Flow	Channel invert ~ 2%	Yes	No	No			Council				Yes
85 Oxford St	North Booval			Bremer River	Yes	Conflicts with sports field design and location. Requires pumping from Bremer River	Constant flow treatment wetland	No	NA	Moderate, however significant earthworks required to facilitate sports field	Moderate to Major	Sewer, should be easily avoided	Low		NA.				Careful plant selection required to cope with brackish water from Bremer River, alternative modelling approach required.	Yes
8a Fernbrooke Boulevard	Redbank Plains	lpswich	Australia	Six Mile Creek		Platypus site - Improve		WHS - Channel stabilisation and riparian works (middle reaches), Natural channel features (improve condition of modified channels)												
9 Alma Street	Gailes	lpswich	Australia	Woogaroo Creek	Yes	Open grassy area. Catchment flows discharged directly to creek invert. Opportunity to discharge shallow pipe into bioretention.	Bioretention	BMT - Bioretention	~1.35m	~1.5%	Yes	No	No	Yes		Council	Yes	Yes		Yes
95A Brisbane Rd	Booval	Ipswich	Australia	Bremer River	Yes	fairly bare park, embellishment/beauti fication possibilities		Natural channel , wetland	~1.1m	~2.5%	No	Yes - Sewer	Minor			Council	Yes	Yes	Conflict with open space requirements, small catchment	Yes
Alice & Short St (Tom Easter brook Park)	Blackstone		Australia	Bundamba Creek	Street scale raingardens/passive irrigation	Drainage upgrade	Street scale passive irrigation/raingardens	No	surface drains	5%	No	No	No						Requires understanding of drainage upgrade extent. Opportunities are unlikely in Tom Easterbrook Park	
Benjamina Henty Drive	Redbank Plains	Ipswich	Australia	Goodna Creek	Yes	Several locations of possible work. Main channel has large catchment and would likely receive large catchment flows (5 x 1800)	Channel naturalisation, bioretention, chain of ponds		Overland Flow	Varies	No	Yes - Sewer (min 2.1 m depth)	No			Council	Good	Good		Yes

