VML MB
Vicki Lukritz
3810 6221

14 June 2018

Sir/Madam

Notice is hereby given that a Meeting of the **CONSERVATION AND ENVIRONMENT COMMITTEE** is to be held in the **Council Chambers** on the 2nd Floor of the Council Administration Building, 45 Roderick Street, Ipswich commencing at **10.30 am** ***or 10 minutes after the conclusion of the Works, Parks and Sport Committee, whichever is the earlier*** on **Monday, 18 June 2018**.

MEMBERS OF THE CONSERVATION AND ENVIRONMENT COMMITTEE	
Councillor Silver **(Chairperson)** Councillor Bromage **(Deputy Chairperson)**	Councillor Wendt **(Acting Mayor)** Councillor Morrison Councillor Martin

Yours faithfully

CHIEF EXECUTIVE OFFICER

CONSERVATION AND ENVIRONMENT COMMITTEE AGENDA

10.30 am *or 10 minutes after the conclusion of the Works, Parks and Sport Committee, whichever is the earlier* on **Monday,** 18 June 2018

Council Chambers

Item No.	Item Title	Officer
1	**Bremer River Catchment Action Plan 2018–2021	WHO
2	**Lower Brisbane-Redlands Coastal Catchment Action Plan 2018–2021	WIO
3	Little Liverpool Range Initiative – Project Officer Funding	A/SRNRM
4	Review of the Environmental Weed Control Rebate Program	PO(NE)
5	Review of the Ipswich City Council Flying-Fox Roost Management Plan and Development of Local Roost Management Plans	PO(Biod)
6	Sustainability Advisory Group February 2018 Minutes	ESRO
7	**Proposed Solar Farm – Whitwood Road Landfill – Proposed Deed of Variation – Division 3	A/COO(WPR)

** Item includes confidential papers

CONSERVATION AND ENVIRONMENT COMMITTEE NO. 2018(06)

18 JUNE 2018

AGENDA

1. **BREMER RIVER CATCHMENT ACTION PLAN 2018–2021

With reference to a report by the Waterway Health Officer dated 28 May 2018 concerning the progress of the Council of Mayors Resilient Rivers Initiative and the resulting Bremer River Catchment Action Plan (CAP).

RECOMMENDATION

A. That the final draft of the Bremer River Catchment Action Plan 2018–2021 as detailed in Attachment C of the report by the Waterway Health Officer dated 28 May 2018, be approved.

B. That the Chief Executive Officer be authorised to sign the Council of Mayors approval form for the public release of the Bremer River Catchment Action Plan 2018–2021 on the Council of Mayors webpage and other avenues.

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2. **LOWER BRISBANE-REDLANDS COASTAL CATCHMENT ACTION PLAN 2018–2021

With reference to a report by the Waterway Improvement Officer dated 28 May 2018 concerning the progress of the Council of Mayors Resilient Rivers Initiative and the resulting Lower Brisbane-Redlands Coastal Catchment Action Plan (CAP) 2018–2021.

RECOMMENDATION

A. That the Lower Brisbane-Redlands Coastal Action Plan 2018–2021 as shown in Attachment C to the report by the Waterway Improvement Officer dated 28 May 2018, be approved.

B. That the Chief Executive Officer be authorised to sign the Council of Mayors approval form for the public release of the Lower Brisbane – Redlands Coastal Catchment Action Plan 2018–2021 on the Council of Mayors webpage and other avenues.

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3. LITTLE LIVERPOOL RANGE INITIATIVE – PROJECT OFFICER FUNDING

With reference to a report by the Acting Sport Recreation and Natural Resources Manager dated 11 May 2018 concerning the funding of a Project Officer for the Little Liverpool Range Initiative which Ipswich City Council is a major stakeholder in.

RECOMMENDATION

That Council partner with the Gainsdale Group and Queensland Trust for Nature, by contributing $10,000.00 a year for two (2) years, to help fund a part-time Project Officer to deliver the Little Liverpool Range Initiative.

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4. REVIEW OF THE ENVIRONMENTAL WEED CONTROL REBATE PROGRAM

With reference to a report by the Program Officer (Natural Environment) dated 24 May 2018 concerning a review of Council's Environmental Weed Control Rebate (EWCR) program.

RECOMMENDATION

A. That Council amend the current application and acquittal process for the EWCR to include:
   - Mandatory for applicants to identify the number or area of pest plants treated.
   - Mandatory for before photos to be submitted with an application
   - Mandatory for after photos to be submitted with the acquittal to demonstrate the pest plant has been treated/removed successfully

B. That Council review the pest weed species annually to ensure biodiversity and conservation outcomes align and support the delivery of the Ipswich Nature Conservation Strategy and the Private Landholder Partnership Programs.

C. That the Chief Operating Officer (Works, Parks and Recreation) amend the Environmental Weeds Procedure to align with the reviewed Environmental Weed Control Rebate Program.

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5. REVIEW OF THE IPSWICH CITY COUNCIL FLYING-FOX ROOST MANAGEMENT PLAN AND DEVELOPMENT OF LOCAL ROOST MANAGEMENT PLANS

With reference to a report by the Planning Officer (Biodiversity) dated 5 June 2018 concerning a review of Council's Flying-fox Roost Management Plan and the development of local roost management plans.

RECOMMENDATION

A. That the Planning Officer (Biodiversity) make the recommended edits to the Flying-fox Roost Management Plan to be reflective of the broader suite of in-situ management techniques that have been used through South East Queensland.

B. That the Chief Operating Officer (Works Parks and Recreation), in consultation with the Chairperson, Works Parks and Sport Committee and relevant Divisional Councillors develops a suite of Local Roost Management Plans for flying-fox roosts located on Council owned and/or managed land across the City over the next six months for presentation at a future Conservation and Environment Committee.

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6. SUSTAINABILITY ADVISORY GROUP FEBRUARY 2018 MINUTES

With reference to a report by the Executive Support and Research Officer dated 6 June 2018 attaching the minutes of the Sustainability Advisory Group meeting held on 22 February 2018.

RECOMMENDATION

That the report be received and the contents noted.

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7. **PROPOSED SOLAR FARM - WHITWOOD ROAD LANDFILL - PROPOSED DEED OF VARIATION - DIVISION 3

With reference to a report by the Acting Chief Operating Officer (Works Parks and Recreation) dated 8 June 2018 concerning the proposed deed of variation for the proposed solar farm at Whitwood Road, New Chum.

RECOMMENDATION

A. That Council enter into a Deed of Variation with LMS Energy Pty Ltd ACN 059 428 474, to amend Contract No. 11808 as detailed in Attachment C of the report by the Acting Chief Operating Officer (Works Parks and Recreation) dated 8 June 2018.

B. That the Chief Executive Officer be authorised to negotiate and finalise the terms of the Deed of Variation with LMS Energy Pty Ltd to be executed by Council, and to do any other acts necessary to implement Council's decision in accordance with section 13(3)(c) of the *Local Government Act 2009*.

** Item includes confidential papers

and any other items as considered necessary.

Conservation and Environment Committee	
Mtg Date: 18.06.18	OAR: YES
Authorisation: Bryce Hines	

DA:DA
H:\Departmental\Commitee Reports\2905 DA Bremer River CAP CR

28 May 2018

M E M O R A N D U M

TO: ACTING SPORTS RECREATION AND NATURAL RESOURCES MANAGER

FROM: WATERWAY HEALTH OFFICER

RE: BREMER RIVER CATCHMENT ACTION PLAN 2018-2021

INTRODUCTION:

This is a report by the Waterway Health Officer dated 28 May 2018 concerning the progress of the Council of Mayors Resilient Rivers Initiative and the resulting Bremer River Catchment Action Plan (CAP).

BACKGROUND:

The Resilient Rivers Initiative, as agreed by the Council of Mayors in 2015 is a commitment to the vision that: "By 2045, the catchments of South East Queensland will support a resilient, productive, liveable and growing region."

This vision is documented in the Resilient Rivers Regional Strategy 2015-2025 (Attachment A). One of the key deliverables of the Regional Strategy is for the development of Catchment Action Plans (CAP) to define risks and develop implementation priorities.

Under the Council of Mayors Catchment Investment Program, Council received funding to lead the development of the Bremer River Catchment Action Plan (Attachment C) on behalf of the Council of Mayors, and in partnership with the key stakeholders. The Strategy was to align with the Resilient Rivers four key goals, being; soil erosion reduction, climate resilience, water security and partnerships.

OVERVIEW OF THE BREMER RIVER CATCHMENT ACTION PLAN:

The development of the Bremer River CAP involved various stakeholders, including council representatives from both Ipswich and Scenic Rim Councils, the Queensland Government, Seqwater, Queensland Urban Utilities, Healthy Land and Water, and local catchment and environment groups.

Locations of particular importance to Ipswich City Council, as identified in the Bremer River Catchment Action Plan, include:

- Best practice sediment and erosion control in development areas such as Ripley Valley
- Identifying and addressing areas of bank instability in Bundamba and Ironpot Creeks
- Identifying tributaries with fish barriers for removal
- Investigating mitigation options for areas susceptible to flooding
- Recognising important infrastructure in the catchment such as highways, the Ipswich Bypass and the RAAF base

Sixteen on-ground actions are proposed in strategic locations to achieve the CAP's goals, as shown in Attachment C.

WORKS UNDERTAKEN IN THE BREMER RIVER CATCHMENT:

Ipswich City Council is already meeting some of the objectives of the Bremer River CAP. Some examples of these projects include:

- Recent removal of a fish barrier at Worley Park along Bundamba Creek.
- Stage one of Small Creek is now complete. This project involved the re-engagement of the floodplain, stabilisation of the creek bed and bank, and the installation of a fishway to facilitate the passage of fish.
- The recently completed Jim Donald Wetlands reduces sediment loads into Bundamba Creek and also reduces the impact of altered hydrology due to localised residential developments.
- Furthermore, ICC's Habitat Connections Program targets areas, including Iron Pot and Bundamba Creek, in a targeted revegetation program, which results in improved bank stability as well as other water quality improvements.

There are various other projects and works which are being undertaken in the Bremer River Catchment which will also meet the objectives of the CAP.

WHERE TO FROM HERE:

Currently the actions within the plan which relate to Ipswich City Council fall within current or future proposed resourcing and investment.

It is the intention of the Resilient Rivers Initiative to eventually form a co-investment mechanism and collaborative steering group for the Bremer River Catchment. This joint pool of funding can then be used to leverage State, Federal and private investment in the catchment and guide its strategic delivery through the implementation of prioritised projects.

COUNCIL ENDORSEMENT AND SIGN-OFF FOR PUBLIC RELEASE:

SEQ Council of Mayors, on behalf of the Resilient Rivers Taskforce, is now seeking to publically release the Bremer CAP with sign off from the key partners. Council of Mayors have forwarded an 'Approval to Release Form' for Council's signature (Attachment B).

BENEFITS TO COMMUNITY AND CUSTOMERS:

The Bremer River CAP gives strategic direction to the management of the Bremer River catchment. The CAP aims to facilitate collaboration between active investors and stakeholders. This collaboration drives effectiveness and efficiency in regional catchment management. The Plan will make it easier for Council to work alongside other organisations on co-funded projects in the Bremer River Catchment where the goal aligns with the vision of the Resilient Rivers Initiative.

CONCLUSION:

The Council of Mayors through the Resilient Rivers Taskforce is seeking endorsement of the final draft of the Bremer River Catchment Action Plan. As a key stakeholder and major land manager within the Bremer River catchment, Council has lead the development of the Plan with key stakeholders, and is responsible for the delivery of some of the actions.

ATTACHMENTS:

Name of Attachment	Attachment
South East Queensland Resilient Rivers Initiative Regional Strategy 2015 – 2025	Attachment A
Approval to Release form	Attachment B

CONFIDENTIAL BACKGROUND PAPERS:

Name of Attachment	Attachment
Bremer River Catchment Action Plan 2018 - 2021	Attachment C

RECOMMENDATION:

A. That the final draft of the Bremer River Catchment Action Plan 2018 – 2021 as detailed in Attachment C of the report by the Waterway Health Officer dated 28 May 2018, be approved.

B. That the Chief Executive Officer be authorised to sign the Council of Mayors approval form for the public release of the Bremer River Catchment Action Plan 2018 – 2021 on the Council of Mayors webpage and other avenues.

Danielle Andlemac
WATERWAY HEALTH OFFICER

I concur with the recommendation/s contained in this report.

Kaye Cavanagh
ACTING SPORT RECREATION AND NATURAL RESROUCES MANAGER

I concur with the recommendation contained in this report.

Bryce Hines
ACTING CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)

December 2015

South East Queensland Resilient Rivers Initiative

Regional Strategy

2015–2025

The Resilient Rivers Initiative is a collaboration between local and state government, water utilities and key non-government organisations to improve the health and resilience of South East Queensland's catchments, rivers and Moreton Bay.

Council of Mayors South East Queensland

Healthy Waterways ONE CLEAR VISION

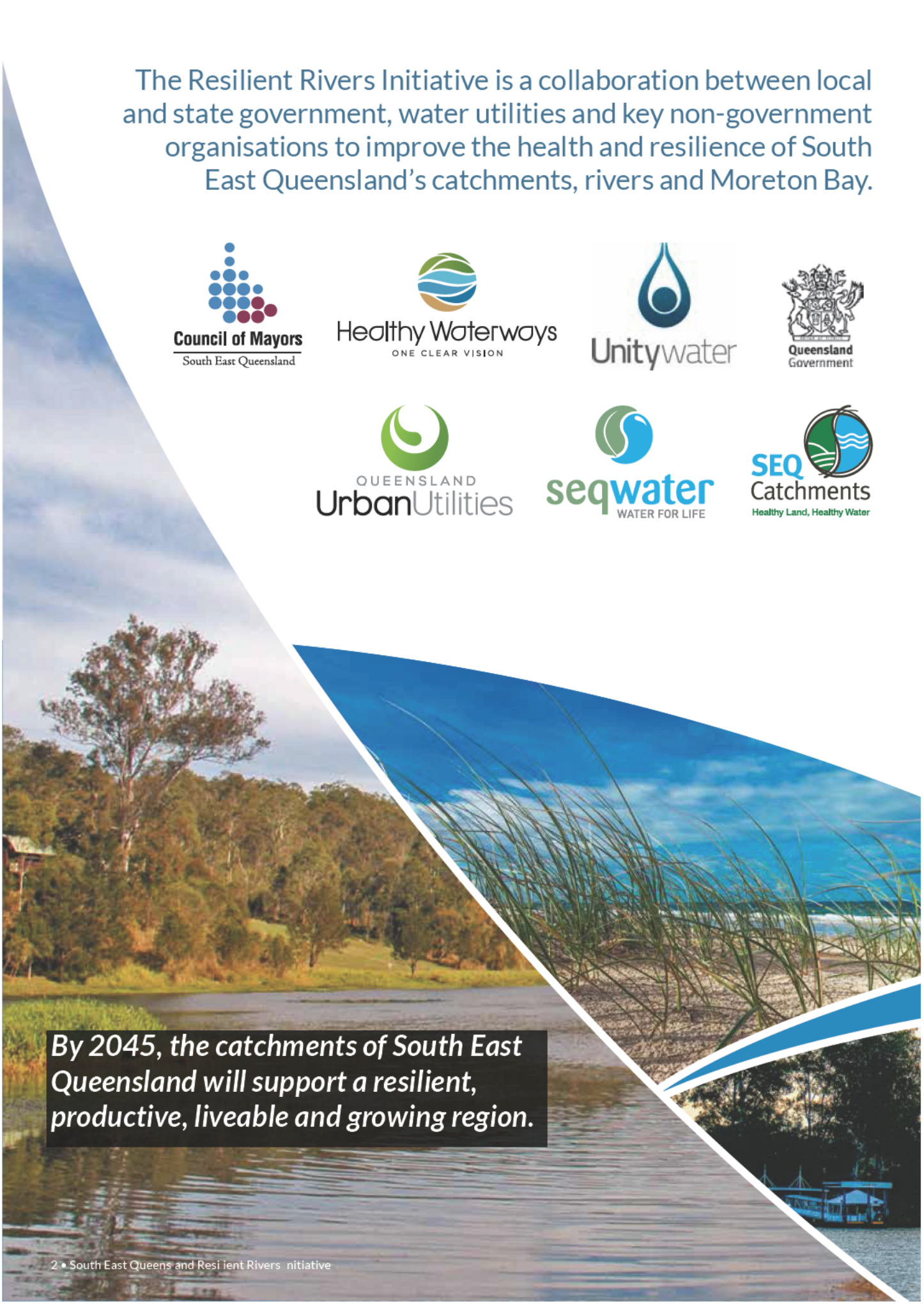
Unitywater

Queensland Government

Queensland Urban Utilities

seqwater WATER FOR LIFE

SEQ Catchments Healthy Land, Healthy Water



By 2045, the catchments of South East Queensland will support a resilient, productive, liveable and growing region.

Foreword

The Resi ient Rivers Initiative recognises that a co aborative approach to managing the catchments of South East Queens and is vita to ensuring the future economic, socia and environmenta hea th of the region. Working together wi a so resu t in more efficient and effective management and funding arrangements. As we move forward into this exciting next step in the deve opment of waterways management in South East Queens and, I wish to acknow edge the significant foundation work carried out over the years by many individua s and organisations.

To set the direction for the Resi ient Rivers Initiative, we have agreed to a 30 year vision. The vision for the Resi ient Rivers Initiative is:

'By 2045, the catchments of South East Queens and wi support a resi ient, productive, iveab e and growing region.

This vision is supported by the four goa s:

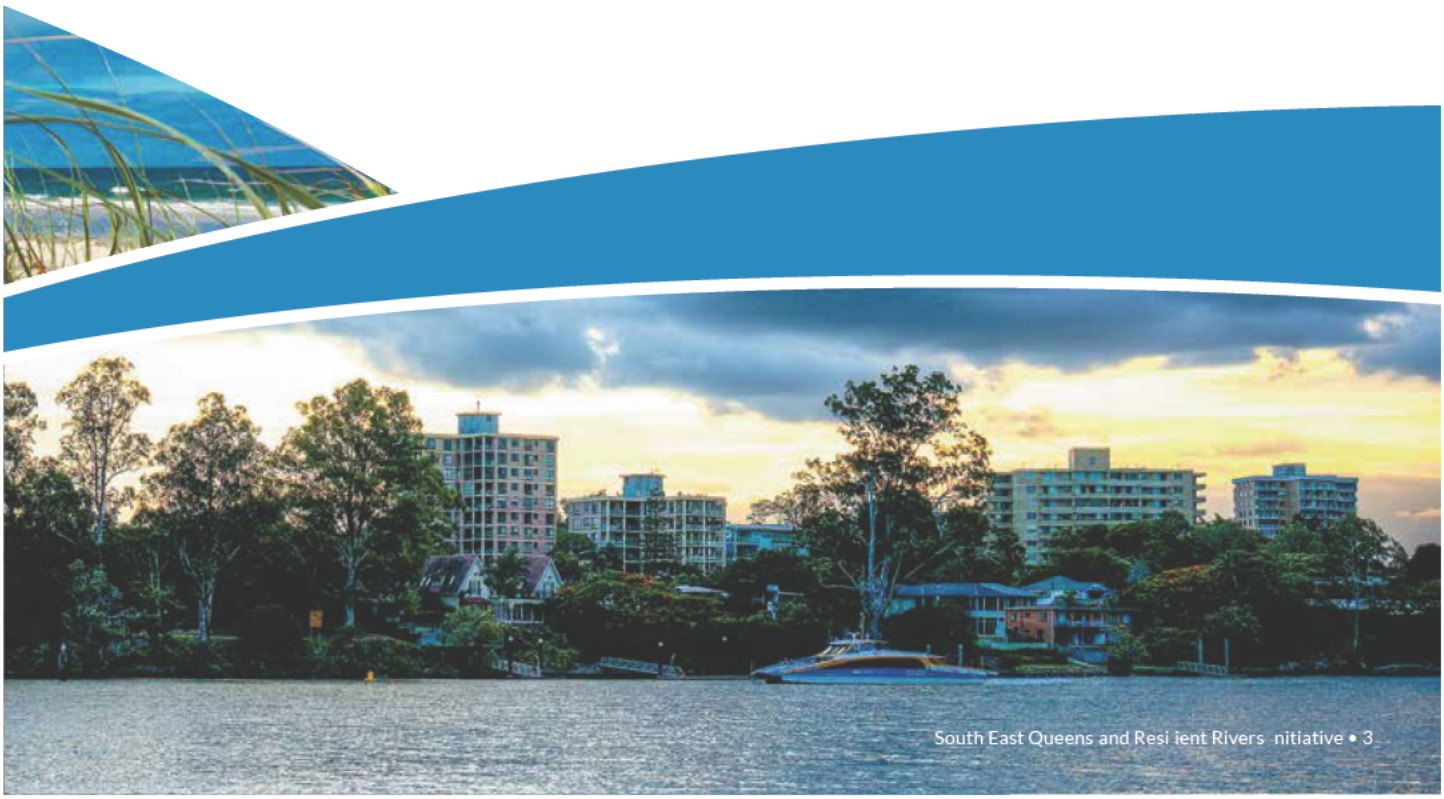
- Keep soi on our and and out of our waterways to support agricu tura productivity and improve water qua ity.
- He p protect our region s water security so it can support the current and future popu ation of South East Queens and.
- Improve the c imate resi ience of our region.
- Promote partnerships with strong eadership to de iver a coordinated approach to catchment management in South East Queens and.