Address	Suburb	City	Country	Sub_catchm	Feasible	Initial Sc	Solution T	Previously	Depth_to_p	Slope	Flooding	Infrastruc	Existing_V	Contaminat	Catchment	Land_Owner	Accessibil	Maintenanc	Other Issu	Complete
7 to all C 00	SUBUID	Sity	Country	- Juliani	. custore_			WHS - Channel	D C P LO _ D	5.5 pc	ooung	Journal		Containing	- Cutti-Micht	Edito_OWNER	7100000011	- Transcrium	Suit is	compiete.
Blue Gum Park	Redbank Plains	Ipswich	Australia	Six Mile Creek	Yes	Platypus site - Limited available space, potential developer still to deliver WQ.	Bioretention, channel stabilisation, floodplain re- engagement	stabilisation and riparian works (middle reaches), Natural channel features (improve condition of modified channels)	Overland Flow		Yes	No	Minor			Council				Yes
Bob Titcombe Park	Brassall	Ipswich	Australia	Mihi Creek	Yes			level spreader/infiltration - online Mihi Creek												Yes
Bremer Parade Reserve	Basin Pocket	I pswich	Australia	Bremer River	Yes	Platypus site- Catchment discharges into very steep channel. Opportunity to discharge catchment flows into bioretention located in open space adjacent to existing outlet.	Bioretention	WHS - Channel stabilisation works and riparian revegetation	~1.45m	~3%	Yes	Yes - Sewer	No			Council	Yes	Yes		Yes
Cemetery Road	Raceview	Ipswich	Australia		Low	See adjacent site - 38- 40 wildey st to														Yes
Cnr Cedar Road and	Redbank Plains	Ipswich	Australia	Goodna Creek		Robertson Rd		BMT - Wetland												
Moreton Avenue Collingwood Drive Transmission	Collingwood Park	lpswich	Australia	Six Mille Creek	Moderate	Platypus site - Steeper banks down to a densely vegetated, moderately flat stand. Sheet flow down to Six Mile Creek. No clear urban catchment flowing through the site	Riparian revegetation, floodplain re- engagement	WHS - Riparian revegetation		8% banks, 196 flat stand	No	Minor - Sewer	Yes			Council	No	No		Yes
Conway Street Park	Riverview	Ipswich	Australia	Six Mile Creek	Yes	Platypus site - See adjacent site		WHS - Channel stabilisation and riparian works (middle reaches), Natural channel features (improve condition of modified channels)												Yes
Cribb Park		Ipswich	Australia	Bremer River		Reveg site (Erosion through site)		WHS - Channel stabilisation works and riparian revegetation												
David Street Reserve	North Booval	Ipswich	Australia	Bundamba Creek	Moderate	Platypus site - No urban catchment going through David Street Reserve. Catchment flows go through Fail Park.	Revegetation, floodplain re- engagement	WHS - Channel stabilisation (lower and middle reaches), Floodplain revegetation and engagement (upper reaches)	Overland Flow	~2.5%	Yes	Yes - Sewer	Minor				Yes			Yes
Fail Park		Ipswich	Australia	Bundamba Creek	Yes	Platypus site - See adjacent site		WHS - Channel stabilisation (lower and middle reaches), Floodplain revegetation and engagement (upper reaches)												Yes
Grace Street	Wulkuraka	Ipswich	Australia	Bremer River	Yes	Some potential for naturalisation, partially treated catchment	Naturalisation or bioretention	No	Overland Flow	Low	No	Minor	No	No		Road Reserve	Good	Nil	Available space and freeboard needs to be tesetd through detailed model.	Yes
Investa Sportsground	Swanbank			Bundamba Creek	Possible	Online significant floodplain in developing catchment. Rapidly eroding waterway. Development considerations	Floodplain wetlands	No	Surface Flows	wal	Minor & Major - Hydraulic Check required	Sewer main to be constructed	Low		>1000На	Private in part	Not currently		Upstream catchment treated to best practice, over and above treatment required, alternative modelling approach	Yes
Iron Monger Park	Pine Mountain			Ironpot Creek	Yes	Good site for revegetation	Floodplain wetland		surface	Low	Yes - velocity check required	Nil	Low		Very large - online Ironpot Creek	ICC	Yes	No	Very high sediment loading with potential for filling floodplain wetland structures. Already a well engaged wetland	Yes
Jack Barkley Park	North Booval	Ipswich	Australia	Bundamba Creek	Yes	Platypus site	Channel Naturalisation, bioretention	WHS - Channel stabilisation (lower and middle reaches), Floodplain revegetation and engagement (upper reaches)	Overland Flow	~2.5%	Yes	No	No			Council	Yes			Yes
Jumbal jdoo Park	Collingwood Park	lpswich	Australia	Six Mille Creek	Yes	Platypus site - Improve. Catchment under development. Several discharge points along the top of bank/floodplain. Opportunity to ensure no worsening to creek condition following development and improve stream health by treating urban catchment.	initiation curtain	WHS - Channel stabilisation and	Overland Flow	~1.5%	Yes	Minor - Sewer	No			Council	Yes			Yes