I am p eased on beha f of the co aborating organisations to re ease this Regiona Strategy 2015–25. It identifies the direction for regiona decision-making and investment in on-ground action over the next 10 years that is needed to achieve the vision and meet our goa s.

The initia focus wi be on a sma number of priority investments. These have been informed by our existing understanding of the key risks to the waterways of South East Queens and and the experience gained from on-ground works. Funding and resources to support these projects wi be drawn from a number of sources, demonstrating our commitment to working co aborative y and with a shared vision.

Cr Graham Quirk

Chairman, Counci of Mayors (SEQ)
Chairman, Resi ient Rivers Initiative Taskforce
Lord Mayor of Brisbane



Background to the Regional Strategy

Further work wi progress under the Resi ient Rivers Initiative to identify how we can invest more strategica y, efficient y and effective y in South East Queens and s waterways over the ong term. This Regiona Strategy provides the b ueprint for this to occur.

Various organisations in the South East Queens and region are working to protect our waterways to support our ifesty e and economy. We have a ready tack ed some of the region s biggest water qua ity cha enges head on. We significant y upgraded our wastewater treatment p ants at a cost of mi ions of do ars. The resu t was a substantia reduction in nutrients entering our waterways and far fewer a ga b ooms than we once saw in Moreton Bay. Over many years, ki ometres of creek banks have been restored and devices insta ed to improve stormwater runoff and this has a contributed to hea thier waterways.

In recent years, severe flooding and water supp y issues have again p aced the spot ight on the management of waterways in the region. Stopping 'mud entering the waterways is our priority and we are imp ementing processes for this that are supported by the best avai ab e science.

South East Queens and s popu ation continues to grow. It is home to one in seven Austra ians and has a gross regiona product of $1.7 bi ion, ha f that of Queens and. The region s eaders are supporting improvements in catchment resi ience — resi ience to c imatic events and pressures from an increasing popu ation — to support our ifesty e and economy.

The business case for better managing waterways in the region is c ear:

- Governments, water uti ities and corporations bui d and maintain va uab e infrastructure (such as roads, pipes, dams, weirs, treatment p ants and port faci ities) in or near waterways and the continued operation of these va uab e assets underpins the region s economy.
- Protecting the region s water supp y security is fundamenta to the economy of a growing South East Queens and.
- Agricu ture is a va uab e industry for South East Queens and and maintaining soi and its nutrients on-farm is essentia to the industry s ongoing viabi ity.
- New deve opment supports our region s economy and can contribute to positive outcomes for our waterways.
- Moreton Bay and the region s beaches are key tourism and recreationa resources, with the Bay containing designated Ramsar sites that protect migratory species.

Looking ahead, our co ective vision is to ensure that the catchments of South East Queens and support a resi ient, productive, iveab e and growing region. This is no easy task and requires better coordination of investment over time. It requires a c ear focus on keeping soi on the and to protect agricu tura productivity, to improve the qua ity of water in waterways, and to ensure the continued operation of waterways associated with infrastructure.

The Resi ient Rivers Initiative aims to set the direction needed to estab ish an enduring approach to the investment and management of the waterways of South East Queens and. It bui ds on the efforts achieved so far whi e recognising that some change is needed. It acknow edges that a high eve of co aboration between the key investing organisations is critica for prioritising on-ground action.

The Resi ient Rivers Initiative is a co aborative effort between the Counci of Mayors (SEQ), Queens and Government, Seqwater, Queens and Urban Uti ities, Unitywater, Hea thy Waterways Ltd, and SEQ Catchments Ltd. It wi de iver better-coordinated catchment management that protects our region s water supp y security, keeps soi on the and and out of our creeks, and increases the ong-term resi ience of our waterways. Resi ient Rivers recognises that we can de iver more co ective y than individua y.

Preventing soi from moving off the and into the waterways whi st ensuring infrastructure and industry continue to operate is a more cha enging and comp ex task than stopping po ution from a pipe. It invo ves a good understanding of the movement of water in the andscape, c ear y identifying and agreeing on high risk areas, incorporating the va ues of the oca community and coordinating on-ground action. It requires managing each catchment of South East Queens and.

The Regiona Strategy 2015–2025 sets a c ear vision with supporting goa s and measures of success for the region. It refers to the deve opment of Catchment Action P ans for each of our major catchments to guide our a igned investment.

The Regiona Strategy inc udes region-wide programs such as the ro -out of industry- ed 'best practice management programs in agricu ture and construction. F exib e regu atory so utions form part of the Regiona Strategy; for examp e, exp oring mechanisms to acce erate vo untary nutrient trading by water uti ities to contro sediment. The Strategy a so inc udes assistance for communities to he p them achieve the priority on-ground works identified in Catchment Action P ans.

Notab y, the Strategy bui ds on the strong foundation provided by the many projects a ready underway which aim to keep the soi on the and and out of the waterways, protect our region s water security and make our waterways resi ient to destructive weather events.

The Resilient Rivers Taskforce

The Resi ient Rivers Taskforce wi oversee the de ivery of the Regiona Strategy. It comprises the Mayors of South East Queens and and ministeria representatives from the Queens and Government. The Taskforce has endorsed a 30-year vision and goa s for the region.

This Regiona Strategy contains medium-term (10-year) outcomes, measures of success and strategic actions to guide effort toward achieving the vision and goa s.

Vision

By 2045, the catchments of South East Queens and wi support a resi ient, productive, iveab e and growing region.

Goals

The goa s of the Regiona Strategy are:

- Keep soi on our and and out of our waterways to support agricu tura productivity and improve water qua ity.
- He p protect our region s water security so it can support the current and future popu ation of South East Queens and.
- Improve the c imate resi ience of our region.
- Promote partnerships with strong eadership to de iver a coordinated approach to catchment management in South East Queens and.

The Resilient Rivers Initiative aims to set the direction needed to establish an enduring approach to the investment and management of the waterways of South East Queensland.

2025 Outcomes

As a resu t of imp ementing this Strategy, by 2025 we wi have:

- Water supp y catchments that provide fit-for-purpose raw water
- A measurab e reduction in sediment oad into creeks
- Infrastructure and industry that is ab e to withstand extreme c imatic events
- Coordinated on-ground stream and waterway works and management.

Catchment Action Plans

The 2025 Outcomes wi be achieved through the progressive deve opment of Catchment Action P ans across the region and by imp ementing the high priority works in the P ans. Agreed targets and priority areas for investment wi be estab ished for each Catchment Action P an which wi be underpinned by the best avai ab e science and assessment of the known risks. The actions needed in each catchment to de iver on the vision and goa s wi be deve oped with catchment stakeho ders. The Catchment Action P ans wi inform the regiona medium-term catchment investment program and wi assist co aborators to prioritise on-ground works which may span oca government boundaries.

In the short term (to 2018), we have identified and resourced priority projects for immediate imp ementation.

Measures of Success

We wi monitor critica success factors annua y to measure our success towards achieving the 2025 outcomes out ined in this Strategy. This monitoring and a three-year reporting cyc e wi ensure the Strategy remains on track.

Critical measures of success:

2015–2018

- Six Catchment Action P ans deve oped in priority catchments.
- Eight on-ground works comp eted in priority catchments.
- Fifteen industry 'best practice management projects which keep soi on the and wi be imp emented in priority catchments.

2019–2021

- Review of FY 2015–18 critica success factors comp eted.
- A further six Catchment Action P ans deve oped in priority catchments.
- Ongoing works and activities imp emented in accordance with the catchment investment program.

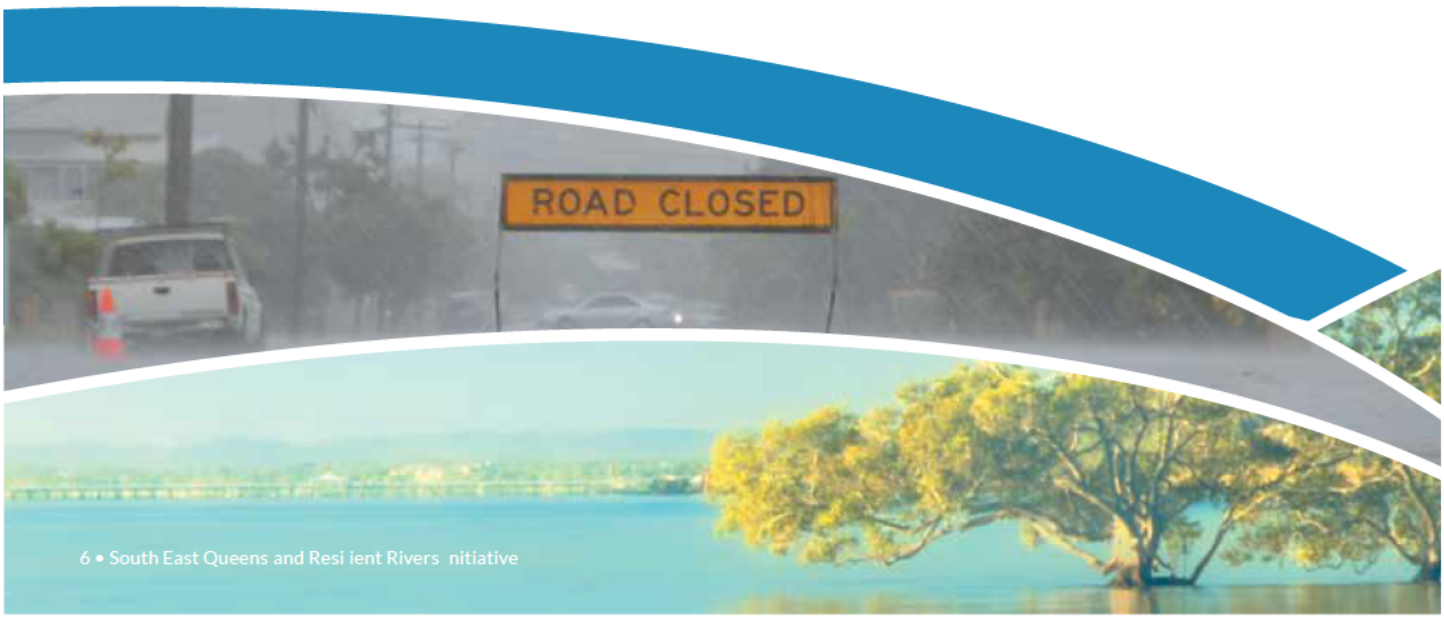
2021–2025

- Review of FY 2019–21 critica success factors comp eted.
- Ongoing works and activities imp emented in accordance with the catchment investment program.
- Review the Return on Investment of the Regiona Strategy.

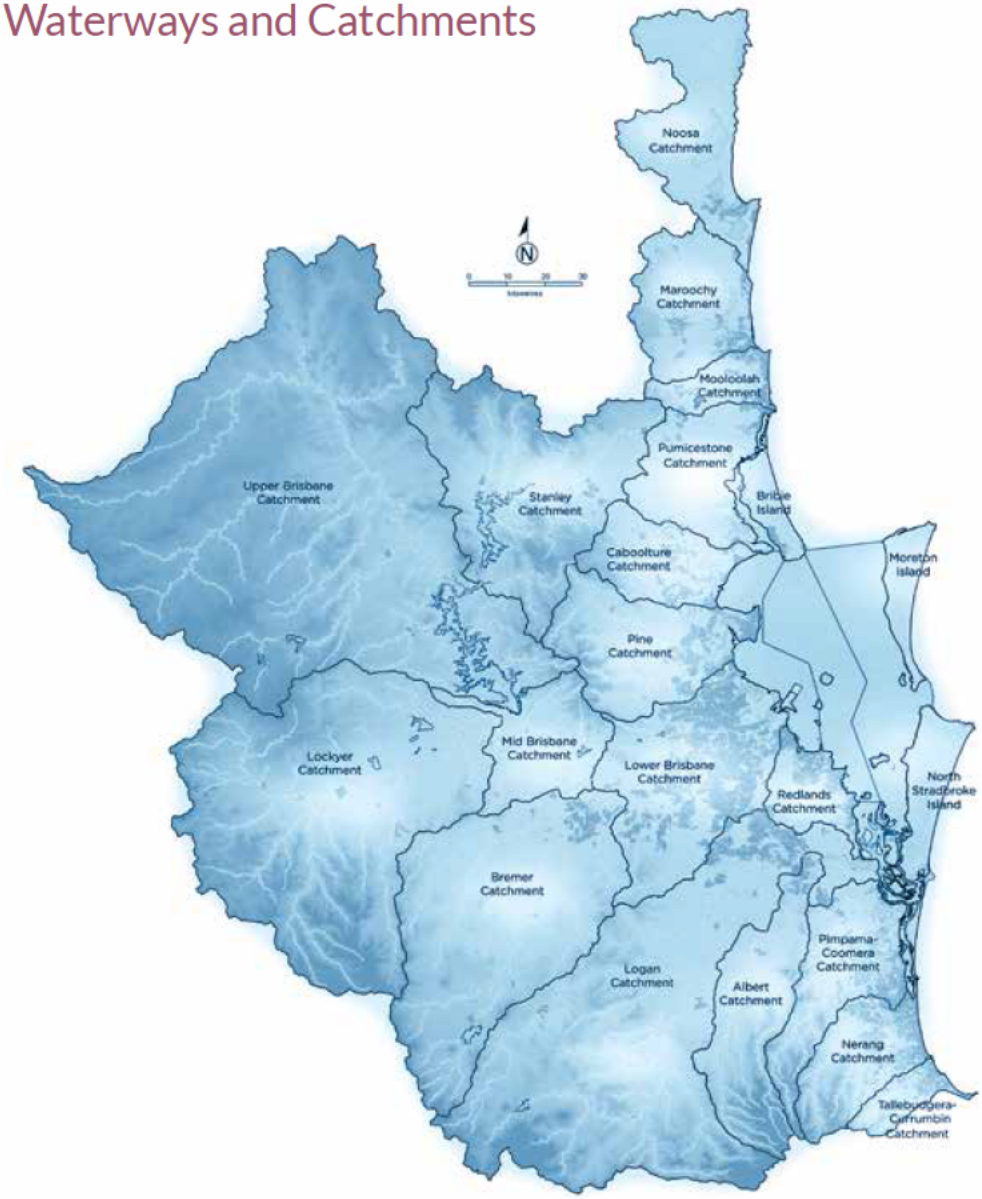
Strategic Actions

To imp ement the Strategy, the Resi ient Rivers Taskforce wi :

- Agree on a consistent scope for the Catchment Action P ans
- Agree on priority catchments for deve oping Catchment Action P ans
- Identify regu atory and institutiona barriers to on-ground imp ementation
- Deve op a business operating mode
- Deve op a catchment investment program with agreed imp ementation targets
- Agree on a reporting framework.



SEQ's Waterways and Catchments




Council of Mayors
South East Queensland

Healthy Waterways
ONE CLEAR VISION

Unitywater

Queensland
Government

QUEENSLAND
UrbanUtilities

seqwater
WATER FOR LIFE

SEQ
Catchments
Healthy Land, Healthy Water

Resilient Rivers Initiative

Approval to release the Bremer River Catchment Action Plan

Signed

Council

☐ APPROVED

☐ NOT APPROVED

Date: : / /2018

Please return this form to Diana Dawson, Coordinator Waterways and Environment, Council of Mayors (SEQ):

diana.dawson@seqmayors.qld.gov.au
Fax: 3211 5889

Conservation and Environment Committee	
Mtg Date: 18.06.18	OAR: YES
Authorisation: Bryce Hines	

BW: BW
H:\Departmental\Commitee Reports\ 2805 BW Lower Brisbane-Redlands Coastal CAP CR.doc

28 May 2018

M E M O R A N D U M

TO: ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER

FROM: WATERWAY IMPROVEMENT OFFICER

RE: LOWER BRISBANE-REDLANDS COASTAL CATCHMENT ACTION PLAN 2018-2021

INTRODUCTION:

This is a report by the Waterway Improvement Officer dated 28 May 2018 concerning the progress of the Council of Mayors Resilient Rivers Initiative and the resulting Lower Brisbane-Redlands Coastal Catchment Action Plan (CAP) 2018-2021.

BACKGROUND:

The Resilient Rivers Initiative, as agreed by the Council of Mayors in 2015 is a commitment to the vision that: "By 2045, the catchments of South East Queensland will support a resilient, productive, liveable and growing region."

This vision is documented in the Resilient Rivers Regional Strategy 2015-2025 (Attachment A). One of the key deliverables of the regional strategy is for the development of Catchment Action Plans (CAP) to define risks and develop implementation priorities. The primary focus of the Lower Brisbane-Redlands Coastal CAP is to address the impact of sediment in the Lower Brisbane River, Redlands and ultimately Moreton Bay.

A section of the Ipswich local government area falls within the Lower Brisbane River catchment.

OVERVIEW OF THE LOWER BRISBANE-REDLANDS COASTAL CATCHMENT ACTION PLAN:

Development of the Lower Brisbane-Redland Coastal Catchment Action Plan (CAP) began in March 2017 and has been developed by a project team including representatives from Brisbane, Redland, Ipswich, and Logan City Councils, Moreton Bay Regional Council, the Queensland Government, Seqwater, Queensland Urban Utilities, Redland Water, and Healthy Land and Water Ltd.

Areas of relevance to Ipswich City Council in the Lower Brisbane Catchment include the Brisbane River main channel downstream of the Mt Crosby weir and the adjoining tributaries; Six Mile, Goodna, Woogaroo and Sandy Creeks.

Sixteen on-ground actions are proposed in the Lower Brisbane-Redlands Coastal Catchment Action Plan 2018-2021, as shown in Attachment C.

WHERE TO FROM HERE:

Currently the actions within the plan which relate to Ipswich City Council fall under business as usual and do not require extra resourcing, investment or obligation to Council. However, it is the intention of the Resilient Rivers Initiative to eventually form a co-investment mechanism and collaborative steering group for the Lower Brisbane-Redlands Coastal Catchment.

This joint pool of funding can then be used to leverage State, Federal and private investment in the catchment and guide its strategic delivery through the delivery of prioritised projects. At this point the role or requirement of Ipswich City Council will be further negotiated, and a further report will be provided to Council at that stage.

COUNCIL ENDORSEMENT AND SIGN-OFF FOR PUBLIC RELEASE:

SEQ Council of Mayors, on behalf of the Resilient Rivers Taskforce, is now seeking to release the draft Lower Brisbane-Redland Coastal CAP with sign off from the key partners. Council of Mayors have forwarded an 'Approval to Release Form' for Council's signature (Attachment B).

BENEFITS TO COMMUNITY AND CUSTOMERS:

The Lower Brisbane-Redlands Coastal Catchment Action Plan gives strategic direction to the management of the Lower Brisbane River catchment and the Redlands Coastal Catchment.

The CAP aims to facilitate collaborative working between active investors and stakeholders and in doing so driving effectiveness and efficiency in regional catchment management. The Plan will make it easier for Council to work alongside other organisations on co-funded projects in the Lower Brisbane Catchment where the goal aligns with the vision of the Resilient Rivers Initiative.

CONCLUSION:

The Council of Mayors through the Resilient Rivers Taskforce has completed the final draft of the Lower Brisbane – Redlands Coastal Catchment Action Plan. As a key stakeholder and major land manager within the Lower Brisbane River catchment, Council has provided input to the Plan.

The Council of Mayors is now seeking endorsement of the draft Plan and sign-off of the Approval of Release form. Updates to the progress of the plan and the Resilient Rivers initiative will be provided at a future Conservation and Environment committee.

ATTACHMENTS:

Name of Attachment	Attachment
South East Queensland Resilient Rivers Initiative Regional Strategy 2015–2025	Attachment A
Approval to Release form	Attachment B

CONFIDENTIAL BACKGROUND PAPERS:

Name of Attachment	Attachment
Lower Brisbane – Redlands Coastal Catchment Action Plan 2018 – 2021 Resilient Rivers Initiative April 2018 DRAFT	Attachment C

RECOMMENDATION:

A. That the Lower Brisbane-Redlands Coastal Action Plan 2018 - 2021 as shown in Attachment C to the report by the Waterway Improvement Officer dated 28 May 2018, be approved.

B. That the Chief Executive Officer be authorised to sign the Council of Mayors approval form for the public release of the Lower Brisbane – Redlands Coastal Catchment Action Plan 2018 – 2021 on the Council of Mayors webpage and other avenues.

Ben Walker
WATERWAY IMPROVEMENT OFFICER

I concur with the recommendation contained in this report.

Kaye Cavanagh
ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER

I concur with the recommendation contained in this report.

Bryce Hines
ACTING CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)

December 2015

South East Queensland Resilient Rivers Initiative

Regional Strategy

2015–2025

The Resilient Rivers Initiative is a collaboration between local and state government, water utilities and key non-government organisations to improve the health and resilience of South East Queensland's catchments, rivers and Moreton Bay.

Council of Mayors South East Queensland

Healthy Waterways ONE CLEAR VISION

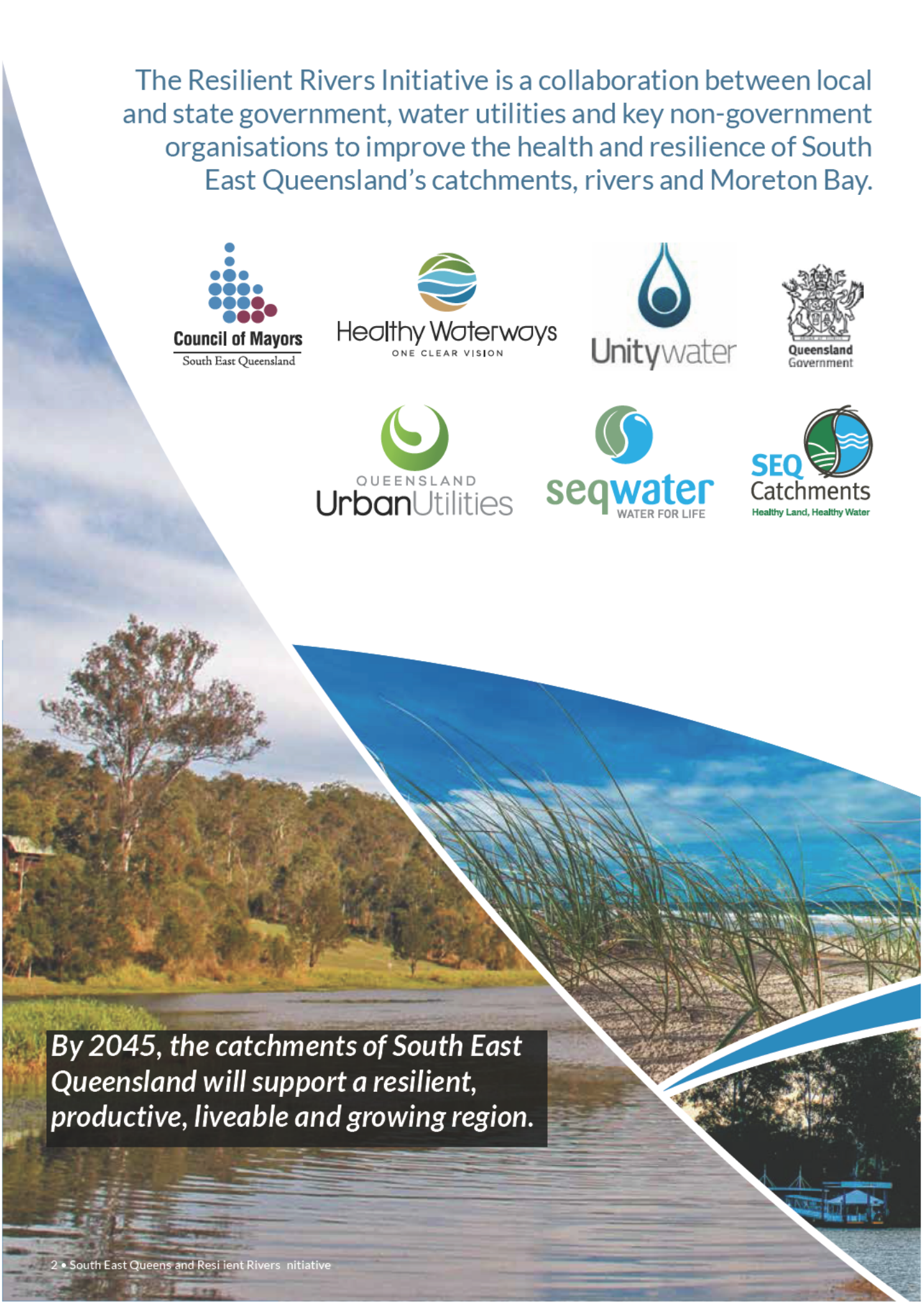
Unitywater

Queensland Government

Queensland Urban Utilities

seqwater WATER FOR LIFE

SEQ Catchments Healthy Land, Healthy Water



By 2045, the catchments of South East Queensland will support a resilient, productive, liveable and growing region.

Foreword

The Resi ient Rivers Initiative recognises that a co aborative approach to managing the catchments of South East Queens and is vita to ensuring the future economic, socia and environmenta hea th of the region. Working together wi a so resu t in more efficient and effective management and funding arrangements. As we move forward into this exciting next step in the deve opment of waterways management in South East Queens and, I wish to acknow edge the significant foundation work carried out over the years by many individua s and organisations.

To set the direction for the Resi ient Rivers Initiative, we have agreed to a 30 year vision. The vision for the Resi ient Rivers Initiative is:

'By 2045, the catchments of South East Queens and wi support a resi ient, productive, iveab e and growing region.

This vision is supported by the four goa s:

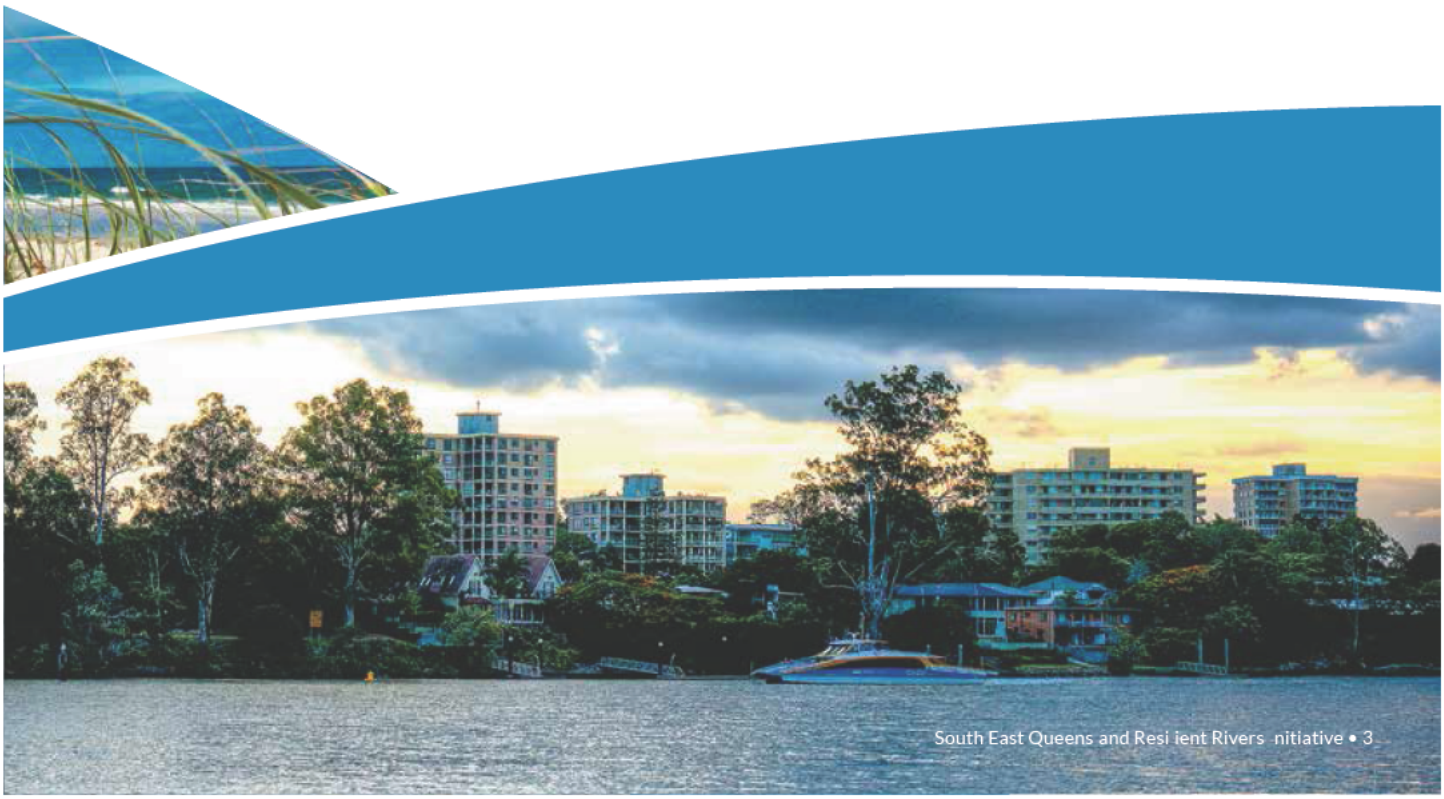
- Keep soi on our and and out of our waterways to support agricu tura productivity and improve water qua ity.
- He p protect our region s water security so it can support the current and future popu ation of South East Queens and.
- Improve the c imate resi ience of our region.
- Promote partnerships with strong eadership to de iver a coordinated approach to catchment management in South East Queens and.

I am p eased on beha f of the co aborating organisations to re ease this Regiona Strategy 2015–25. It identifies the direction for regiona decision-making and investment in on-ground action over the next 10 years that is needed to achieve the vision and meet our goa s.

The initia focus wi be on a sma number of priority investments. These have been informed by our existing understanding of the key risks to the waterways of South East Queens and and the experience gained from on-ground works. Funding and resources to support these projects wi be drawn from a number of sources, demonstrating our commitment to working co aborative y and with a shared vision.

Cr Graham Quirk

Chairman, Counci of Mayors (SEQ)
Chairman, Resi ient Rivers Initiative Taskforce
Lord Mayor of Brisbane



Background to the Regional Strategy

Further work wi progress under the Resi ient Rivers Initiative to identify how we can invest more strategica y, efficient y and effective y in South East Queens and s waterways over the ong term. This Regiona Strategy provides the b ueprint for this to occur.

Various organisations in the South East Queens and region are working to protect our waterways to support our ifesty e and economy. We have a ready tack ed some of the region s biggest water qua ity cha enges head on. We significant y upgraded our wastewater treatment p ants at a cost of mi ions of do ars. The resu t was a substantia reduction in nutrients entering our waterways and far fewer a ga b ooms than we once saw in Moreton Bay. Over many years, ki ometres of creek banks have been restored and devices insta ed to improve stormwater runoff and this has a contributed to hea thier waterways.

In recent years, severe flooding and water supp y issues have again p aced the spot ight on the management of waterways in the region. Stopping 'mud entering the waterways is our priority and we are imp ementing processes for this that are supported by the best avai ab e science.

South East Queens and s popu ation continues to grow. It is home to one in seven Austra ians and has a gross regiona product of $1.7 bi ion, ha f that of Queens and. The region s eaders are supporting improvements in catchment resi ience — resi ience to c imatic events and pressures from an increasing popu ation — to support our ifesty e and economy.

The business case for better managing waterways in the region is c ear:

- Governments, water uti ities and corporations bui d and maintain va uab e infrastructure (such as roads, pipes, dams, weirs, treatment p ants and port faci ities) in or near waterways and the continued operation of these va uab e assets underpins the region s economy.
- Protecting the region s water supp y security is fundamenta to the economy of a growing South East Queens and.
- Agricu ture is a va uab e industry for South East Queens and and maintaining soi and its nutrients on-farm is essentia to the industry s ongoing viabi ity.
- New deve opment supports our region s economy and can contribute to positive outcomes for our waterways.
- Moreton Bay and the region s beaches are key tourism and recreationa resources, with the Bay containing designated Ramsar sites that protect migratory species.

Looking ahead, our co ective vision is to ensure that the catchments of South East Queens and support a resi ient, productive, iveab e and growing region. This is no easy task and requires better coordination of investment over time. It requires a c ear focus on keeping soi on the and to protect agricu tura productivity, to improve the qua ity of water in waterways, and to ensure the continued operation of waterways associated with infrastructure.

The Resi ient Rivers Initiative aims to set the direction needed to estab ish an enduring approach to the investment and management of the waterways of South East Queens and. It bui ds on the efforts achieved so far whi e recognising that some change is needed. It acknow edges that a high eve of co aboration between the key investing organisations is critica for prioritising on-ground action.

The Resi ient Rivers Initiative is a co aborative effort between the Counci of Mayors (SEQ), Queens and Government, Seqwater, Queens and Urban Uti ities, Unitywater, Hea thy Waterways Ltd, and SEQ Catchments Ltd. It wi de iver better-coordinated catchment management that protects our region s water supp y security, keeps soi on the and and out of our creeks, and increases the ong-term resi ience of our waterways. Resi ient Rivers recognises that we can de iver more co ective y than individua y.

Preventing soi from moving off the and into the waterways whi st ensuring infrastructure and industry continue to operate is a more cha enging and comp ex task than stopping po ution from a pipe. It invo ves a good understanding of the movement of water in the andscape, c ear y identifying and agreeing on high risk areas, incorporating the va ues of the oca community and coordinating on-ground action. It requires managing each catchment of South East Queens and.

The Regiona Strategy 2015–2025 sets a c ear vision with supporting goa s and measures of success for the region. It refers to the deve opment of Catchment Action P ans for each of our major catchments to guide our a igned investment.

The Regiona Strategy inc udes region-wide programs such as the ro -out of industry- ed 'best practice management programs in agricu ture and construction. F exib e regu atory so utions form part of the Regiona Strategy; for examp e, exp oring mechanisms to acce erate vo untary nutrient trading by water uti ities to contro sediment. The Strategy a so inc udes assistance for communities to he p them achieve the priority on-ground works identified in Catchment Action P ans.

Notab y, the Strategy bui ds on the strong foundation provided by the many projects a ready underway which aim to keep the soi on the and and out of the waterways, protect our region s water security and make our waterways resi ient to destructive weather events.

The Resilient Rivers Taskforce

The Resi ient Rivers Taskforce wi oversee the de ivery of the Regiona Strategy. It comprises the Mayors of South East Queens and and ministeria representatives from the Queens and Government. The Taskforce has endorsed a 30-year vision and goa s for the region.

This Regiona Strategy contains medium-term (10-year) outcomes, measures of success and strategic actions to guide effort toward achieving the vision and goa s.

Vision

By 2045, the catchments of South East Queens and wi support a resi ient, productive, iveab e and growing region.

Goals

The goa s of the Regiona Strategy are:

- Keep soi on our and and out of our waterways to support agricu tura productivity and improve water qua ity.
- He p protect our region s water security so it can support the current and future popu ation of South East Queens and.
- Improve the c imate resi ience of our region.
- Promote partnerships with strong eadership to de iver a coordinated approach to catchment management in South East Queens and.

The Resilient Rivers Initiative aims to set the direction needed to establish an enduring approach to the investment and management of the waterways of South East Queensland.

2025 Outcomes

As a resu t of imp ementing this Strategy, by 2025 we wi have:

- Water supp y catchments that provide fit-for-purpose raw water
- A measurab e reduction in sediment oad into creeks
- Infrastructure and industry that is ab e to withstand extreme c imatic events
- Coordinated on-ground stream and waterway works and management.

Catchment Action Plans

The 2025 Outcomes wi be achieved through the progressive deve opment of Catchment Action P ans across the region and by imp ementing the high priority works in the P ans. Agreed targets and priority areas for investment wi be estab ished for each Catchment Action P an which wi be underpinned by the best avai ab e science and assessment of the known risks. The actions needed in each catchment to de iver on the vision and goa s wi be deve oped with catchment stakeho ders. The Catchment Action P ans wi inform the regiona medium-term catchment investment program and wi assist co aborators to prioritise on-ground works which may span oca government boundaries.

In the short term (to 2018), we have identified and resourced priority projects for immediate imp ementation.

Measures of Success

We wi monitor critica success factors annua y to measure our success towards achieving the 2025 outcomes out ined in this Strategy. This monitoring and a three-year reporting cyc e wi ensure the Strategy remains on track.

Critical measures of success:

2015–2018

- Six Catchment Action P ans deve oped in priority catchments.
- Eight on-ground works comp eted in priority catchments.
- Fifteen industry 'best practice management projects which keep soi on the and wi be imp emented in priority catchments.

2019–2021

- Review of FY 2015–18 critica success factors comp eted.
- A further six Catchment Action P ans deve oped in priority catchments.
- Ongoing works and activities imp emented in accordance with the catchment investment program.

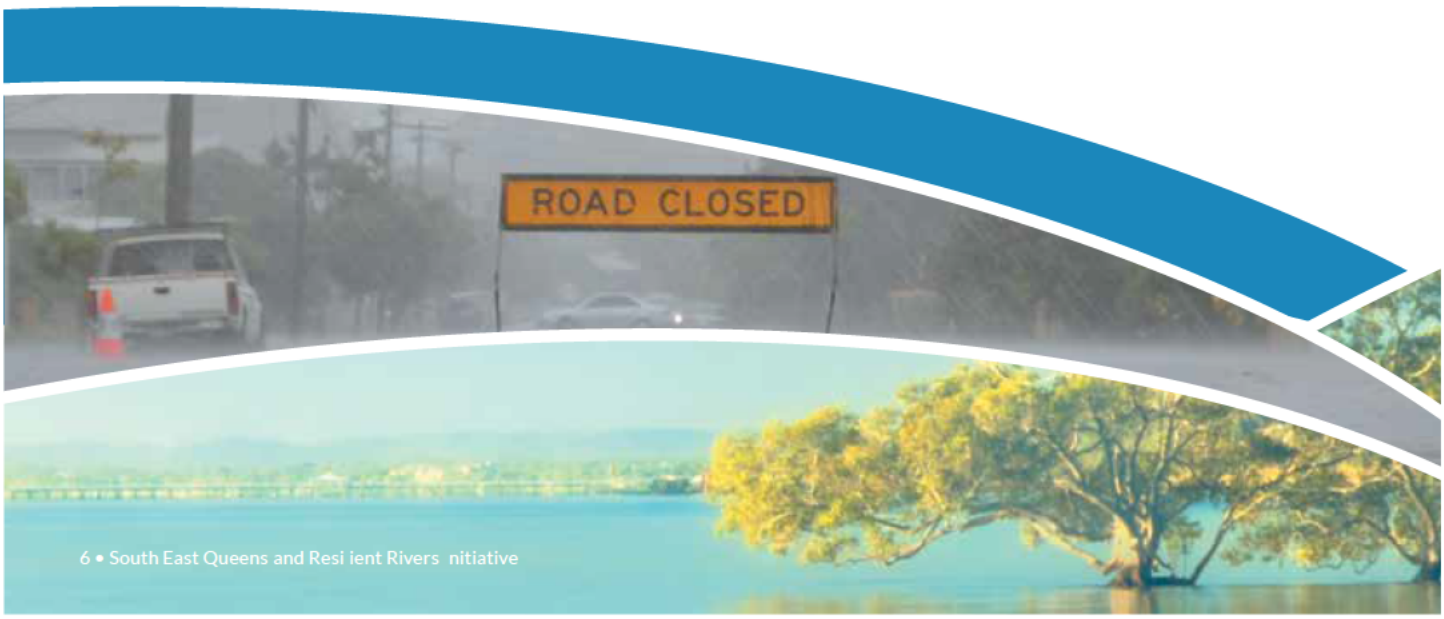
2021–2025

- Review of FY 2019–21 critica success factors comp eted.
- Ongoing works and activities imp emented in accordance with the catchment investment program.
- Review the Return on Investment of the Regiona Strategy.