Address	Suburb	City	Country	Sub_catchm	Feasible_	Initial_Sc	Solution_T	Previously	Depth_to_p	Slope	Flooding	Infrastruc	Existing_V	Contaminat	Catchment_	Land_Owner	Accessibil	Maintenanc	Other_lssu	Complete
Llewellyn Street	Redbank Plains	Ipswich	Australia	Bundamba Creek	Yes	Unlikely due to constrained	Swale		Overland Flow		Yes	No	No		_	Council	Poor	Poor	_	Yes
Lot 15 Jacaranda Drive	Yamanto	Ipswich	Australia	Bremer River	Yes	catchment, high Existing swale. Swale was previously densely vegetated with Typha. Swale has since been cleared.	Bioretention Swale, Bioretention with high flow bypass	BMT - Bioretention	Overland Flow	~1.5%	No	No	No			Council	Good	Good	Address was not correct. Location of pin is correct.	Yes
Martin Coogan Park	Gailes	Ipswich	Australia	Woogaroo Creek	Yes	Platypus site - See adjacent site		WHS - Channel stabilisation (downstream of Augusta Parkway), Address sediment transport / constructed channels along Opossum Creek, Riparian revegetation					No			Council				Yes
McLeod Street Park	Basin Pocket	Ipswich	Australia	Bremer River	Yes	Platypus site	Bioretention, channel naturalisation	WHS - Channel stabilisation works and riparian revegetation	Overland Flow	~3.3%	Yes	Minor - Sewer	No			Council	Yes	Yes		Yes
Melbury St	Willowbank			Bremer River	Yes	Drainage upgrade planned - intercept existing stormwater drain to construct bioretention or street scale raingardens.	Bioretention raingardens x 2	Identified by ICC with existing planned upgrade	11-14m	low	No	No Sewer infrastructure shown - not big enough lots for septic	Minor		5.1Ha	ICC	Yes		Sewer locations not shown on mapping.	Yes
Noble Park	Gailes	lpswich	Australia	Woogaroo Creek	No	Platypus site - See adjacent site		WHS - Channel stabilisation (downstream of Augusta Parkway), Address sediment transport / constructed channels along Opossum Creek, Riparian revegetation												Yes
North Ipswich Wetlands Park	Tivoli	Ipswich	Australia	Tivoli Creek	Yes	Existing outfall into vegetated channel to confluence with main drainage line (Tivoli Creek).	Bioretention, creek filtration	Bio/creek filtration at end of pipe closest Wyndham St	Overland Flow	~10% bank, ~1.5% invert	Yes	Yes - Sewer	Yes			Council	Yes		Small catchment	Yes
Oxford Street	North Booval	Ipswich	Australia	Bundamba Creek	Yes	Platypus site - See adjacent site		WHS - Channel stabilisation (lower and middle reaches), Floodplain revegetation and engagement (upper reaches)												Yes
Pan Pacific Peace Gardens	Redbank			Goodna Creek	Yes	Flying Fox colony, frequent inundation, hydraulic check required for flow velocities	ephemeral wetland	No	Surface Flows	Low	Yes - liikely in minor event	No	Yes - construction required to avoid existing vegetation		sub-regional catchment	ICC	Yes		Flying fox presents major challenge	Yes
Permaculture Park	East Ipswich	Ipswich	Australia	Bremer River	Yes	Platypus site	Channel Nauralisation, riparian revegetation		Overland Flow	~2.5%	Yes	No	Yes			Council	Yes			Yes
Sams Reserve	Redbank Plains	Ipswich	Australia	Six Mile Creek	Moderate	Platypus site - Only portion of park is council owned. No clear urban catchment directed		WHS - Channel stabilisation and riparian works (middle reaches), Natural channel features (improve condition of modified channels)		~2.5%	Yes	No	Yes			Council				Yes
Simmons Road	North Ipswich	Ipswich	Australia	Tivoli Creek	No	Available area too small, online to significant waterway system (100Ha+)	Naturalisation		Overland Flow	Low	Frequent	No	No	No	0.002409012	ICC (Road Reserve)	Good		Small area to large catchment, unlikely to be able to provide protection from high flows Requires 2D Flood model to understand flows Potential for bioretention if high flows can be managed	Yes
Spring Garden Park 39A Brisbane Rd	Newtown	Ipswich	Australia	Bremer River				une et												Yes
Tite Family Park	Bundamba	Ipswich	Australia	Bundamba Creek	Moderate	Platypus site - See adjacent site		WHS - Channel stabilisation (lower and middle reaches), Floodplain revegetation and engagement (upper reaches)												Yes
Tristania St	Yamanto	Ipswich	Australia	Bremer River				BMT- Channel Naturalisation						No		Not Council	Yes	Yes		Yes
Walden Street Park	Redbank Plains	Ipswich	Australia	Six Mile Creek	Yes	Platypus site - Weedy reach of Six Mile Creek.	Channel naturalisation, floodplain re- engagement	WHS - Channel stabilisation and riparian works (middle reaches), Natural channel features (improve condition of modified channels)	Overland Flow		Yes	Yes - Sewer	Minor			Council				Yes
Wards Rd Sports Ground	South Ripley				Nil - No urban catchment															Yes
Woodend Park	Woodend	Ipswich	Australia	Bremer River	Mo derate	Platypus site - catchment flows into steep vegetated channel	Riparian re-vegetation, curtain bioretention	WHS - Channel stabilisation works and riparian revegetation	Overland Flow	~7.5% channel invert	Yes	No	Yes			Council	Yes	Yes		Yes

Doc ID No: A7477135

ITEM: 7

SUBJECT: DISABILITY INCLUSIVE DISASTER RISK REDUCTION PROJECT

AUTHOR: ACTING SENIOR EMERGENCY MANAGEMENT OFFICER

DATE: 11 AUGUST 2021

EXECUTIVE SUMMARY

This is a report concerning the Disability Inclusive Disaster Risk Reduction Project undertaken by Council throughout 2020-2021.