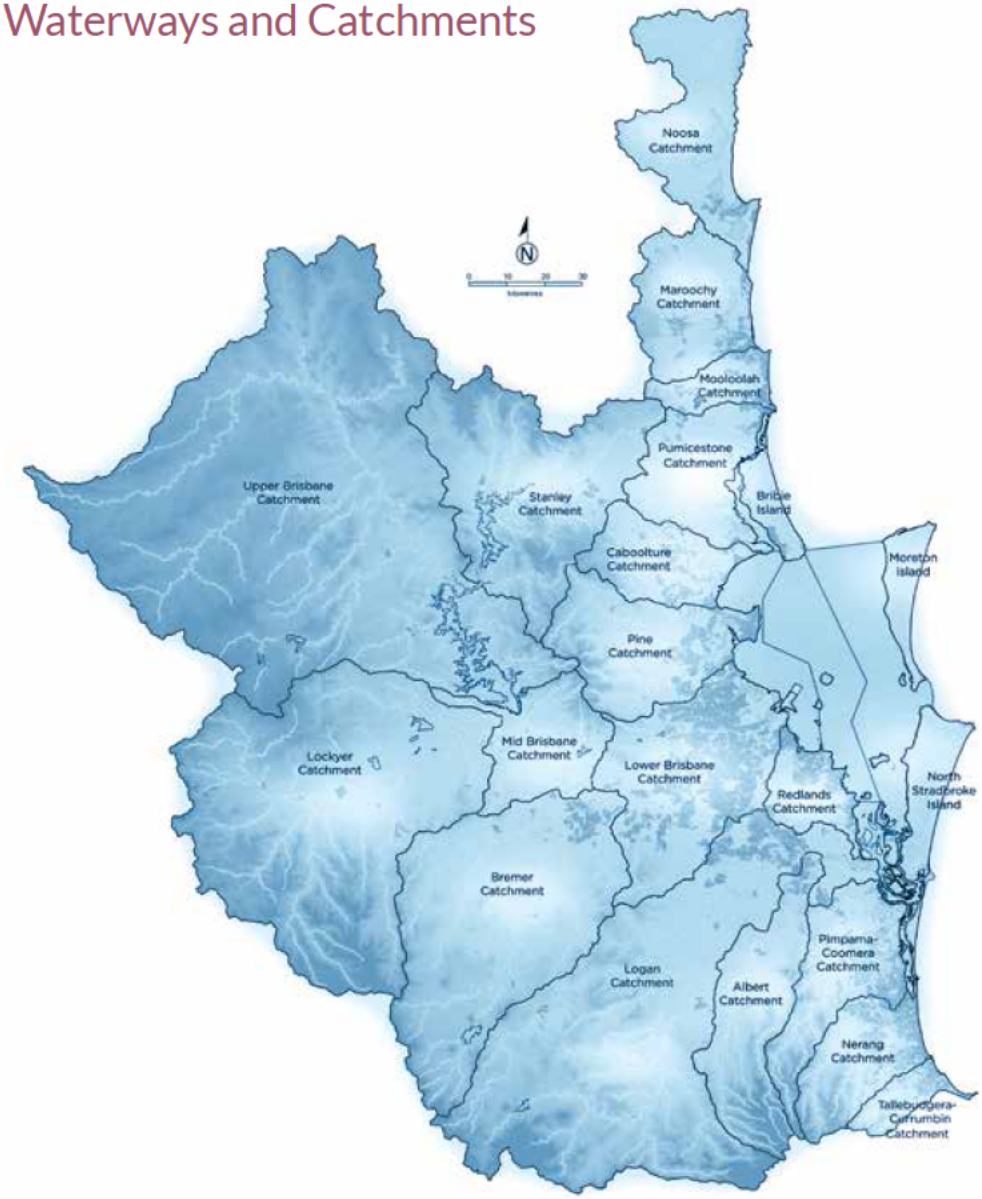
Strategic Actions

To imp ement the Strategy, the Resi ient Rivers Taskforce wi :

- Agree on a consistent scope for the Catchment Action P ans
- Agree on priority catchments for deve oping Catchment Action P ans
- Identify regu atory and institutiona barriers to on-ground imp ementation
- Deve op a business operating mode
- Deve op a catchment investment program with agreed imp ementation targets
- Agree on a reporting framework.



SEQ's Waterways and Catchments




Council of Mayors
South East Queensland

Healthy Waterways
ONE CLEAR VISION

Unitywater

Queensland
Government

QUEENSLAND
UrbanUtilities

seqwater
WATER FOR LIFE

SEQ
Catchments
Healthy Land, Healthy Water

Resilient Rivers Initiative

Approval to release the Lower Brisbane-Redlands Coastal Catchment Action Plan

Signed

Council

☐ APPROVED

☐ NOT APPROVED

Date: : / /2018

Please return this form to Diana Dawson, Coordinator Waterways and Environment, Council of Mayors (SEQ), by Friday, 24 June 2016:

diana.dawson@seqmayors.qld.gov.au
Fax: 3211 5889

Conservation and Environment Committee	
Mtg Date: 18.06.18	OAR: YES
Authorisation: Bryce Hines	

NS: NS
H:\departmental\committee reports\1803 NS LLRI Project Officer Funding.doc

11 May 2018

M E M O R A N D U M

TO: ACTING CHIEF OPERATING OFFICER (WORKS PARKS AND RECREATION)

FROM: ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER

RE: LITTLE LIVERPOOL RANGE INITIATIVE – PROJECT OFFICER FUNDING

INTRODUCTION:

This is a report by the Acting Sport Recreation and Natural Resources Manager dated 11 May 2018 concerning the funding of a Project Officer for the Little Liverpool Range Initiative which Ipswich City Council is a major stakeholder in.

BACKGROUND:

The Little Liverpool Range, located on the western boundary of the Ipswich local government area, adjoining Lockyer Valley, Somerset and Scenic Rim Council local government areas, is a vegetated biodiversity corridor linking with the Main Range National Park and the Great Eastern Ranges.

The range is heavily vegetated and is made up of several mapped regional ecosystems providing habitat for a range of significant species including the Glossy-Black Cockatoo, Powerful Owl, Brush Tailed Rock Wallaby, Little Pied Bat, and Slender Milk Vine. The connectivity the range provides along with its high biodiversity value and low pressure from urban infringement makes it ideal for long-term conservation. Furthermore, the range also contains core habitat areas including Mount Grandchester Conservation Estate, Hidden Vale Nature Refuge and Mount Beau Brummell Conservation Park.

The Little Liverpool Range has also been identified in the Ipswich Nature Conservation Strategy 2015 as a Priority Conservation Area.

OVERVIEW OF THE LITTLE LIVERPOOL RANGE INITIATIVE:

The Little Liverpool Range covers the Ipswich, Lockyer, Somerset and Scenic Rim local government areas, and includes large private landholdings dedicated to conservation. In partnership with key stakeholders, including The Gainsdale Group (Spicers Hiddenvale) Queensland Trust for Nature (QTFN), the Little Liverpool Range Initiative (LLRI) was mooted to provide a collaborative approach to conserving and enhancing the environmental values within the area in collaboration with private landholders in the vicinity of the range (Attachment A).

PROPOSED PROJECT OFFICER FUNDING:

The LLRI stakeholders have previously discussed the need to fund a part time Project Officer as the LLRI progressed further and gained more momentum. Now that the LLRI has gained more recognition, the stakeholders believe that a dedicated LLRI Project Officer is necessary to ensure that sufficient time and effort can be allocated to the LLRI to make sure the momentum continues.

Employing a part time Project Officer to represent all stakeholders under the LLRI name would direct much needed time and effort towards:

- Community engagement
- Educating and creating awareness amongst the community about the Little Liverpool Range and its importance
- Coordinating events and activities including field days, events, meetings and landholder property visits
- Collaborating with stakeholders from the LLRI to help deliver a consistent approach to conservation of the Little Liverpool Range
- Preparing written material including brochures, flyers, reports and grant applications.

Employing a Project Officer will provide additional benefits to Ipswich City Council as they will be able to promote Council's Waterways Conservation Agreement, Koala Conservation Agreement, Bushland Conservation Agreement and Nature Conservation Agreement, in the Little Liverpool Range, which is a region of Ipswich where there has been less take-up of the Landholder Partnerships.

Ipswich City Council has received written commitment from Queensland Trust for Nature (Attachment B) confirming that they are willing to put $5,000 per year towards the funding of a Project Officer for 2 years. The Gainsdale Group has provided written commitment (Attachment C) that they are willing to put $10,000 a year towards the funding of a Project Officer for at least 2 years. Additionally, Gainsdale Group have offered to provide a computer and office space, at the Hidden vale Wildlife Centre, for the project officer to work from.

To ensure the LLRI continues to grow, it is proposed that Ipswich City Council also contribute $10,000 per year for 2 years. This would bring funding to a total of $25,000 per year for two years and allow for the employment of a part time Project Officer at 2 days per week.

BENEFITS TO THE COMMUNITY AND CUSTOMERS:

Currently, it's the stakeholders of the LLRI that are delivering the LLRI message across multiple Council areas. As a result, it's difficult to deliver a consistent message to everyone. Employing a Project Officer as a representative of the LLRI would allow the Project Officer to work across all 4 Council areas (primarily the Ipswich region based on proposed funding), engaging with the community, ensuring that information delivered across the region is consistent. The role will also be based in the Little Liverpool Range region to ensure that the Project Officer is readily available to landholders who would like to meet and discuss land management practices related to their property.

Being that there is a smaller population in the region, word of mouth is effective for creating awareness about the LLRI and associated events and workshops. With the Project Officer based in the region and in regular contact with the community, they'll be better able to promote those workshops and events as well as any other significant projects that Ipswich City Council, or the other Council's, are carrying out in the region.

The four different Council's offer a range of Landholder Partnerships that enable landholders to access incentives to help with land management on their properties. The Project Officer will have a general knowledge of the partnerships offered across the Council's which they will be able to promote.

CONCLUSION:

The Little Liverpool Range Initiative aims to conserve the range through a coordinated and collaborative approach with private property owners, conservation organisations and adjoining local governments, and to facilitate open discussions on conservation management strategies to conserve and improve the environmental values of the area. Employment of a Project Officer to represent the Little Liverpool Range Initiative will ensure that the coordinated and collaborative approach is delivered consistently.

ATTACHMENTS:

Name of Attachment	Attachment
Draft Little Liverpool Range Initiative Vision	Attachment A
Funding commitment Letter from Queensland Trust for Nature	Attachment B
Funding commitment letter from Gainsdale Group	Attachment C

RECOMMENDATION:

That Council partner with the Gainsdale Group and Queensland Trust for Nature, by contributing $10,000 a year for two years, to help fund a part-time Project Officer to deliver the Little Liverpool Range Initiative.

Kaye Cavanagh
ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER

I concur with the recommendation/s contained in this report.

Bryce Hines
ACTING CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)

Little Liverpool Range Initiative

The Little Liverpool Range (LLR) is home to a variety of native species of national, state and local significance. With its large areas of intact remnant vegetation stretching approximately 60km, it provides essential habitat connectivity to the Main Range National Park and the Great Eastern Ranges.

The Little Liverpool Range Initiative (LLRI) aims to establish a long-term commitment to the preservation and expansion of vegetation in support of biodiversity for future generations. This can only be achieved through a collaborative approach as the LLR runs through 4 local council's including the Scenic Rim Regional Council, Lockyer Valley Regional Council, Ipswich City Council and Somerset Regional Council. Within the LLR there are also a number of properties with a significant focus on conservation including:

- Queensland Trust for Nature's 1,970 Ha Aroona property;
- Old Hidden Vale Station's 4,560 Ha property;
- Hidden Vale Wildlife Centre;

The above, along with the fact that the majority of land along the LLR is privately owned, highlights that a collaborative cross-boundary approach is required by local governments, organisations and landholders to achieve the necessary conservation outcomes for the LLR. Effective communication of natural resource management amongst stakeholders is important for driving messages, outcomes and community support over the four local government areas.

LLRI is driven by a working group that is comprised of the following stakeholders:

- Landholder representatives
- Queensland Trust for Nature
- The Gainsdale Group
- The University of Queensland
- Healthy Land and Water
- Lockyer Valley Regional Council
- Scenic Rim Regional Council
- Ipswich City Council
- Somerset Regional Council

Key outcomes for the Little Liverpool Initiative

The LLRI aims to build on the existing vegetation and wildlife corridor using a coordinated cross-boundary approach. This collaboration harnesses the expertise of involved stakeholders, each playing a pivotal role in the decision making processes. LLRI aims to support the re-establishment of threatened and locally extinct species in the area, protect remnant ecosystems, enhance areas of regrowth vegetation and build community resilience to climatic, environmental and social threats.

Our Vision:

- The Little Liverpool Range is embraced and enhanced through collaborative partnerships between the landholders, organisations and the community to conserve its natural beauty, wildlife and landscapes.

What we aim to achieve:

- **Inclusiveness:** Plan and deliver projects and events that align with the strategic goals and objectives of multiple groups and individuals in an inclusive manner
- **Coordination**: Create a platform for identification and delivery of conservation projects across multiple land tenures, levels of government and cross jurisdictional boundaries.
- **Sharing**: Provide access for all stakeholders to a central and accessible platform(s) for recording data, and sharing content
- **Awareness**: Increase landholder and community awareness and understanding of the interconnection of individual and landscape-scale conservation initiatives
- **Delivery**: Provide tailored programs to improve land management and conservation outcomes to support the needs and capacity of land managers
- **Recognition**: Promote and celebrate the Little Liverpool Range within the wider community, highlighting the multiple benefits of the Range and the conservation efforts of landholders to achieve landscape-scale conservation outcomes

<u>How we will get there:</u>

- **Inclusiveness:**
    - Identify and engage with all stakeholders
    - Support on-going communication and partnerships through the Little Liverpool Range working group
    - Promote the vision and objectives to the broader community
    - Undertake a yearly review of the objectives and actions to ensure consistency and relevance to engaged partners
    - Provide opportunities and accessible platforms for the community to be engaged and to express their ideas
- **Coordination**: Create a method for identification and coordination of conservation projects across multiple land tenures, levels of government and cross jurisdictional boundaries.
    - Stakeholders provide input on priorities for the LLR region to guide grant applications
    - It's each stakeholder's responsibility to keep all other stakeholders informed of current projects so that they can be taken into consideration for future project planning.
    - Creation of guidelines for consistent delivery across all Council areas
    - Ensure projects align with the goals and vision of the Initiative
- **Sharing**: Provide access for all stakeholders to a central and accessible platform(s) for recording data, and sharing content
    - Share information, outcomes and successes of project works with other members of the initiative.
    - Investigate available platforms that are going to be practical and affordable, as well as catering to the needs and capabilities of all stakeholders. Determine and source necessary resources for maintaining and regularly servicing the platform

- **Awareness**: Increase landholder and community awareness and understanding of the interconnection of individual and landscape-scale conservation initiatives
    - Develop external (external to the working group) stakeholder engagement plan to guide community engagement activities
    - Employ a project officer to sit within a stakeholder organisation
    - Project officer to act as a communication channel between organisations and the community
    - Ensure all activities undertaken within LLR are promoted as part of the initiative to increase public awareness and bring focus to the region
- **Delivery**: Provide tailored programs to improve land management and conservation outcomes to support the needs and capacity of land managers
    - Project Officer to engage with land managers and increase understanding of the community
    - Gain understanding of landholder skillsets and capacity
    - Project Officer to manage workshops and events (tailored to project list) aimed at improving knowledge and supporting landholders in conservation activities
    - Collaborating with landholders to understand the values of their property through property surveys and site visits
    - Collaborate with landholders and the University of Queensland's Wildlife Breeding Facility to identify opportunities to release species significant to the range into suitable habitat
- **Recognition**: Promote and celebrate the Little Liverpool Range within the wider community, highlighting the multiple benefits of the Range and the conservation efforts of landholders to achieve landscape-scale conservation outcomes
    - Update online presence and content e.g. Wikipedia page
    - Create and deliver consistent messaging identified in stakeholder engagement plan
    - Project officer to develop any other marketing and media material
    - Develop LLR information flyer/booklets

How you can get involved.

For further information on the Little Liverpool Range Initiative and supporting programs please go to:

Web

Facebook - https://www.facebook.com/littleliverpoolrange/

Phone

23 May 2018

Kaye Cavanagh
Ipswich City Council
PO Box 191
Ipswich QLD 4305

Dear Kaye

The Queensland Trust for Nature is pleased to be able to contribute $5000 per annum for two years towards the employment costs of a Project Officer to coordinate the Little Liverpool Range Initiative. This Initiative offers a great opportunity to engage with land managers along to the range to improve the health of this state significant corridor. Employing a Project Officer will greatly assist to champion the Initiative with the local community and partners and deliver strategic communication and conservation activities.

QTFN are also able to provide in-kind support in terms of staff time, supervision or mentoring as well as office space when in Brisbane and access to mapping and other systems.

We look forward to working with Ipswich City Council and our other partners to achieve conservation outcomes within the Little Liverpool Range.

Yours sincerely

T.J. Pritchard

Tanya Pritchard
Conservation Manager

Queensland
Trust for Nature

GPO Box 162
Brisbane Qld 4001

1800 23 77 24
www.qtfn.org.au
info@qtfn.org.au

the GAINSDALE group

25 May 2018

168 Knapp Street
PO Box 108
Fortitude Valley QLD 4006

K. Cavanagh
Works, Parks and Recreation Department
Ipswich City Council
PO Box 191
IPSWICH QLD 4305

Dear Mr Swanson

RE: Little Liverpool Range Initiative

Gainsdale is a related entity of Graham 'Skroo' Tuner and Jude Turner. The Turners are passionate environmentalists and whole heartedly support the Little Liverpool Initiative and thank the Ipswich City Council for its support of the program. Moving forward, it has been identified that a dedicated project officer is needed to progress the initiative. To this end, the Turners have agreed to:

- Provide $10,000 per annum to support the project officers role for a minimum of two years (we see this as an ongoing position and can commit for a period of at least five years).
- Provide a computer for the project officer
- Provide office space at the Hidden Vale Wildlife Centre for the project officer to work from.

We hope that other organisations in the Little Liverpool Range initiative can provide additional support so that the Project Officer can make a meaningful contribution to the tasks that have been identified by the working group to further promote and deliver the Little Liverpool Range Initiative.

Yours faithfully

Ben O'Hara
General Manager Land and Environment

Conservation and Environment Committee	
Mtg Date: 18.06.18	OAR: YES
Authorisation: Bryce Hines	

NS: NS
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24 May 2018

M E M O R A N D U M

TO: ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER

FROM: PROGRAM OFFICER (NATURAL ENVIRONMENT)

RE: REVIEW OF THE ENVIRONMENTAL WEED CONTROL REBATE PROGRAM

INTRODUCTION:

This is a report by the Program Officer (Natural Environment) dated 24 May 2018 concerning a review of Council's Environmental Weed Control Rebate (EWCR) program.

BACKGROUND:

The EWCR program is funded through Enviroplan and is available to eligible private landholders as a financial incentive to control environmental weeds on their land. The rebate covers 50% of the cost of contractor work or herbicide purchase, up to a pre-determined maximum rebate amount as stipulated on the application.

Residents apply for the EWCR through Council's Smarty Grants. All applications for the rebate must be approved by Council before work commences. For the majority of applications, the maximum rebate available is $600.00 per financial year per rates assessment number. Landholders in Council's Voluntary Conservation Partnership Programs may receive up to $1,000.00 per financial year per rates assessment number, depending on the type of agreement. An acquittal is required after the work is completed.

The EWCR program was developed to financially assist landholders who have an interest in achieving environmental outcomes by controlling infestations of environmental weeds on their land. Reviewing the EWCR is necessary so that Council is able to determine whether or not the EWCR is achieving the goals it was originally designed for.

CURRENT PROCESS FOR APPLYING FOR ENVIRONMENTAL WEED CONTROL REBATE PROGRAM:

The current process for the EWCR requires residents to apply through Council's Smarty Grants. There are few mandatory questions as part of the application and there is currently no requirement for applicants to submit before and after photos. This presents the following problems:

- Data extracted for reporting purposes is not consistent or accurate as a majority of applicants will not input the number or area of pest plants treated/removed as it is not a mandatory question. This prevents Council from being able to report on the success of the program; and
- With there being no requirement for before and after photos, there is the potential for applicants to unintentionally submit false applications as they may incorrectly identify the plant species to be removed as one of the eligible species under the EWCR. With well over 200 applications being made each year, Program Officers do not have the capacity to carry out inspections to identify plants for residents prior to them submitting an application.

PROPOSED REVIEW OF THE ENVIRONMENTAL WEED CONTROL REBATE:

It is proposed that the following changes be implemented to the EWCR program application and acquittal process:

- Input of information relating to number or area of pest plants treated will be a mandatory question.
- Before photos will be mandatory for the application to enable the assessor of the application to identify the plant species
- After photos will be mandatory as part of the acquittal to demonstrate the success of the project.

These changes will ensure only the eligible pest plant species are being treated/removed under the EWCR while also allowing for accurate reporting on the success of the EWCR. Furthermore, the changes will give Council the ability to better demonstrate, to the residents of Ipswich, how successful the program is.

The pest weeds eligible for a rebate in the 2018-2019 financial year will remain unchanged, they include:

- Lantana (*Lantana spp*)
- Climbing Asparagus Fern (*Asparagus africanus*) ,
- Cat's Claw Creeper (*Macfadyena unguis-cati*)
- Chinese Elm, Celtis (*Celtis sinensis*)

Annual reviews will continue to be undertaken to ensure the environmental weed species targeted still aligns with the delivery of the Ipswich Nature Conservation Strategy and the Private Landholder Partnership Programs to achieve biodiversity and conservation outcomes.

NEXT STEPS:

It is proposed that the following steps be implemented for the updated EWCR application/acquittal process:

- Commence the new program from 1 July 2018
- Provide public notification of changes in local media outlets and Council webpage
- Provide advice to Landholder Partners of the changes for the EWCR

CONCLUSION:

The Environmental Weed Control Rebate program is funded through Enviroplan and is available to eligible private landholders as a financial incentive to control environmental weeds on their land.

The EWCR program currently doesn't allow Council to measure the success of the program effectively. The changes are necessary so that we can demonstrate to the residents of Ipswich the success of the EWCR program.

RECOMMENDATION:

A. That Council amend the current application and acquittal process for the EWCR to include:
   - Mandatory for applicants to identify the number or area of pest plants treated.
   - Mandatory for before photos to be submitted with an application
   - Mandatory for after photos to be submitted with the acquittal to demonstrate the pest plant has been treated/removed successfully

B. That Council review the pest weed species annually to ensure biodiversity and conservation outcomes align and support the delivery of the Ipswich Nature Conservation Strategy and the Private Landholder Partnership Programs.

C. That the Chief Operating Officer (Works, Parks and Recreation) amend the Environmental Weeds Procedure to align with the reviewed Environmental Weed Control Rebate Program.

Nick Swanson
PROGRAM OFFICER (NATURAL ENVIRONMENT)

I concur with the recommendations contained in this report.

Kaye Cavanagh
ACTING SPORT RECRATION AND NATURAL RESOURCES MANAGER

I concur with the recommendations contained in this report.

Bryce Hines
ACTING CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)

Conservation and Environment Committee	
Mtg Date: 18.06.18	OAR: YES
Authorisation: Bryce Hines	

TS: TS
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5 June 2018

M E M O R A N D U M

TO: ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER

FROM: PLANNING OFFICER (BIODIVERSITY)

RE: REVIEW OF THE IPSWICH CITY COUNCIL FLYING-FOX ROOST MANAGEMENT PLAN AND DEVELOPMENT OF LOCAL ROOST MANAGEMENT PLANS

INTRODUCTION:

This is a report by the Planning Officer (Biodiversity) dated 5 June 2018 concerning a review of Council's Flying-fox Roost Management Plan and the development of local roost management plans.

BACKGROUND:

A report detailing management options for Yamanto flying-fox was presented to Conservation and Environment Committee No. 2018(05) of 21 May 2018 and Council Ordinary Meeting 29 May 2018 (Attachment A).

Based on discussions at the Conservation and Environment Committee it was determined that Council officers:

A. Provide a copy of, the Flying-fox Roost Management Plan to a future meeting (Attachment B)
B. Undertake a preliminary review of the Flying-fox Roost Management Plan
C. Consider the development of local roost management plans.

PURPOSE:

The purpose of the review of the Flying-fox Roost Management Plan is to:

1. Ensure the plan remains consistent with State legislation
2. Reconfirm Council's position on managing roosts on private land
3. Ensure Council's suite of management options remains up to date with best practice and consistent with other local governments across south-east Queensland

4. Develop further clarity around the consistent and appropriate application of the plan across geographical areas, divisions and different roosts

KEY CONSIDERATIONS IN REVIEW OF THE FLYING-F0X ROOST MANAGEMENT PLAN:

1: Consistency with state legislation

Council adopted the Flying-fox Roost Management Plan in 2015. This followed amendments to the *Nature Conservation Act 1992* in late 2013 that gave local governments' as-of-right authority to manage flying-fox roosts where they fell within an Urban Flying-fox Management Area. The legislation and accompanying codes of practice have remained unchanged since 2013, and the Flying-fox Roost Management Plan remains consistent and up-to-date with relevant State and Commonwealth legislation.

2: Management of flying-foxes on private land

The Flying-fox Roost Management Plan operates on the principles of risk management with two main risk matrices, being:

1. Risk regarding the choice of management actions and associated consequences
2. Risk regarding the geographical context of a roost

With regards to managing roosts on private land, available options under the management plan are guided by the risk profile of the relevant roost. The current position remains relevant and consistent with Council's approach to roost management.

3: Current best practice

Flying-fox management in south-east Queensland has increased significantly in its sophistication since the amendments to the *Nature Conservation Act 1992* in late 2013.

One of the primary changes has been the reduction in the number of active dispersals been undertaken. Based on the evidence and outcomes concerning active dispersals it is well recognised across local and state government that dispersals are associated with high risk, high cost and low success rate. Council's current Management Plan acknowledges this approach through its Management Action Assessment Process, which only recommends dispersal as last resort action for high risk areas.

While dispersal is now used less frequently across SEQ, the number of in-situ management techniques has increased and is highly variable. At the time of writing the Flying-fox Roost Management Plan, in-situ management techniques were primarily limited to vegetation management. It is recommend that the development of local roost management plan be reflective of the greater suite of in-situ management actions, and that a slight amendment be made to the Flying-fox Roost Management Plan. Such techniques include, but are not limited to, canopy mounter sprinklers, artificial buffering and subsidy programs.

4: Consistent application

Given the primary decision making tools within the Management Plan are risk based, the need or request for management actions can be assessed on a case by case basis. This allows for consistent application of the assessment framework across all flying-fox roosts. This also means that not all flying-fox roosts across the city receive the same management actions, as this assessment framework recognised the incredible complexity of flying-fox colonies.

Another important component of the Management Plan specifies that where a flying-fox roost is recognised as low risk or a preferred roost location, management actions are generally not required. For example, Poplar Street Reserve exists mostly within a rural road reserve and is only occupied for several short periods of time per year. It is also a substantial distance away from any places of residence and is thus considered a preferred roost location under the plan.

While the Management Plan explicitly describes the type of geographic risk and its selection criteria, this is not tied back to specific local roosts. As such, a suite of local roost management plans are proposed to be developed for each known roost within the local government area. These local plans will identify the risk level for the roost, illustrate constraints and local considerations, and list suitable management actions going forward.

This type of local plan has previously been developed for some roosts following elevated levels of community complaints. A plan for the Bundamba roost has been provided as an example in Attachment C.

CONCLUSION:

Upon review of the Ipswich Flying-fox Roost Management Plan, it is evident that it provides Council with a robust framework for assessing the need for management actions on a case by case basis. The plan remains consistent with State and Commonwealth legislation whilst providing Council with the tools for consistent application across the local government area.

In response to updated flying-fox roost management since the time of writing, the Plan should be updated to reflect this. In addition the creation of local management plans will help highlight how the management plan as a whole, is used and reflected at a local level.

ATTACHMENTS:

Name of Attachment	Attachment
Conservation and Environment Committee No. 2018(05) of 21 May 2018 and Council Ordinary Meeting 29 May 2018	Attachment A
Ipswich Flying-fox Roost Management Plan	Attachment B

Example local plan – Lorikeet Street Reserve	Attachment C

RECOMMENDATIONS:

A. That the Planning Officer (Biodiversity) make the recommended edits to the Flying-fox Roost Management Plan to be reflective of the broader suite of in-situ management techniques that have been used through South East Queensland.

B. That the Chief Operating Officer (Works Parks and Recreation), in consultation with the Chairperson, Works Parks and Sport Committee and relevant Divisional Councillors develop a suite of Local Roost Management Plans for flying-fox roosts located on Council owned and/or managed land across the City over the next six months for presentation at a future Conservation and Environment Committee.

Tim Shields
PLANNING OFFICER (BIODIVERSITY)

I concur with the recommendation/s contained in this report.

Kaye Cavanagh
ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER

I concur with the recommendation/s contained in this report.

Bryce Hines
ACTING FCHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)

Conservation and Environment Committee	
Mtg Date: 21.05.2018	OAR: YES
Authorisation: Bryce Hines	

TS: TS
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30 April 2018

M E M O R A N D U M

TO: ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER

FROM: PLANNING OFFICER (BIODIVERSITY)

RE: MANAGEMENT OPTIONS FOR YAMANTO FLYING-FOX COLONY – DIVISION 7

INTRODUCTION:

This is a report by the Planning Officer (Biodiversity) dated 30 April 2018 concerning future management actions for the Yamanto flying-fox colony.

BACKGROUND:

The Yamanto flying-fox colony extends across Deebing Creek, covering Box Street and Beechwood Drive and is located on private property and Unallocated State Land (being the Deebing Creek corridor). This roost has been raised as a concern by a number of residents previously, and more recently through an email to Mayor dated 18 March 2018.

Under Council's Flying-fox Roost Management Plan the Yamanto roost is classified as medium risk; which specifies - where a medium conflict roosts exists on private property Council may consider a partnership with the Queensland Government and landholders to undertake in-situ management actions on private land. Dispersal actions would only be considered under high risk scenarios.

In 2016, Council undertook works to create a distance buffer between residents and roosting flying-foxes. This was done by altering vegetation on the western and southern sides of Deebing Creek through removal of large woody weeds and selected trimming of native vegetation.

PURPOSE:

This report outlines a process for Council to be able to make an informed decision regarding the on-going management of the Yamanto Flying Fox Roost.

The report lists a suite of management options including the potential advantages, disadvantages and cost to Council for each.

All management options will need to be in accordance with Council's adopted Flying-fox Roost Management Plan (FFRMP), Flying-fox Roost Management Policy, the *Nature Conservation Act 1992 (Qld)* and its associated regulations and codes of practice, and the *Environmental Protection and Biodiversity Conservation Act 1999 (Cwth).*

Council is required to make a decision to either stand by the previous arrangement to do no further work at the Yamanto roost site, or to invest in further works selected from the options outlined below.

MANAGEMENT OPTIONS:

Option 1: Vegetation modification

Description:
Much of the vegetation removed in 2016 to create a physical buffer between roosting flying-foxes has regrown and may recreate the previous flying-fox habitat on the western and southern sides of Deebing Creek. The licence agreements signed by the participating residents in 2016 stated that on-going management of vegetation following completion of the initial works was the responsibility of the landholder. However, Council understands that this has not occurred.

Management option 1 is to undertake another round of vegetation modification to consolidate the buffer created in 2016 through removal of regrowth and woody weeds.

Advantages:
- This action was successful previously at this location;
- Removal of regrowth is relatively easy given the previous clearing of woody weeds;
- Some residents who participated in the initial works may be receptive to follow up actions.

Disadvantages:
- Vegetation modification works are dependent on when and where flying-foxes are located in a colony;
- On-going management of the site was not undertaken following the initial works, as specified in the licence agreement with residents;
- There are many areas within the creek corridor where vegetation management cannot occur under state legislation (ie: Riverine Protection Permits);
- Further action may not appease all residents, particularly where they feel impacts have been compounding over time and cite issues such as mental health impacts

Costs:
Works conducted in 2016 cost $60,000 for vegetation modification and weed removal on 14 properties and one bank of Deebing Creek.

Given the work has previously been done, it is expected that further vegetation management in these areas would cost $40,000-$50,000, depending on the presence and abundance of flying-foxes within the colony, as prices will increase where night works are required.

Option 2: Active dispersal

Description:
Active dispersal involves the continual use of accepted techniques in an attempt to permanently disperse flying-foxes from a colony. The actions that can be undertaken are regulated through the relevant State and Commonwealth legislation and associated guidelines, guiding the timing and type of actions. In addition, the success of the dispersal is highly variable as flying-foxes are extremely mobile and often travel short distances to form a new roost, or make use of another existing roost.

Active dispersal of the Yamanto colony would require Council staff or contractors, in agreement with landholders, to enter private property to conduct dispersal actions. To ensure a successful outcome native vegetation on private property and along Deebing Creek would need to be removed.

Advantages:
- If successful, permanently disperse flying-foxes from the current colony.

Disadvantages:
- High chance of failure;
- High risk and uncertainty of where flying-foxes will settle once dispersed;
- High risk of creating a new roost in close proximity to the current site or joining another existing or previous site such as Lorikeet Street Reserve or Queens Park Nature Centre;
- Effort is high cost and resource intensive in the immediate to short term;
- Dispersal actions will need to be recurring until all animals have left the roost site;
- Loss of native vegetation on private property and along Deebing Creek increasing a risk of bank erosion and regrowth of weed species;
- Noise disturbance to residents whilst undertaking the dispersal actions which may extend over a number of days to weeks. Actions are required to be undertaken before dawn or after dusk;
- Legislative constraints on the time of year when dispersal actions can be undertaken.

Costs:
Cost can be highly variable depending on a number of factors including:
- Size of colony and area requiring dispersal actions;
- Number of personnel required;
- Number of days required to undertake works;
- Whether dispersal actions are successful;
- Where dispersed flying-foxes land;
- Whether vegetation modification is required;
- The time a colony of flying-foxes has occupied a site for;

- Presence and abundance of local food sources.

When considering all of the factors above, upfront dispersals cost could be anywhere between $50,000 and $500,000. Given the large numbers of flying-foxes and area covered by the Yamanto colony, costs are likely to be in the hundreds of thousands. Given that the colony occupies the riparian area of the highly erosive Deebing Creek, complete vegetation removal may not be an option, so flying-foxes would continually be drawn back to the site. As such an ongoing yearly cost of $50,000 to $100,000 would be required.

Case studies:
The Melbourne Botanic Gardens is the best example of the amount of effort required to conduct a flying-fox dispersal where complete vegetation removal is not appropriate. Dispersal efforts were successful at a cost of over $3,000,000 with works ongoing to this day to ensure flying-foxes do not return to the gardens.

Other dispersals, such as in Charters Towers, have cost over $400,000 and are still considered unsuccessful.

Option 3: Extend distance buffer

Description:
Further works conducted within Deebing Creek to extend the buffer between residents on Beechwood Drive and Box Street. Further habitat is available for roosting on the Briggs Road side of Deebing Creek where conflict with landowners is substantially lower.

Works would potentially require additional remediation of Deebing Creek to minimise potential erosion.

Previous correspondence with the Department of Natural Resources and Mines indicates that additional works within the creek corridor (deemed to be Unallocated State Land) would require additional permits before vegetation clearing and potentially written approval from the Minister.

Advantages:
- Increase the effectiveness of previous buffering actions as a method for reducing the impacts;
- Push flying-foxes further from residences where current conflict occurs;
- Avoid the need to remove flying-foxes from the roost while reducing impacts on residents livelihoods;
- Existing Licence Agreements between Council and the majority of landholders in this area.

Disadvantages:
- Significant risk involved with further clearing of vegetation on Deebing Creek and increased erosion risk;

- Increased administration and potential delays to obtain permits required from the Department Natural Resources Mines and Energy with Ministerial approval;
- Pushing flying-foxes further towards Briggs Road and further from the creek corridor (through substantial removal of roosting vegetation) could potentially make the entire roost unsuitable and flying-foxes may begin roosting in different parts of Deebing Creek or more to another nearby site;
- Further works in Deebing Creek will remove a substantial portion of the heat stress refuge habitat within the Yamanto flying-fox colony, increasing risk of mortality at this location;
- Previous works at Yamanto flying-fox colony have shown that on-going maintenance of the site has not been undertaken by landholders;
- Council is unable to maintain the site as it is on private property and Unallocated State Land.

Costs:
- It is expected that costs would increase from the previous works, due to remediation works to reduce erosion risk on Deebing Creek post vegetation clearance;
- Potential expectation for Council to fund on-going maintenance works to ensure vegetation does not become suitable for roosting again.

Option 4: Artificial buffering (e.g. canopy mounted sprinklers)

Description:
Where complete removal of vegetation is not possible or desirable by residents, artificial buffers can be used. Currently, approved artificial buffers are mostly limited to the use of canopy mounted sprinklers. The arc of the sprinklers creates a zone that flying-foxes find non-desirable and are not likely to roost in. Sprinklers can be mounted along a boundary of a property or along the current edge of a colony to push or nudge roosting flying-foxes in the desired direction. This technique was recently trialled in the Queens Park Nature Centre with anecdotal success.

Council can consider giving ownership of the sprinklers to residents, allowing the residents to decide when to turn them on and off. Council may also consider subsidizing water costs to residents.

Advantages:
- Non offensive buffering effect;
- Can retain trees and aesthetic value and other vegetation whilst still making trees undesirable for roosting;
- Can be very selective and target specific trees for buffering;
- Can give residents ownership and sense of power with managing the issues;
- The technique has been used successfully by other local authorities at trail sites.

Disadvantages:
- Requires additional permits under the Nature Conservation Act beyond Council's current as-of-right provisions;

- Will require a commitment from all landholders to ensure there is no "gap" in the artificial buffer;
- Will not completely remove the impacts of smell and mess from a colony;
- Costs and works are ongoing indefinitely;
- Can be logistic difficulties in installation.

Costs:
Refer to Sunshine Coast case study below.

Case studies:
Sunshine Coast Regional Council has installed an extensive series of canopy mounted sprinklers at one of their most contentious flying-foxes colonies. The council used a line of sprinklers on either side of the colony where houses ran adjacent and pushed the colony towards the middle of the site. Sunshine Coast gave control of the sprinklers to the residents and subsidised water costs. The Council had to hire professional tree climbers to install the sprinklers.

During the first year of the project Sunshine Coast Regional Council spent approx. $60,000, including equipment purchase, installation costs and water costs.

Option 5: Subsidy program (double glazing and other services)

Description:
A subsidy program would provide an option for residents living directly next to an active flying-fox roost to receive a subsidy towards a pre-determined set of products or services. The subsidy would only be available to residents who immediately adjoin an active roost site and can demonstrate a significant financial or health impact. The subsidy would cover products or services that can reduce in-situ impacts of roosting flying-foxes on residents such as noise and smell. These may include:

- Air fresheners;
- Car covers;
- Clotheslines covers;
- High pressure water cleaners;
- Professional solar panel cleaning;
- Double glazing windows.