RECOMMENDATION

That the report be received and the contents noted.

RELATED PARTIES

Council partnered with the following organisations to deliver this project:

- Centre for Disability Research and Policy at The University of Sydney
- Queenslanders with Disability Network
- Queensland Government (Department of Communities, Housing and Digital Economy)

There was no declaration of conflicts of interest.

IFUTURE THEME

Safe, Inclusive and Creative

PURPOSE OF REPORT/BACKGROUND

Research shows that people with disability are at higher risk from and disproportionately impacted by disasters; for these reasons and others, people with disability are identified as a vulnerable group within the City of Ipswich Local Disaster Management Plan. The Disability Inclusive Disaster Risk Reduction (DIDRR) project aims to reduce disaster risk for people with disability through education, awareness and most importantly through person-centred emergency planning.

Council undertook the DIDRR project to improve its emergency management and community resilience under the 2020-2021 Operational Plan.

Consultation with people with disability from within the Ipswich community was not only essential to this project's success, but indeed shaped the project's direction and outcomes. Full details of community consultation undertaken throughout this project is outlined at the 'Community and other consultation' section of this report.

Key outcomes from this project include:

- Two (2) workshops undertaken with and co-facilitated by people with disability, disability support organisations and emergency services, to introduce DIDRR and start their Person-Centred Emergency Preparedness (PCEP) journey;
- Creation of a <u>Disability Inclusive Disaster Risk Reduction page</u> on Council's website making the DIDRR Framework and PCEP Workbook available to the community;
- Increased representation in and accessibility of the new 2021-24 City of Ipswich Local Disaster Management Plan (pending publishing at time of writing):
 - Representation of people with disability in the 'If Ipswich were 100 people' graphic
 - Addition of alternative text to all graphs and images to improve the experience of people using screen readers
 - Inclusion of the DIDRR framework as Council's approach to reducing disaster risk for people with disability in the Ipswich community
- Addition of Auslan, closed captions and transcripts to all emergency preparedness videos on the Emergency Management YouTube channel (pending publishing at time of writing);
- Inclusion of the DIDRR approach in Councils' new Community Development Strategy;
 and
- Creation of invaluable connections with the disability community in Ipswich, including residents, support organisations and local agencies.

This project has highlighted future opportunities available to incorporate disability representation and accessibility when developing content, publishing material, hosting events etc. as part of Council's emergency management program to reduce disaster risk for people with disability in Ipswich.

LEGAL/POLICY BASIS

This report and its recommendations are consistent with the following legislative provisions: Disaster Management Act 2003
City of Ipswich Local Disaster Management Plan
City of Ipswich Disaster Management Policy

RISK MANAGEMENT IMPLICATIONS

There are no risks associated with the recommendation of this report.

HUMAN RIGHTS IMPLICATIONS

HUMAN RIGHTS IMPACTS

RECEIVE AND NOTE REPORT

The recommendation states that the report be received and the contents noted. The decision to receive and note the report does not limit human rights. Therefore, the decision is compatible with human rights.

FINANCIAL/RESOURCE IMPLICATIONS

There are no additional financial or resources implications resulting from this report.

COMMUNITY AND OTHER CONSULTATION

Consultation on this project was guided by the essential stakeholder groups identified in the DIDRR framework: people with disability, local disaster management and community and disability support services. Over 30 representatives from across all three (3) groups attended a DIDRR workshop in February 2021 hosted by Council to introduce the DIDRR framework and Person-Centred Emergency Preparedness Workbook. The workshop was co-facilitated by the University of Sydney project lead Professor Michelle Villenueve and was well received by all participants, which included 12 Ipswich residents with disability and their carers, six (6) local disability support organisations and 13 representatives from government agencies providing disability support services in Ipswich.

Council hosted a follow up workshop in May 2021 with people with disability who wanted to further their disaster preparedness journey as a result of the first workshop. Council worked with this group on identifying and understanding their personal disaster risk, learning where to go for local emergency information, working through specific challenges in response and start working on actionable preparedness activities tailored to the individual's capabilities and support needs.