Advantages:
- Solutions can be tailored to the needs of an individual based on their main grievances;
- Relatively inexpensive;
- Can increase resident satisfaction with Council actions, creating a working relationship.

Disadvantages:
- Different methods may have varying level of effectiveness;
- The set of products or services may not appease residents of the flying-fox colony;
- Determining an appropriate subsidy to be made available to residents;
- Residents may still be restricted for use of their outdoor areas.

Costs:
Costs vary greatly depending on the following:

- Number of residents to take up the subsidy;
- The willingness and uptake of residents;
- Amount of subsidy provided to each applicant.

Case studies:
Noosa Council subsidy program

Noosa Council trialled a subsidy program for one of its flying-fox colonies that was offered to 55 affected residences within 75m of the colonies extent.

After a three month trial, residents were surveyed to gauge their satisfaction with the services provided. The most important finding was that the program had successfully reduced the majority of residents concerns with regard to living near a flying-fox colony:

Previous impact of FF on their lifestyle = 7.6/10

Current impact of FF on their lifestyle = 3.2/10

CONCLUSION:

A suite of management options are available to Council, each of which has distinct advantages and disadvantages. No one option is likely to be 100% effective at reducing the direct and indirect impacts of roosting flying-foxes on the livelihood of Yamanto residents.

If Council decides to undertake further works, that Option 1 - Vegetation Modification be considered in the first instance, with a proposal for Option 5 - Subsidy Program to be presented with additional cost details at a future Conservation and Environment Committee.

If Council decides to not undertake further works, that advice be provided to the affected residents in Beechwood Drive and Box Street.

RECOMMENDATION

Amended at Conservation and Environment Committee No. 2018(05) of 21 May 2018.

~~A. That Council implements Option 1 to undertake one more run of maintenance of the area along Deebing Creek that was subject to the previous vegetation modification works.~~

A. That Council contact all residents adjacent to the Deebing Creek Flying-Fox Colony and seek an update on their property management activities with regard to flying foxes.

B. That Council offer a subsidy program under the Environmental Weed Program to support impacted residents adjacent to all flying fox colonies.

C. That a regular meeting with impacted divisional councillors occur to discuss flying fox management plans.

~~B. That Council investigates the feasibility of a subsidy program to support impacted residents, as detailed in Option 5 of the report by the Planning Officer (Biodiversity) dated 30 April 2018.~~

Tim Shields
PLANNING OFFICER (BIODIVERSITY)

I concur with the recommendation/s contained in this report.

Kaye Cavanagh
ACTING SPORT RECREATION AND NATURAL RESOURCES MANAGER

I concur with the recommendation/s contained in this report.

Bryce Hines
CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)

IPSWICH FLYING-FOX ROOST MANAGEMENT PLAN

City of Ipswich

Document Control:

Version	Date issued	Reviewed by	Approved by	Date approved	Comments
FINAL		Kaye Cavanagh Craig Maudsley Bryce Hines Divisional Councillors			

Document location:	H:\SRNR\NR Strategic\Wildlife\Ipswich Flying-Fox Roost Management Plan
Document name:	Ipswich Flying-Fox Roost Management Plan
Document version:	FINAL
Author:	Natural Resources Team

Contents

Glossary of Terms:

Buffering: Creation or maintenance of a physical separation between humans and roosting flying-foxes aimed at reducing conflict with the surrounding area, providing visual separation or mitigating noise and smell.

Camp: a collection of flying-foxes sharing roosting space and congregating within close proximity. The fluidity of movement and turnover of individuals prevents flying-foxes from forming true colonies as listed above.

Roost: a tree, collection of trees, or other place where flying-foxes congregate from time to time for breeding or rearing dependent young. This does not include trees where flying-foxes may temporarily occupy for the purposes of feeding.

Maternity roost: a roost with a high proportion of pregnant females or females with dependent young.

Dependent young: are juvenile flying-foxes unable to independently fly.

Juveniles: are flying-foxes up to 6 months of age.

Management actions: non-lethal actions intended to stop flying-foxes from making use of a site or part of a site.

Place of residence: any form of dwelling on private property in which a person lives. This does not include sheds or any other constructs on private property.

Council owned and or managed land: any parcel of land that is owned by Council through any means, or land for which Council is trustee to another owner or has formal management responsibilities (Eg. a Conservation Park under the *Nature Conservation Act 1992*).

Private property: Any parcel of land owned by a member of the public or private company.

Public facilities: infrastructure or facilities used by the public for recreation or similar purposes. Such facilities could include public barbeques, benches and public toilets etc.

List of Acronyms:

ICC: Ipswich City Council

LGA: Local Government Area

EHP: Department of Environment and Heritage Protection (State)

UFFMA: Urban Flying-fox Management Area

HRR: High risk roost

MCR: Medium conflict roost

LCR: Low conflict roost

PRL: Preferred roost location

NER: Newly established roost

HRA: High risk action

HeV: Hendra virus

ABL: Australian bat lyssavirus

SoMI: Statement of Management Intent

FFMP: Flying-fox Management Plan

DMP: Damage Mitigation Permit

NCA: *Nature Conservation Act 1992* (State)

EPBC: *Environmental Protection and Biodiversity Conservation Act 1999* (Cth)

DAFF: Department of Agriculture, Forestry and Fisheries (State)

NES: National environmental significance

EFFMT: Electronic Flying-fox Monitoring Template

PPE: Personal Protective Equipment

NAT: Natural Areas Team (Council)

ACPA: *Animal Care and Protection Act 2001* (State)

VMA: *Vegetation Management Act 1999* (State)

1.0 Executive Summary

1.1 Background

An increasingly developed and urbanised landscape is driving an unprecedented level of contact between humans and flying-foxes. Loss of traditional feeding areas and extremes of climate are also factors driving flying-foxes and humans together. With increased contact community concerns around the implications of living in close proximity to flying-foxes have also elevated.

Subject to changes in season and food availability Ipswich may be home to between 4 and 10 flying-fox roosts located along water courses in urban, peri-urban or rural areas. Individual black and grey-headed flying-foxes may be present year round however roost numbers generally swell during Summer with the seasonal influx of little red flying-foxes. These expanded roosts and increased flying-fox numbers are also the trigger for elevated levels of community concern or conflict.

In 2013 the Queensland Government sought to provide greater legislative flexibility for managing flying-fox roosts in areas of high community conflict. Local governments were given a voluntary as-of-right authority allowing them, if they so choose, to implement additional management actions for flying-fox roosts within a defined urban area.

These management actions are limited to non-lethal methods and may only be undertaken in accordance with the statutory Code of Practice – *Ecologically sustainable management of flying-fox roosts*. Local governments were also advised to develop and publish a policy describing how they intended to manage flying-fox roosts within their defined urban area.

This management plan has been developed to advise and guide Council's management of current and future flying-fox roosts within the city. It contains the key information and management processes necessary to implement Council's recently adopted Statement of Management Intent – *Flying-fox Roost Management in Ipswich City*. The plan supports well informed, balanced and consistent flying-fox management actions both within and outside the defined urban area.

Central to implementation of the plan is a risk based approach to flying-fox roost management. This seeks a balanced delivery of Council's key policy objective:

"To protect the health, wellbeing and livelihoods of the residents of Ipswich City while recognising the important ecological role performed by flying-fox populations."

The plan identifies a series of 'risk based' roost management zones derived from escalating levels of community exposure to, or conflict with, roosting flying-foxes. Informed by an ongoing program of quarterly and 'conflict based' roost monitoring, actual levels of risk and associated requirements for management action are identified.

A hierarchical approach to management actions is then employed to achieve appropriate community outcomes whilst minimising the potential for unnecessary harm or disturbance to flying-foxes. This approach favours community education and minimal intervention strategies and maintains consistency with legislative requirements. Unless exceptional circumstances are identified, intrusive roost management actions including significant

vegetation modification and flying-fox dispersal will only be considered within high risk locations and after less intrusive actions have been tried and found to be unsuccessful.

The plan is also founded on the principle of case by case assessment of flying-fox roosts and conflict levels. Roosts are highly dynamic systems with the number, species composition and location of flying-foxes subject to seasonal, frequent and sometimes daily change. This dynamic requires that any management actions are based on individual site circumstances and actual risk levels *in situ*.

Under the plan, Council has a key responsibility for managing flying-fox roosts on lands under its ownership or control. In addition, where a roost occupies both Council land and adjacent private property, the plan identifies a range of mechanisms by which Council can work with and assist land owners. However, flying-fox matters located on State or Commonwealth lands are outside the scope of this plan and will be referred to the respective land managers.

Council will provide a package of support to private land owners with flying-fox roost management issues. The plan details an assistance package based on the provision of education materials, technical advice and referral to expert information sources. Council officers engaged in flying-fox management have found this approach highly successful in addressing much of the misinformation surrounding flying-foxes and easing community concerns.

Finally, all management actions developed and implemented through the management plan will be guided by a risk and benefit framework. This will consider the actual level of community risk, resource requirements and likelihood of success prior to identifying the most appropriate management action.

Some flying-fox management actions are particularly resource intensive and have a poor record for resolving the initial levels of conflict. Council will strive to avoid these high risk actions, thereby also decreasing the need for ongoing management actions in order to mitigate adverse outcomes of prior attempts – the so called treadmill effect.

1.2 Goals and Objectives

This plan is designed to guide Council's management of flying-foxes and, in particular, flying-fox roosts. It aims to ensure that any and all management actions are lawful, well informed and consistent throughout the city.

Council's primary objective through the implementation of this plan is to protect the wellbeing, health and livelihoods of the residents of Ipswich. At the same time Council will strive to conserve the cities flying-fox populations and the essential ecological roles they perform.

2.0 Background Matters

2.1 Flying-fox Species

Three of the four Australian flying-fox species have overlapping distributions which coincide with the south-east Queensland region as depicted in Figure 1. All roost in camps ranging in size from less than 100 to hundreds of thousands of individuals (Hall & Richards 2000). Roosts are generally located within dense vegetation with thick, often weedy understory, close to sources of water where humidity is high (Loughland 1993). Roost choice is also closely associated with the proximity and abundance to foraging resources.

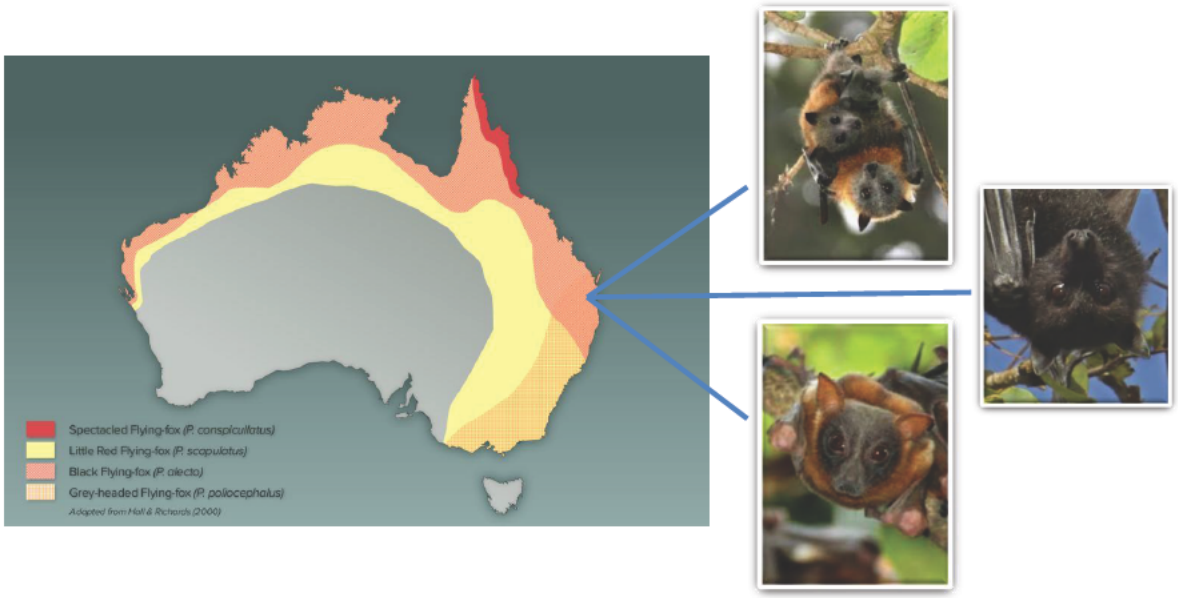


Figure 1. Distribution map of Australian flying-foxes and, clockwise from top, grey-headed flying-fox, black flying fox and little red flying-fox.

Both grey-headed and black flying foxes have a similar diet, feeding on various fruits, nectar and pollen (McDonald-Madden et al. 2005). They migrate long distances in response to available food supplies making them important pollinators and seed dispersers. Sharing of roost sites is also common and the two species are similar in size making them difficult to tell apart.

The behavioural ecology of flying-fox species ensures that roosts have a high degree of variability in species composition, numbers and distribution over time. Individual flying-foxes change roosts frequently and roost locations also change in response to food availability and site suitability. In addition, the little red flying-fox is nomadic in the region arriving and departing in tune with the summer flowering for eucalypt species. This variable and dynamic nature has considerable implications for roost management.

A more detailed description of flying-fox biology and behavioural ecology including a species identification key is provided in Section 6.1.

2.2 Local Flying-fox Roosts

Subject to changes in season and food availability, Ipswich has been home to between 4 and 10 flying-fox camps in the past year. All are located in roosts found along natural or man-made water courses in urban, peri-urban and rural areas of the city as shown in Figure 2. The highest number of both camps and individual flying-foxes occurs during the summer months with the seasonal influx of little red flying-foxes.

During preparation of this plan a quarterly roost monitoring and mapping program was developed and implemented and individual roost histories prepared. This process identified a number of important temporal and spatial relationships leading to local roost development since the early 1980s. In addition, flying-fox roost numbers collected by the Department of Environment and Heritage and Council have been graphed, where available, for the same period.

Historical and ongoing monitoring of local roosts has been used to develop an accurate and useable knowledge base of flying-fox movements throughout the city. Future monitoring will provide up to date information on species numbers, distribution, seasonal dynamics and historical movements of flying-fox camps along with their proximity to places of residence, critical infrastructure or other sensitive facilities. Further information on Council's roost monitoring program as well as local roost histories and associated mapping and graphing is presented in Section 6.5 and 6.6 respectively.

ID	Site	Suburb	Status	Ownership	Tenure	Division
A	Sapling Pocket Flying-Fox Roost	Pine Mountain	Vacant	ICC	Freehold	10
1	Marburg Flying-Fox Roost	Marburg	Active	Private	Freehold	10
2	Poplar Street Reserve Flying-Fox Roost	Walloon	Active	ICC	Freehold	10
3	Woodend Flying-Fox Roost	Woodend	Active	ICC / Private	National Park / Freehold	7
4	Yamanto Flying-Fox Roost	Yamanto	Active	Private	Freehold	8
5	Queens Park Nature Centre Flying-Fox Roost	Ipswich	Vacant	ICC	Freehold	7
6	Chuwar Flying-Fox Roost	Chuwar	Active	Private	Freehold	5
7	Lonkeet Street Reserve Flying-Fox Roost	Bundamba	Active	ICC / Private	Freehold	4
8	Pan Pacific Peace Gardens Flying-Fox Roost	Redbank	Vacant	ICC	Reserve	2
9	Goodna Creek Flying-Fox Roost	Goodna	Vacant	ICC	Reserve	2
10	Camira Flying-Fox Roost	Camira	Active	ICC / Private	Reserve / Freehold	1

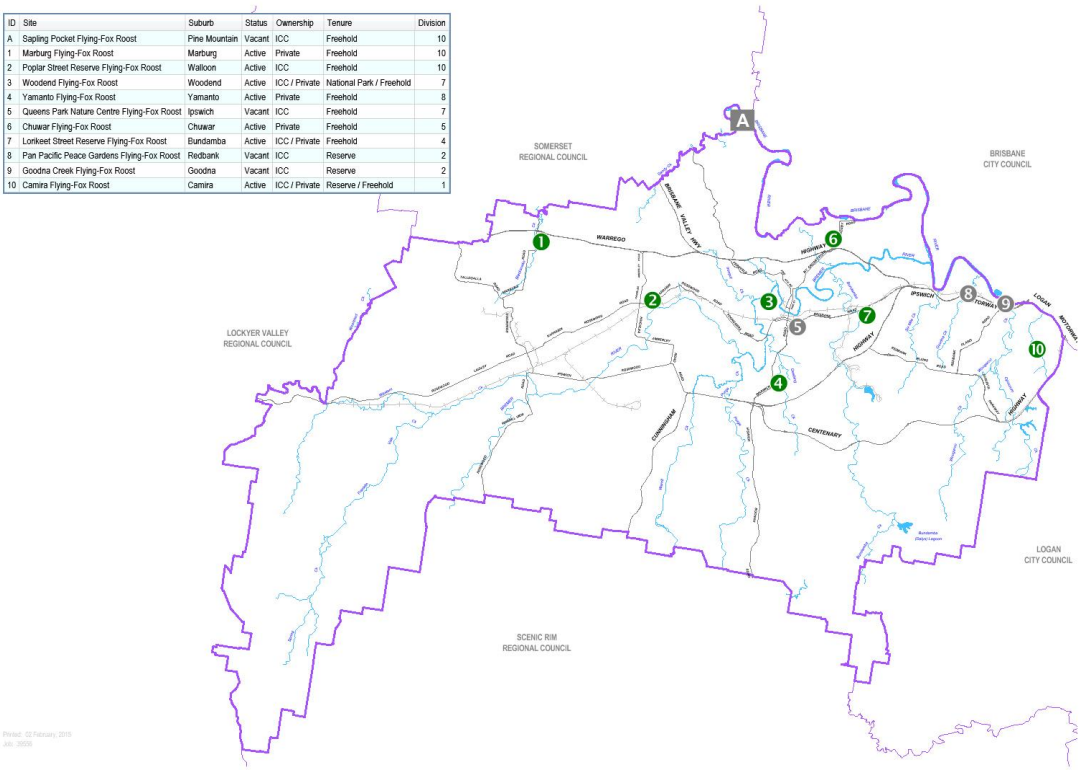


Figure 2: Flying-fox roost locations recorded within Ipswich City in 2013 – 2014. Roost status is based on monitoring data obtained in August 2014.

2.3 Public Health

In the past two decades the emergence of Hendra virus (HeV) and Australian bat lyssavirus (ABVL) has sparked health concerns within the community. While sometimes overstated, genuine risks may be present and community requests for management action resulting from fear of disease must be carefully considered and assessed.

In doing so Council will rely on advice and guidance from expert agencies such as Queensland Health and Biosecurity Queensland and ensure the public have access to the most up to date sources of information. Further information on disease risk and associated mitigation strategies is provided in Section 6.2.

The increase in heat related flying-fox mortality events represents a time of elevated threat to public health whilst also being a significant conservation challenge. During extreme heat events flying-foxes move in search of shade and may come to ground outside the roost area while still alive or recently deceased. These actions are likely to significantly increase the potential for contact with the public and their pets thereby elevating the potential disease risk. Further information on how Council will manage roost based heat mortality events is contained in Section 6.3.

With appropriate management, the risk of infection from flying-foxes is low. People should avoid assisting or handling flying-foxes directly. Sick, injured, or orphaned flying-foxes should be immediately reported to Bat Conservation and Rescue Queensland on 0488 228 134 or the RSPCA on 1300 264 625.

2.4 Legislation

All species of flying-fox in Queensland are protected under the State *Nature Conservation Act 1992* (NCA). Under section 88C of the Act a person cannot take (kill) or drive away flying-foxes or modify their roosts unless they are an authorised person or are authorised to do so under the Act.

Following recent amendments to the *Nature Conservation (Wildlife Management) Regulation 2006*, local governments in Queensland now have an as-of-right authority to manage flying-fox roosts in a defined Urban Flying-Fox Management Area (UFFMA), if they so choose. This authority includes the ability to actively disperse a flying-fox roost or conduct other non-lethal management actions without a Damage Mitigation Permit.

In addition, the grey-headed flying-fox is listed as a Vulnerable species under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) making it a matter of National Environmental Significance (NES). It is an offence to undertake an action that is likely to have a 'significant impact' on a matter of National Environmental Significance without approval from the Australian Government Minister.