Peter Tully, a well-known local disability advocate, invited Council to participate in monthly meetings of the Queenslanders with Disability Network (QDN) Ipswich Peer Support Group meetings throughout the life of the project. The relationships developed through the Ipswich Peer Support Group were invaluable and significantly informed the project delivery approach and several changes that have resulted in a more inclusive, representative, and accessible emergency management program at Ipswich City Council.

The approach undertaken with the community and Council has since been used as a case study (Attachment 1) by the University of Sydney as an example of best practice intended to assist other local governments deliver on DIDRR outcomes for people with disability across Queensland.

CONCLUSION

The relationships developed and lessons identified throughout the DIDRR project have been invaluable and have informed several changes resulting in a more inclusive, representative and accessible disaster management program at Ipswich City Council.

ATTACHMENTS AND CONFIDENTIAL BACKGROUND PAPERS

1. Case Study - DIDRR in Ipswich 🗓 🛗

Kristie Mckenna

ACTING SENIOR EMERGENCY MANAGEMENT OFFICER

I concur with the recommendations contained in this report.

Matthew Pinder

EMERGENCY MANAGEMENT AND SUSTAINABILITY MANAGER

I concur with the recommendations contained in this report.

Kaye Cavanagh

MANAGER, ENVIRONMENT AND SUSTAINABILITY

I concur with the recommendations contained in this report.

Sean Madigan

ACTING GENERAL MANAGER - INFRASTRUCTURE AND ENVIRONMENT

"Together, we proudly enhance the quality of life for our community"



Known for its architectural heritage, Ipswich is an urban region in Southeast Queensland. Situated on the floodplains of both the Bremer and Brisbane rivers, Ipswich is no stranger to flooding and has had its share of severe weather events; many in recent years. Ipswich is also at risk of other natural hazards including bushfire and heatwave.

Ipswich City Council is dedicated to making sure that all residents are disaster-ready. In 2020, Ipswich City Council was recognised with a Resilient Australia Award for their animated video series. The animations poke a bit of fun at our tendency to put off preparing and compel viewers to get ready today. Matthew Pinder, Emergency Management and Sustainability Manager was the driving force behind this novel approach that engages while educating about the local disaster risks that Ipswich residents face.

In 2019, Ipswich City Council partnered with the <u>Disability Inclusive and Disaster Resilient</u>

<u>Communities</u> project team. In May of 2019, Ipswich was host to two inclusive community engagement forums that brought together people with disability, community, health and disability service providers, emergency personnel, and government to learn

about <u>Disability Inclusive Disaster Risk Reduction</u> (<u>DIDRR</u>). Forum participants learned directly from people with disability about the challenges they face before, during, and after disasters in Ipswich and surrounding communities. Reports were shared back to participating Councils and findings from seven forums held in four Local Government Areas were used to build the <u>Queensland DIDRR</u> Framework and Toolkit.

When the project team got started on Phase
Two of the DIDRR project, Ipswich City Council
made a commitment to implement the DIDRR
Framework. That started with a self-assessment
process to examine their emergency management
activities and a goal to make disaster risk reduction
information, education and resources accessible
to everyone. Later that year, Kristie McKenna,
Emergency Management Officer, who was new to
her role, took a leadership role to achieve their goal.

Kristie got started by listening to people with disability to understand the issues from their perspectives. Eighteen months later, Ipswich boasts a long list of DIDRR actions that Kristie admits, "are actually easy for us to do and make a big difference for people with disability."



Some examples include:

- reviewing all emergency management documents for accessibility and adding alt text to images and figures
- adding Auslan and closed captioning to existing videos and making a transcript of all videos available
- hosting workshops on <u>Person-Centred</u>
 <u>Emergency Preparedness</u> in partnership with people with disability
- ensuring disability representation in the Local Disaster Management Plan and highlighting those changes in formal committee reports
- inviting a disability representative to speak to the <u>Local Disaster Management Group</u> about DIDRR

Kristie says, "they're not ground-breaking actions" and she doesn't expect to be rewarded for taking them. Her colleagues at Queenslanders with Disability Network (QDN) would probably agree with this assessment – because having access to information about disaster risks and preparedness is a human right and a responsibility under Australia's emergency management arrangements. The real challenge for councils is knowing how to put disability inclusion principles into action. Kristie's experience offers important learnings and her action steps provide a good model for other Councils to get started.

Kristie says, "the most important action I took was to listen." With humility in spades, Kristie is the first to admit that her initial plan emphasised efficiency - her idea was to get stuck into the task by coming up with ideas and solutions for greater accessibility and inclusion, then to check in with the disability community. She pitched this approach to Peter Tully, a QDN Peer Leader and action researcher on the project team. Kristie says, "Peter put me in my place very quickly and basically said, Don't do that! Just involve us from the beginning. Don't start designing or making anything without having involved us from the start." It was a humbling experience and the start of a partnership with Peter and his local Ipswich community network of peers with disability.

When asked about the biggest barrier to getting started with disability inclusive emergency planning, Kristie said that she had never worked with people with disability before and she was afraid of saying the wrong thing and upsetting people. She remarked, "In my experience, disability had been a taboo subject except for those who live with disability or know somebody who does." Kristie said she got over that fear through exposure to people with disability and their lived experiences. Peter was her first guide who advised that, "people with disability are just like anybody else, so just treat us that way." Kristie said that was a big

learning for her stating, "until then, I didn't even realise that I was treating people with disability differently just by having that lens of caution and treading lightly."

Peter introduced Kristie to members of the Ipswich peer support group who meet monthly. Kristie said, "I started going to those monthly QDN meetings and used some of the feedback from the people in that group to change and update some of the things we were doing. Some of it was really simple. We just weren't having the conversations with people with disability in order to know that we weren't getting it right." By joining in for six of their monthly meetings. Kristie gained exposure to people with different disabilities. This was the start of what Kristie describes as taking, "lots of little steps toward some big realisations" about what is needed to put people and their support needs at the centre of disability inclusive emergency planning.

Those little steps involved responding to the issues raised by people with disability. Kristie shared one of the first conversations she had with a peer group member about an infographic promoted by lpswich City Council. It was called, "if Ipswich were 100 people." He pointed out that the infographic is meant to represent the whole community, but it didn't include people with disability. Kristie took this issue back to Council and had the Marketing team update the infographic, which now includes 17 people with disability and carers. In the 2021 review of the Local Disaster Management Plan (LDMP) Kristie also made sure that people with disability are represented. She included the new infographic and added more information to the community profile section of the LDMP to ensure disability representation.

It was through conversations with the peer group that Kristie learned about other worries and concerns. As Kristie tells it, "Some of the people in the group had questions about emergency preparedness in their homes. One lady had particular concerns about how emergency services would know that she had a disability – asking, what happens if my house is on fire? I'm deaf. I can't hear them. How are they going to find me? So, I asked Queensland Fire and Emergency Services to come in and talk about their Safe Home program." Kristie pointed out that, "This service is already available but this group just didn't know about it."

She went on to explain, "Fire and Rescue organised a crew to come out and they brought a fire truck. The firefighters talked about the Safe Home program, but left most of the time to answer individual questions that people had. They were really good at talking about the things that individuals can do to stay safe, how just having a tidy home helps firefighters locate you in a fire, but also how firefighters can help. A few of the people brought their kids along, so the firefighters put on their turnout gear and demonstrated the jaws of life and other equipment. So, it was a little bit of fun as well. The woman who had raised the concerns, that prompted me to ask Fire and Rescue out in the first place, was really happy with it. She was absolutely stoked. She's deaf and blind, so she faces more challenges than anyone I've ever met. But she got to ask her guestions and they answered the questions that were relevant to her. One of the firefighters spent almost the whole time, while everyone else was doing the truck stuff, having a chat with her and continuing to answer her questions."



Asked what she would recommend to others, Kristie advised, "Just get out and talk to people with disability. Find out what it's like. Find out how you can make things easier." Kristie pointed out that councils have many touch points into communities, whether it is through their community development programs or their disability and inclusion committees. She recommended reaching out through them. "Honestly, attending the QDN meetings has probably been the best insight and the best way to build trust and relationships, which I think will help us to keep this going moving forward. You can't unlearn this," Kristie says, "we'll now consider disability inclusion as 'business as usual' in our emergency management work."

Lessons Learned

- <u>Disabled People's Organisations</u> (DPOs) can
 play a significant role in disaster policy, planning
 and interventions by representing their members
 and allowing their voices to be heard. Reach out
 to a DPO or advocacy group in your community.
- Making documents accessible is critical. This helps everyone to learn about and understand their disaster risks.
- Listen and respond to the issues raised by people with disability. It builds trust and mutual learning for disaster resilience.