Further information on the statutory protections afforded to flying-foxes, associated species and roost management requirements and a map showing the UFFMA are contained in Section 6.4.

2.5 Council Policy

As part of the recent amendments to the *Nature Conservation Act 1999*, Councils were asked to develop a Statement of Management Intent (SoMI) for flying-fox roost management within their UFFMA. Ipswich City Council's SoMI was adopted on 22 April 2014 and describes a framework for management of existing and new flying-fox roosts within the city.

In particular, the SoMI provides the important policy aspects which are further developed and or delivered through this management plan.

These include the following matters:

- Council's policy will apply to flying-fox roosts located throughout the city (both within and outside of the UFFMA)
- Council will manage flying-fox roosts located on Council owned or managed land
- Management of roosts on State or Commonwealth land is outside the scope of Council's policy
- Where a roost occupies both Council land and adjacent private property, Council will work with the respective land owner/s to develop management solutions, consistent with this policy, and the flying-fox management plan
- A risk based assessment process will be used to determine the most appropriate roost specific management actions
- Due to the highly mobile and dynamic nature of flying-fox roosts any management actions will be considered and developed on a case by case basis
- A hierarchical approach to flying-fox roost management will be employed favouring education and minimal intervention strategies
- Intensive roost management actions including dispersals will only be considered after less intrusive actions have been tried and found to be unsuccessful
- Human health and wellbeing will be given primary consideration over the health and wellbeing of flying-foxes where significant conflict is found to exist between the two
- Council will support private property owners to manage flying-fox roosts on their land through a range of services including provision of education materials, technical support, research data and referral to expert information sources
- Council acknowledges that flying foxes perform an essential ecological role, pollinating and dispersing the seeds of native plants and maintaining forest health

A full copy of the SOMI is included as Appendix A.

3.0 The Management Approach

3.1 Risk Based Management

Flying-foxes roosting in large camps within urban and rural areas often generate community concerns and or conflict. Excessive noise at dusk and dawn, odour and risk of disease spread are a common cause of complaint. In addition, the rural areas of Ipswich have large numbers of horse owners for whom the potential spread of Hendra virus is also of concern.

Strong seasonal trends are also evident with public concerns spiking during the summer months, particularly with the arrival of little red flying-foxes. This is a key aspect of flying-fox management as this species is nomadic and changes roosts regularly. Concerns for large colonies of roosting flying-foxes are often allayed when little reds commence their northern migration at the end of summer.

The extent to which an individual roost creates a risk to public health or generates community conflict may depend on a number of factors. These can include species numbers and location, camp structure, camp health and surrounding land use. Media coverage and the level of knowledge and or sensitivity of the surrounding community are also important factors.

To protect public health while also maintaining a consistent approach to flying-fox roost management Council will employ a risk based management approach. This recognises that some land uses are less compatible with flying-fox roosts than others and that physical separation between people and roosting flying-foxes is an effective risk management tool.

The following sections describe a hierarchy of risk based management zones identified by the proximity of flying-foxes roosting on Council owned or managed land to a range of surrounding land uses. The policy setting and associated management actions considered applicable to each zone, along with their implications for flying-fox management, are further described in Sections 3 and 4.

3.1.1 High Risk Roosts

Flying-fox roosts may be located in areas that are considered to be in high conflict with the potential to have considerable adverse implications for the local community. Examples of such localities include roosts located on Council owned or managed land within 100 metres of sensitive public facilities such as:

- Hospitals
- Medical facilities
- Child care centres
- Aged care homes
- Schools
- High profile public places
- Formal equestrian facilities (or within 100m of unvaccinated horses)

- Aviation facilities

3.1.2 Medium Conflict Roosts

Flying-fox roosts located greater than 100 metres from sensitive facilities may still be capable of generating conflict within the community in certain circumstances. Roosting flying-foxes on Council owned or managed land will be considered to be in medium conflict where they meet with the following criteria:

- Located greater than 100 metres from a sensitive facility; and
- Within 50 metres of a place of residence or commercial facility; or
- Within 50 metres of an area where horses commonly graze; or
- Within 50 metres of public facilities such as barbeques and toilets

3.1.3 Low Conflict Roosts

Flying-fox roosts located on Council owned or managed land with a low potential for community conflict will be considered to be low conflict roosts. These roosts will generally have significant roost separation consistent with the following criteria:

- Located greater than 100m from a sensitive facility; and
- Between 50 to 100 metres from any place of residence or commercial facility; or
- Greater than 50 metres from an area where horses commonly graze; or
- Greater than 50 metres from public facilities such as barbeques and toilets

3.1.4 Preferred Roost Locations

In some situations roosting flying-foxes create minimal community conflict and should be left alone to perform their important ecological role as pollinators and seed dispersers. The former Sapling Pocket roost (described in Section 6.6.1) was a good example of a preferred roost location. Unfortunately, unnecessary intervention at this roost led to the creation of multiple subsequent roosts located in higher conflict zones.

Areas will be considered highly suitable, preferred locations for retaining roosting flying-foxes where they meet the following criteria:

- Greater than 100 metres from a sensitive facility; and
- Greater than 100 metres from any place of residence or commercial facility; and
- Greater than 100 metres from an area where horses commonly graze; and
- Greater than 100 metres from public facilities such as barbeques and toilets; or
- On a Protected Area declared under the *Nature Conservation Act 1992*.

3.1.5 Mapping of Risk Management Zones

Management zones will be mapped to assist determination of risk levels and suitable management action on an as required basis. In general, this process will closely follow mapping associated with Council's roost monitoring program described in Section 6.5. Due to the potential for elevated levels of community concern priority will be given to mapping roosts believed to be in High or Medium conflict.

All roosts on Council owned or managed land will have their risk zone mapped as part of the assessment process preceding the determination of any management action. Mapping of risk levels is a key tool which will assist Council to develop appropriate, balanced and consistent roost management actions across the city.

3.2 Land Tenure and Flying-Fox Management

Flying-fox camps are highly dynamic, roosts expand and contract are colonised or abandoned on a frequent basis. Flying-foxes are also blind to land tenure, moving or spilling from one to another in ignorance of the potential impacts and likely consequences. As such, land tenure, ownership and management provide clear boundaries around which flying-foxes, and in particular their roosts, can be managed.

The following section describes the relationship of this management plan to some of the key land tenures on which flying-foxes may roost. Where applicable, an outline of how Council intends to respond to flying-foxes roosting in these situations is also provided.

3.2.1 Commonwealth and State lands

The management of flying-foxes and their roosts on lands under Commonwealth and State control is beyond the scope of this management plan. Where these matters arise they should be discussed directly with the respective land owner or manager. Where feasible, Council will attempt to monitor camps on these land tenures from 'off-site'. While somewhat constrained, this approach will assist is maintaining a knowledge base regarding the size and status of local flying-fox camps.

3.2.2 Private Property

Under the *Nature Conservation Act 1992* individuals, community organisations or businesses may apply for a damage mitigation permit to conduct flying-fox management actions on private property. These are available directly through the Department of Environment and Heritage Protection (EHP), subject to land owner authority to take action on a roost.

In addition, any member of the public can now conduct a range of low impact activities provided their intent is not to disturb or move flying foxes and they comply with the Code of Practice – L*ow impact activities affecting flying-fox roosts.* Examples of these low impact activities include mowing, weeding and minor tree trimming under or near roost trees where flying-foxes are not present in the subject trees. Further information on low impact activities and damage mitigation permits is provided in Section 6.4.2.

It is important to note that these are matters for a private property owner to discuss directly with the EHP or self-assess in the case of low impact activities. Only in those circumstances where roosts adjoin Council property and meet the criteria of high risk will Council seek to work in partnership with the relevant agency or land owner to plan and implement site based management actions.

However, as detailed in Section 4.3, Council will assist private property owners with flying-fox management issues through provision of a range of support services. These include access to educational and research materials, technical advice regarding key management strategies and referral to sources of expertise on flying-fox management and public health.

At the same time, Council will endeavour to make land owners aware of the relative risks and likely outcomes of their proposed actions. In limited cases Council may provide technical assistance to land owners wishing to apply for a Damage Mitigation Permit, or similar approval process, but will not make application to the State or Commonwealth on behalf of a property owner.

3.2.3 Council Owned or Managed Land

Council is responsible for management of flying-fox roosts on land under its ownership and control. To maintain knowledge of their current status these roosts will be subject to regular monitoring and evaluation as described in Section 6.5. In addition, Council will remain cognisant of community concerns and expectations surrounding these roosts.

Requirements for roost interventions on Council land will be assessed on a case by case basis. In particular, Section 4.2 describes a Management Action Hierarchy which will be used to guide and inform the need for, and form of, any roost management action. This assessment processes will ensure Council achieves the goals and objectives established in its policy and management plan while also complying with legislative requirements.

Again, it must be stressed that roosts are highly dynamic and subject to frequent change. As such the Management Action Hierarchy will be used as a guide to be applied to a particular set of circumstances, at a given point in time.

Flying-fox roosts on Council owned or managed land which meets Preferred Roost Locations will be encouraged and embellished as flying-fox habitat. This process may involve works to enhance native vegetation, remove exotic (weed) vegetation and manage fire. A selection of flying-fox roost and feed plants suitable for revegetation in the Ipswich area is included at Appendix B.

In some circumstances works designed to formalise public access and educate visitors about flying-foxes may also be undertaken - as has historically occurred at Woodend Nature Centre. Where there is no more suitable location available, or dispersal action is considered a high risk, similar works aimed at site revegetation and or community education may also be undertaken at Low Conflict Roosts.

Council will avoid management actions and works believed likely to cause flying-foxes roosting on Council land to spill over onto private property. In particular, techniques such as ‘buffering’ will be used to encourage roosts to remain on Council property.

Roosts present on Council owned or managed land for two successive years will be considered to be permanent. Additional planning requirements at permanent roosts will be assessed on a case by case basis. At present only the Woodend Flying-Fox Roost, comprising Woodend Nature Reserve, Harlin and Macrae Street Reserves has an individual flying-fox management plan.

3.2.4 Adjoining Council Owned or Managed Land

Council will seek to work in co-operation with private property owners where roosts occupy Council owned or managed land and adjoining private property. Again, in these instances, the Management Action Hierarchy and Management Action Assessment Process described in Sections 4.2 and 4.4 will form the basis for evaluating the need for, and most appropriate form of, management action.

In these circumstances, Council will assist adjoining private property owners through provision of a range of support services. These include access to educational and research materials, technical advice regarding key management strategies and referral to sources of expertise on flying-fox management and public health.

Where Council believes a roost on Council land and adjoining private property requires management action, Council will seek to identify and implement management actions, in conjunction with property owners, consistent with Council's policy and this management plan. This may involve Council taking the lead in obtaining any permit approvals and or co-ordinating delivery of on ground works.

However, as detailed in Section 6.4.2, should a land owner be dissatisfied with Council's preferred course of management action, they may still apply for a damage mitigation permit directly through the Department of Environment and Heritage Protection (EHP), for their own property or subject to land owner permission.

3.3 Roost Management Strategies

Council is responsible for management of flying-fox roosts on land under its ownership and control. In addition, Council will seek to work with property owners where roosts occupy Council owned or managed land and adjoining private property.

The following section provides guidance on how Council will respond to flying-foxes roosting in a number of specific situations. It should be read in conjunction with the land tenure policies described above.

3.3.1 Preferred Roost Locations

Some flying-fox roosts create little or no community conflict. Flying foxes in these locations perform an essential ecological role, pollinating and dispersing the seeds of native plants and maintaining forest health. Unfortunately, historical management actions taken against these roosts have often resulted in flying-fox camps roosting in higher conflict areas, thus commencing a treadmill of ongoing and escalating management actions.

Council will not attempt to disturb, disperse or relocate flying-foxes from these Preferred Roost Locations. Where appropriate, Council will seek to educate the community on flying-foxes and the benefits of not disturbing preferred roosts.

Where such roosts occur on Council owned or managed lands they will be encouraged and embellished as fling-fox habitat. This process may involve works to enhance native vegetation, remove exotic (weed) vegetation, manage fire and engage with the community as discussed in Section 3.2.3.

3.3.2 Newly Established Roosts

The age of a roost is an important consideration prior to any management action. Once a flying-fox camp has been roosting permanently at a site for longer than 3 months it is thought the animals will develop an attachment to the site and become increasingly more difficult to remove (Welbergen 2014, pers comm., 9 Jan). Within this plan the term Newly Established Roost will be used to identify a flying-fox camp that has been roosting for less than 3 months in a new roost location that has never been previously recorded as occupied.

Council will attempt to restrict the formation of Newly Established Roosts on Council owned or managed land where this is likely to lead to medium to high levels of community conflict. Management actions used to deter newly formed roosts will be directly related to the management zone in which they are roosting.

Council will commence management action to deter flying-foxes from creating new roosts in either High or Medium Risk locations. Due to their more suitable location, no action will be taken where flying-foxes attempt to roost in a Low Risk or Preferred Roost location where escalation to a higher risk category is deemed unlikely.

Any management actions undertaken by Council to address Newly Established Roosts will also be subject to, and comply with, other relevant policies and strategies described in this management plan.

3.3.3 Low Conflict Roosts

Low Conflict Roosts have low levels of community conflict making them moderately suitable locations for roosting flying-foxes. However, due to the dynamic nature of flying-fox roosts, conflict levels may escalate over time. For this reason, Council will undertake frequent monitoring of Low Conflict Roosts located on Council owned or managed land and adjoining private properties.

Council will assess the need for management action in Low Conflict Roosts on a case by case basis using the relevant processes defined in Section 4. However, Council does not consider active dispersal or relocation of flying-foxes to be suitable management actions in these locations. Rather community education, low impact activities and, in selected circumstances, buffering between roosting flying-foxes and residences may be employed where necessary.

Where Low Conflict Roosts are located on Council owned or managed land keeping them low conflict, and preventing escalation to a higher conflict level will be the dominant management goal.

Further, where feasible, Council will seek to have these roosts achieve preferred roost location status.

3.3.4 Medium Conflict Roosts

Flying-fox camps roosting in areas classified as Medium Conflict will be assessed by Council for management action on a case by case basis using the Management Action Hierarchy described in Section 4.2.

In general, Council will strive to resolve or mitigate conflict between the community and roosting flying-foxes without the need for major vegetation modification or active dispersal. This will ideally be completed through community education and referral to expert sources of information such as Biosecurity Queensland and Queensland Health. Where roost specific action is considered necessary, vegetation modification works including buffering between roosting flying-foxes and areas of conflict may be employed.

Council's goal is to manage Medium Conflict roosts on Council owned or managed land to prevent them escalating to High Conflict. A higher level of management intervention may be considered where necessary to achieve this. Similarly, achieving a lower level of community conflict will also guide Council's management action.

3.3.5 High Risk Roosts

Where a flying-fox camp is roosting in an area classified as High Risk, Council will employ permissible measures to mitigate or resolve community conflict levels. Management actions will follow a hierarchical approach however assessment will be fast tracked through the Management Action Hierarchy Map (Figure 4) and Management Action Assessment Process (Figure 6). Relevant land tenure policies discussed in Section 3.2 will also be instrumental in determining the most appropriate management response.

Where a High Risk roost occupies Council land and adjacent private property, Council will seek to work in partnership with property owners to develop and implement management actions consistent with this plan. Preventing further escalation of High Risk roosts will be a key goal of any Council works.

In these situations, a successful management action will be one which reduces community conflict levels and, where feasible, moves the flying-foxes into an area of lower community conflict . An ideal outcome may be defined as the movement of flying-foxes from High Risk into an area classified as Low Conflict or Preferred Roost.

Where a High Risk Roost has been removed from Council land, additional works will be undertaken to prevent the flying-foxes return. Similarly, new Low Conflict or Preferred roosts on Council land will be managed to prevent escalation to a higher risk category.

Intrusive roost management actions such as significant vegetation removal, dispersals or relocations will be documented and evaluated through the outcome reporting process defined in Section 5.1.

4.0 Assessment & Management Action

4.1 Responding to Community Concerns

Members of the community may have concerns about living near flying-foxes or even having them flying around at night. As camps swell in Summer, and media coverage increases, Council may expect an escalation in community concerns and requests for intervention. To ensure that Council responds to community requests in a fair and balanced manner a community concerns flow-path has been developed. This focusses on gathering appropriate information to inform and guide Council's response including the provision of appropriate information and advice to the community.

The Community Concern Process Map depicted in Figure 3 separates community concerns into common categories such as noise, smell and fear of disease risk. Appropriate responses are then identified based on Council's SoMI and this plan. Where the most appropriate response is referral of the matter to expert agencies such as Queensland Health or Biosecurity Queensland these agencies are also identified.

Community concerns for flying-foxes roosting on Council owned or managed land will be subject to full assessment under this management plan.

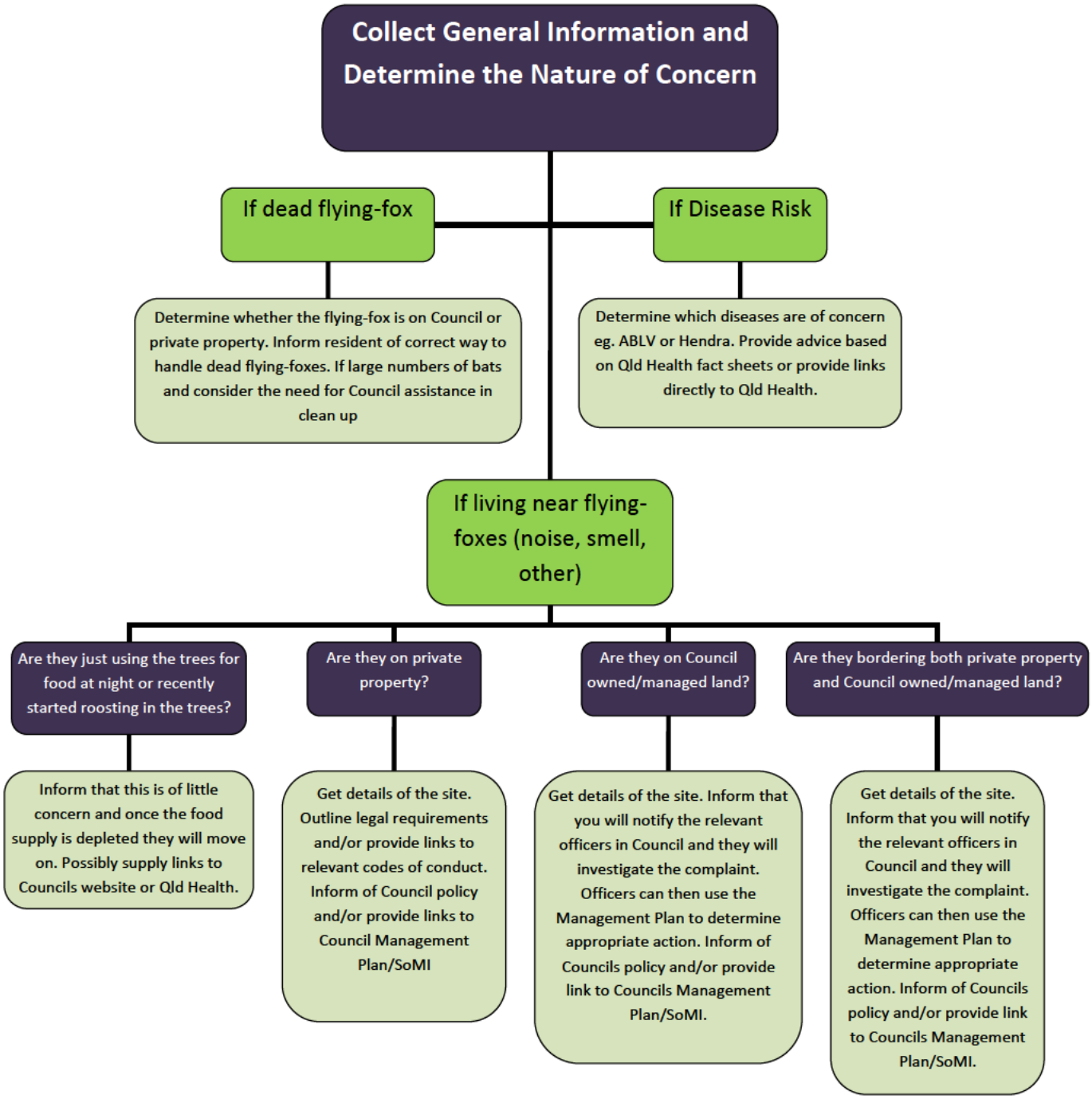


Figure 3: The Community Concern Process Map is used to inform and guide Council in considering and responding to community concerns for flying-foxes roost issues.