This case study was produced as part of the Disability Inclusive and Disaster Resilient Queensland Project which was proudly supported by the Queensland Government through the Queensland Disaster Resilience Fund (QDRF) and the Department of Communities, Housing and Digital Economy. It was led by the Centre for Disability Research and Policy at the University of Sydney and conducted in partnership with the Queenslanders with Disability Network (QDN) and the Community Services Industry Alliance (CSIA)

For more information: www.collaborating4inclusion.org









Doc ID No: A7478875

ITEM: 8

SUBJECT: GET READY QUEENSLAND WEEK 2021

AUTHOR: ACTING SENIOR EMERGENCY MANAGEMENT OFFICER

DATE: 13 AUGUST 2021

EXECUTIVE SUMMARY

This is a report concerning Get Ready Queensland Week in October 2021 and the community education, awareness, and engagement activities that council will carry out in support of the initiative.

RECOMMENDATION/S

That the report be received and the contents noted.

RELATED PARTIES

There are no declarations of conflict of interest.

IFUTURE THEME

Safe, Inclusive and Creative

PURPOSE OF REPORT/BACKGROUND

Get Ready Queensland Week (GRQ Week), occurring in 2021 from 10 to 17 October, is a time for council and its disaster management partner agencies to focus their efforts on helping the community prepare for severe weather and disasters while continuing to build their resilience to future disasters.

The objectives of the GRQ program, which aligns with Council's general disaster management objectives, are to help the community understand their disaster risk and undertake disaster preparedness activities that increase resilience to future emergencies and disasters.

During GRQ Week 2021, Council will achieve disaster preparedness and resilience objectives through a variety of education, awareness and engagement activities such as:

- Distribution and promotion of disaster preparedness information and resources through a variety of internal and external channels;
- Promotion of the Get Ready Queensland Schools Competition; and
- Direct community engagement activities such as:

- 'pop-ups' at one (1) high-traffic community venue per division (such as a shopping centre)
- o a 'Get Ready Community Safety & Crime Prevention' expo (pending approval of the Community, Culture, Arts and Sport Committee) Note: this proposed expo is led by the Queensland Police Service, supported by Council through Community Development and Emergency Management Sections.
- o 'Story Time' at Ipswich Libraries.

LEGAL/POLICY BASIS

This report and its recommendations are consistent with the following legislative provisions: Disaster Management Act 2003
City of Ipswich Local Disaster Management Plan
Council's Disaster Management Policy
Queensland Strategy for Disaster Resilience
Get Ready Queensland 2021–22 Grants Guidelines

RISK MANAGEMENT IMPLICATIONS

Get Ready Queensland Week 2021 is a key opportunity for council to reduce disaster risk in Ipswich by helping the community prepare for disasters and emergencies through education, awareness and engagement activities.

HUMAN RIGHTS IMPLICATIONS

HUMAN RIGHTS IMPACTS

RECEIVE AND NOTE REPORT

The recommendation states that the report be received and the contents noted. The decision to receive and note the report does not limit human rights. Therefore, the decision is compatible with human rights.

FINANCIAL/RESOURCE IMPLICATIONS

Activities will be funded through the GRQ grants program, which is administered by the Queensland Reconstruction Authority.

COMMUNITY AND OTHER CONSULTATION

The following internal council stakeholder groups have been or will be consulted in designing and delivering council's Get Ready Queensland Week 2021 activities:

- Community Development
- Libraries and Customer Service

Marketing and Promotion

External stakeholders, including but not limited to, members of the City of Ipswich Local Disaster Management Group, will also be invited to participate in Council's Get Ready Queensland Week 2021 activities.

CONCLUSION

Get Ready Queensland Week 2021 is an excellent opportunity for Council to engage with the community and help them prepare for the season ahead, contributing to a stronger, more disaster resilient Ipswich.

Kristie Mckenna

ACTING SENIOR EMERGENCY MANAGEMENT OFFICER

I concur with the recommendations contained in this report.

Matthew Pinder

EMERGENCY MANAGEMENT AND SUSTAINABILITY MANAGER

I concur with the recommendations contained in this report.

Kaye Cavanagh

MANAGER, ENVIRONMENT AND SUSTAINABILITY

I concur with the recommendations contained in this report.

Sean Madigan

ACTING GENERAL MANAGER - INFRASTRUCTURE AND ENVIRONMENT

"Together, we proudly enhance the quality of life for our community"

Doc ID No: A7478049

ITEM: 9

SUBJECT: DEPUTY CHAIRPERSONS FOR THE LOCAL DISASTER MANAGEMENT GROUP AND

THE LOCAL RECOVERY AND RESILIENCE GROUP

AUTHOR: ACTING SENIOR EMERGENCY MANAGEMENT OFFICER

DATE: 13 AUGUST 2021

EXECUTIVE SUMMARY

This is a report concerning the appointment of an additional Deputy Chairperson to the City of Ipswich Local Disaster Management Group and a Deputy Chairperson to the City of Ipswich Local Recovery and Resilience Group.

RECOMMENDATIONS

- A. That Council appoint one (1) of its Councillors as the secondary Deputy Chairperson of the City of Ipswich Local Disaster Management Group.
- B. That Council appoint one (1) of its Councillors as the Deputy Chairperson of the City of Ipswich Local Recovery and Resilience Group.

RELATED PARTIES

There are no declared conflicts of interest.

IFUTURE THEME

Safe, Inclusive and Creative

Natural and Sustainable

PURPOSE OF REPORT/BACKGROUND

The Local Disaster Management Group (LDMG) and its subgroup, the Local Recovery and Resilience Group (LRG), are established pursuant to the *Disaster Management Act 2003*. The Act requires the Chairperson of the LDMG be a Councillor and convention is that the Deputy Chairperson/s and LRG Chairperson and Deputies also be Councillors.

Mayor Harding is appointed as the Chairperson of the LDMG and Cr Kunzelmann is appointed as the Deputy Chairperson. Cr Kunzelmann is also appointed as the Chairperson of the LRG.

During disaster operations, there is often enough workload for both the Chair and Deputy Chair of the LDMG to be actively operating in these roles. Accordingly, there is limited redundancy for the function of LDMG Chairperson if both Councillors are absent or otherwise incapacitated, or during a prolonged disaster response.

A deputy Chairperson is not currently appointed for the LRG, which presents similar redundancy challenges as described above, particularly given that recovery is often the most protracted phase of disaster management.

LEGAL/POLICY BASIS

This report and its recommendations are consistent with the following legislative provisions: Disaster Management Act 2003

RISK MANAGEMENT IMPLICATIONS

Appointing Deputy Chairpersons to the LDMG and the LRG mitigates risk to council by providing redundancy in important disaster management functions.

HUMAN RIGHTS IMPLICATIONS

HUMAN RIGHTS IMPACTS	
OTHER DECISION	
(a) What is the Act/Decision being made?	 A. That Council appoint one (1) of its Councillors as the secondary Deputy Chairperson of the City of Ipswich Local Disaster Management Group. B. That Council appoint one (1) of its Councillors as the Deputy Chairperson of the City of Ipswich Local Recovery and Resilience Group.
(b) What human rights are affected?	There are no human rights affected by the decision.
(c) How are the human rights limited?	The decisions will not limit human rights.
(d) Is there a good reason for limiting the relevant rights? Is the limitation fair and reasonable?	The decisions will not limit human rights.
(e) Conclusion	The decision is consistent with human rights.

FINANCIAL/RESOURCE IMPLICATIONS

There are no financial implications.

COMMUNITY AND OTHER CONSULTATION

The following key disaster management stakeholders have been consulted:

- Chairperson, LDMG
- Chairperson, LRG/Deputy Chairperson, LDMG
- Local Disaster Coordinator

• Deputy Local Disaster Coordinator

CONCLUSION

Sufficient Deputy Chairpersons on both the LDMG and the LRG will provide important redundancy and support to these groups and ensure council can continue to effectively respond to community needs during prolonged disaster response and recovery operations.

Kristie Mckenna

ACTING SENIOR EMERGENCY MANAGEMENT OFFICER

I concur with the recommendations contained in this report.

Matthew Pinder

EMERGENCY MANAGEMENT AND SUSTAINABILITY MANAGER

I concur with the recommendations contained in this report.

Kaye Cavanagh

MANAGER, ENVIRONMENT AND SUSTAINABILITY

I concur with the recommendations contained in this report.

Sean Madigan

ACTING GENERAL MANAGER - INFRASTRUCTURE AND ENVIRONMENT

"Together, we proudly enhance the quality of life for our community"