4.2 Management Action Hierarchy

Local governments now have an as-of-right authority to manage flying-fox roosts within a defined Urban Flying-Fox Management Area as discussed in Section 6.4.2. This potentially involves a broad range of roost management issues, land tenures, community interests, risk settings and costs.

To guide Council through this process, and to achieve consistency with Council's SoMI and management plan, a Management Action Hierarchy has been developed (Figure 4). The hierarchy utilises the roost risk categories described in Section 3.1 to determine the priority setting and most appropriate form of management response.

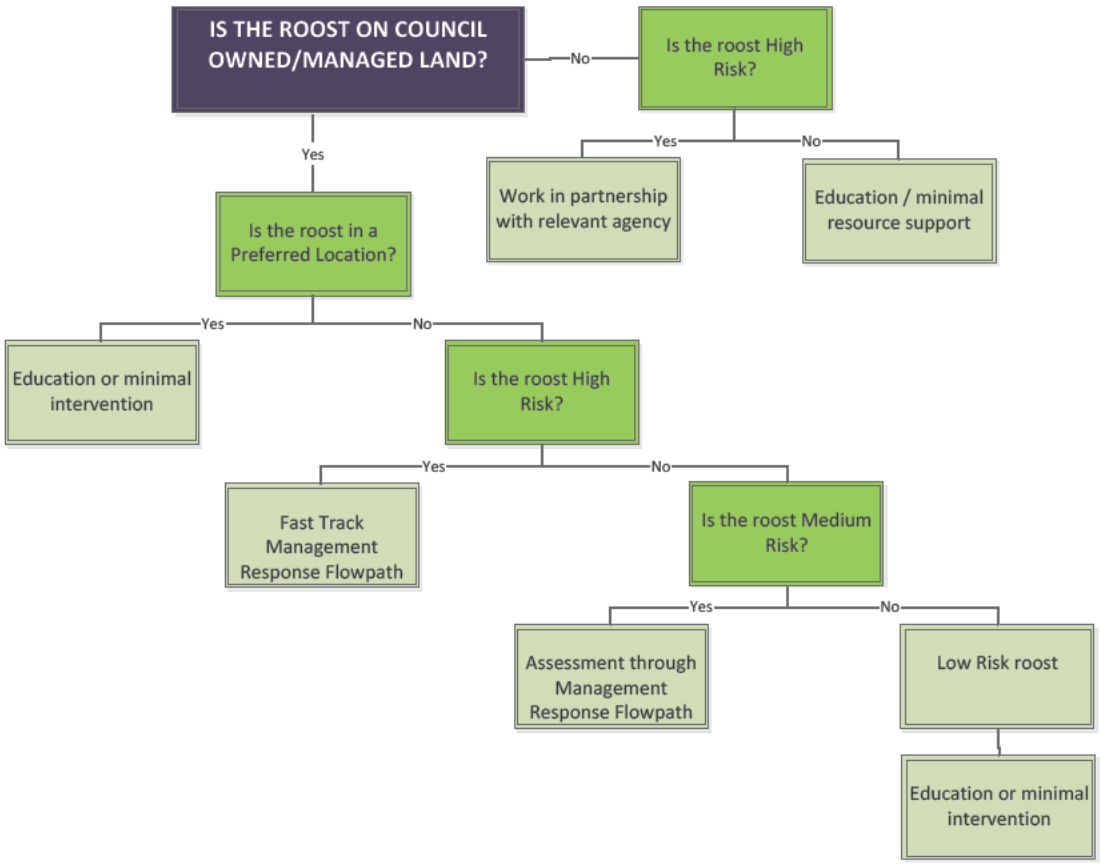


Figure 4: The Management Action Hierarchy Process Map displays the key considerations required, as discussed in Sections 3 and 4, to identify the most appropriate form of management action.

4.3 Potential Management Actions

The following section outlines the possible management actions which Council may take in relation to management of flying-fox roosts through implementation of this plan. Potential actions are presented in a hierarchical order from least to most intrusive.

As depicted in Figure 5 there is a strong historical correlation between increasing levels or roost intervention and increasing costs and risks. These aspects are clearly highlighted in the history of Australian flying-fox roost dispersals presented in Appendix C.

In general, Council will favour passive management actions such as education and minimal intervention. More intrusive actions will only be considered where passive management actions have been tried unsuccessfully. This approach is intended to balance community needs while ensuring management actions achieve cost and benefit requirements.

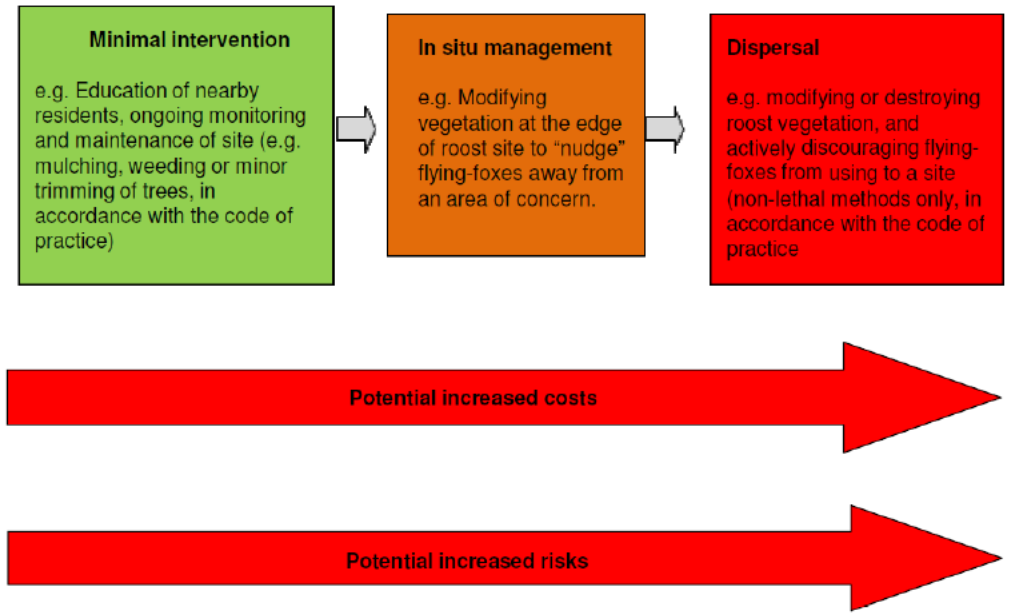


Figure 5. The relationship between escalating levels of roost intervention and the potential for increasing costs and risk of management action failure. Source: Department of Environment & Heritage Protection.

4.3.1 Education

Concern or fear for bats, often fed by common negative stereotypes, misinformation and prejudices is a common driver behind many flying-fox conflicts. In extreme examples this can develop into a specific phobia called chiroptophobia. In addition, the perceived health risk from flying-foxes is often blown out of proportion by the media (Thiriet 2005). Fortunately most fears are unfounded and may be readily addressed through access to accurate information and education sources.

Ipswich City Council believes that appropriate community education is the key to addressing many flying-fox related complaints. Of particular importance is educating the people about the actual level of health risk. Scientific evidence indicates the risk of viral infection from flying-foxes is significantly lower than commonly believed outside of particular contact groups such as wildlife carers and horse owners.

As discussed, Council will seek to link the Ipswich community with the most up to date information on flying-foxes and public health. Links to expert information sources including Queensland Health, Biosecurity Queensland and the RSPCA are included in this plan. Further, these information sources will be included in Council's flying-fox webpage and made available to concerned residents.

Particular effort will be directed to educating children about flying-foxes and personal health. It is hoped this will assist in breaking down the negative stereotypes and protect children from being accidentally bitten or scratched while attempting to handle flying-foxes. The All About Bats of Southern Queensland website produced by the Burnett Mary Regional Group is an excellent tool for educating children and adults alike. It contains a range of information sources and bat facts. In particular, flying-fox education kits for years 4 – 9 are suitable for incorporating into Council's environmental education program.

For further information please visit the All About Bats website:
http://www.allaboutbats.org.au/1/Home

Education with regards to the ecology and behaviour of flying-foxes is also important as this is often a key driver behind elevated community conflict. Noise and activity levels in roosts may become elevated at certain times of year such as breeding seasons however this is short lived. The nomadic habit of little red flying-foxes and their mass summer influxes is another key time of elevated conflict where Council may employ the local distribution of information flyers.

In certain circumstances a community may be better placed tolerating these short term annoyances rather than risking the elevated conflict levels which often follow intensive roost interventions. Council will continue to provide information to the community to assist them to live with flying-foxes.

Education is considered the most appropriate management action for the majority of flying-fox related matters on private and public land. Council will attempt to resolve flying-fox conflicts through a process of community education prior to considering more disruptive management actions. The Community Concern Process Map (Figure 3) and Management Action Hierarchy Process Map (Figure 4) indicate where Council will use education to resolve flying-fox conflict.

4.3.2 No Site Intervention

Careful investigation of the particular circumstances will determine whether a flying-fox roost requires on ground management intervention. In particular, it is important that management actions do not exacerbate the current situation and potentially lead to increased conflict levels.

Section 6 of this plan details the history of intervention at the Sapling Pocket roost and the subsequent formation of multiple urban roosts in Ipswich City. Under this plan the former Sapling Pocket roost would be considered a Preferred Roost Location. Unfortunately, alleged shooting raids

in 1984 effectively dispersed flying-foxes to multiple urban localities, mostly with higher levels of community conflict.

Appendix C documents the often poor outcomes associated with flying-fox dispersal actions in Australia. Flying-foxes often fail to leave the original site completely and frequently form new sites close by. In many cases, the first intervention commences a treadmill of expensive and unsuccessful actions and increasing community conflict.

In many instances a community is better placed accommodating low levels of noise and smell than risking the potential negative outcomes of on ground intervention. Seasonal considerations are also important with little red flying-foxes a prime example. Waiting out their short period of visitation may provide a better community outcome than risking creation of multiple roosts which may be recolonised next Summer.

4.3.3 Minimal Site Intervention

Minimal site intervention refers to activities authorised under the Code of Practice: Low impact activities affecting flying-fox roosts. Dependent on the need, these activities may be undertaken on Council owned or managed land at any time without further assessment via the Management Action Assessment Process described in Section 4.4.

Similarly, any person may undertake activities authorised under this code with property owner permission without applying for a Damage Mitigation Permit. However, it is crucial to reiterate that low impact activities are not associated with direct management actions regarding flying-fox roosts.

Council personnel, contractors or any person conducting low impact activities should keep a copy of the Code of Practice: Low impact activities affecting flying-fox roosts on their person. Familiarity with the Flying-Fox Roost Management Guideline prepared by EHP is also recommended to maintain legislative compliance, minimize disturbance to flying-foxes and protect human health whilst conducting activities.

4.3.4 Moderate (in-situ) Site Intervention

Moderate in-situ intervention refers to a range of vegetation modification works undertaken at or adjoining a flying-fox roost. These may be performed as stand-alone actions or in conjunction with active flying-fox dispersal or relocation attempts.

In these situations vegetation modification will be performed to modify or destroy an area of vegetation making it unsuitable for roost, to deter flying-foxes from using the roost, or to create a buffer to nearby residences or commercial facilities.

In the event where on site management action is required, moderate site intervention will be the preferred option. For example, where a flying-fox camp is roosting next to a child care centre or similar sensitive site, Council will consider the need for undertaking vegetation modification in an attempt to create a buffer zone between the sensitive site and the roost. Based on historical data on active flying-fox interventions this approach is considered more appropriate with less community risk than an attempt to disperse or relocate flying-foxes elsewhere.

Any moderate, in-situ management actions must comply with the Code of Practice: Ecologically sustainable management of flying-fox roosts. These actions should also be guided by the Flying-Fox Roost Management Guideline.

4.3.5 Active Dispersal or Relocation

Active dispersal refers to a coordinated attempt to drive flying-foxes away from a particular roost generally accompanied by significant vegetation modification to deter future colonization. In some cases this may incorporate relocation of flying-foxes to a preferred, target site.

Dispersal methods available to Council are generally established in the Code of Practice: *Ecologically sustainable management of flying-fox roosts* and include vegetation modification and the use of noise, lighting, smoke and similar deterrents.

Of all the potential management actions, dispersals and relocations require the most resources, are the most expensive and unpredictable and have the greatest risk of failure. As previously discussed, Appendix C documents the often poor outcomes associated with these management actions in Australia.

Some of the key risks associated with dispersal actions which Council will seek to avoid include:

- Splitting a camp of flying-foxes into two or more separate parts
- Moving a camp (in part of whole) into a higher risk management zone.
- Dispersing flying-foxes into adjacent private property or into High Risk Roosts
- Injuring flying-foxes or result in them coming to ground in public areas
- Resulting in the deaths of flying-foxes
- Injuries to Council personnel performing a dispersal action
- Exposing Council to potential litigation
- Failing a cost benefit analysis

The size of the flying-fox camp must also be carefully considered before commencing any management actions. Larger populations will likely be harder to move on and are obviously going to need a larger alternate roost which may not be available. For the purposes of flying-fox conservation, attempting to move a larger camp is logically going to have a greater adverse impact on the overall flying-fox population.

The likely success of any management action must be strongly considered against the risk of an adverse outcome. Avoiding high risk actions will also decrease the need for ongoing management actions in order to mitigate adverse outcomes of prior attempts – often referred to as the treadmill effect.

Attempts to remove or disperse a flying-fox camp are rarely successful. Often the animals will have developed attachment to a roost site and therefore remain at the site despite substantial levels of

disturbance (Thiriet 2005). Alternatively, flying-foxes may have nowhere else to go and will begin roosting in even less desirable locations, such as backyards. Many apparently successful management actions are confused with flying-foxes leaving on completely natural migratory patterns in response to changing food supplies (Thiriet 2005).

For these reasons Council will only consider active dispersal or relocation where all other management options have been exhausted and dispersing the flying-foxes is considered essential. As a general rule, the dispersal of flying-foxes will only be considered essential should the flying-foxes be located in a High Risk Roost. In addition, dispersal action will only be conducted in conjunction with compatible vegetation modification works.

4.3.6 Lethal Management Action

Lethal management actions are actions directly intended at killing or taking flying-foxes, often referred to a culling. Under current provisions these actions are not available to Councils.

Council views lethal management of flying-foxes as an ineffective, non-practical and unethical form of management. Lethal management will not be undertaken as part of this management plan.

4.4 Management Action Assessment Process

Identifying the most appropriate form of management action requires careful consideration of the underlying issues, particular circumstances, suite of potential actions, their likely outcomes, risk levels and costs. Council will use the Management Action Assessment Process depicted in Figure 6 to evaluate and determine the requirements for action on a case by case basis. The process map establishes a formal process for identifying balanced and consistent flying-fox roost management actions across the city.

Council has an obligation to ensure public monies are allocated and used in a responsible and efficient manner. As such, costs will form an important overlay to Council's determination of the most appropriate form of management action. In particular, Council will be vigilant to identifying and avoiding management actions which require costly, ongoing efforts with limited opportunities for a successful outcome.

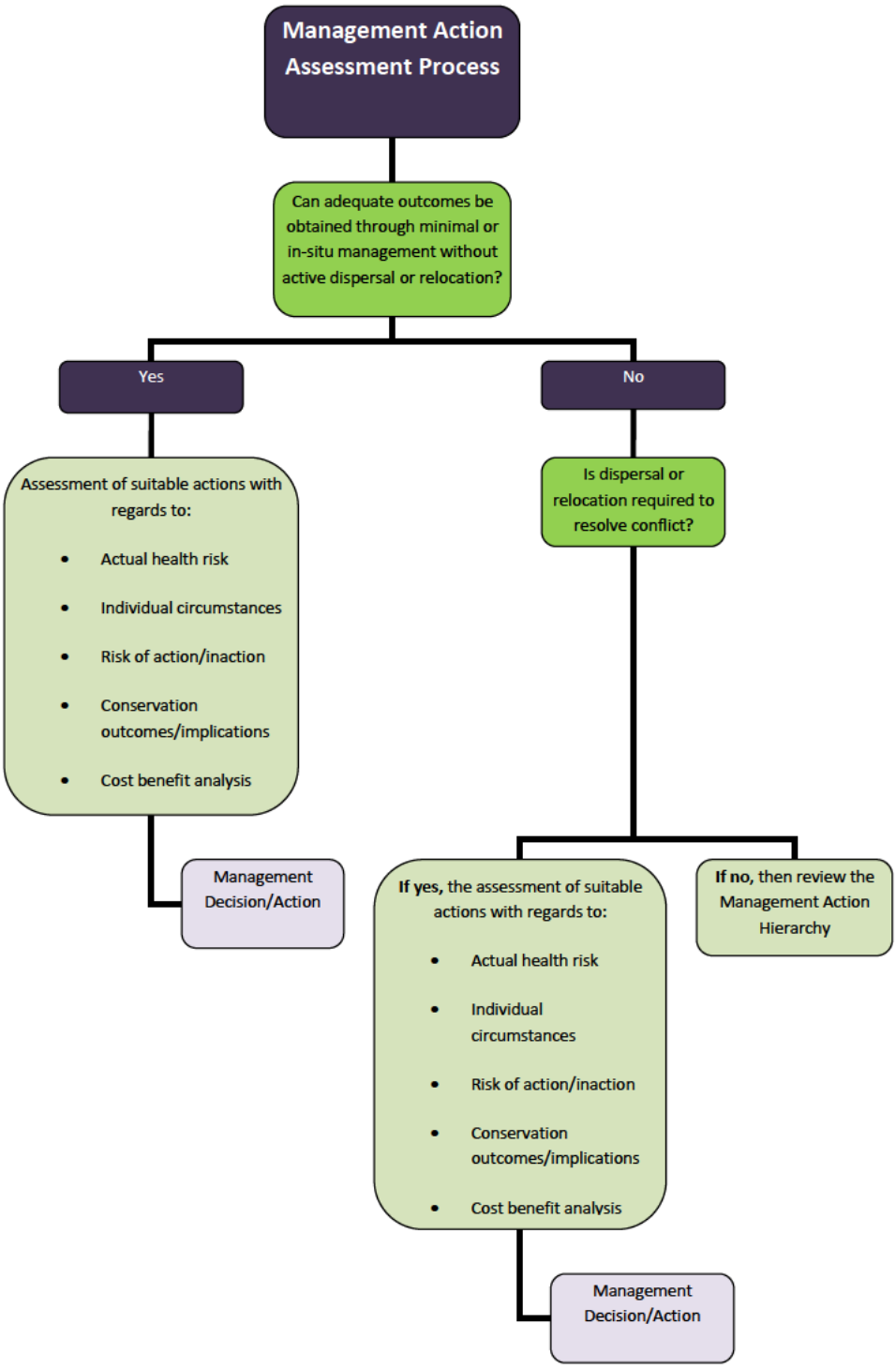


Figure 6: Management Action Assessment Process. Used to formally assess the need for, and suitability of, a management action where a situation cannot be resolved via minimal intervention or education.

5.0 Evaluation and Reporting

Managing flying-foxes is an extremely complex and resource intensive field of wildlife management. Many of the more popular actions historically used to manage flying-foxes have low documented success rates and frequently lead to increased community conflict and subsequent management action. The biology of flying-foxes, as single giant populations, also makes the success of local actions difficult to determine.

The overall success of this management plan will be evaluated against the goals and objectives established in Section 1.2. Clearly the level of community concern for flying-foxes in Ipswich will be a key evaluation criterion. This will be assessed in conjunction with evaluation of the distribution and risk categorisation of flying-fox roosts within the city. Specific on site management actions will be assessed against the goals of the respective management action.

All management actions, associated evaluation and reporting will be maintaining in a database. This will also form an important step in maintaining consistency and transparency in all management actions performed by Council.

5.1 Outcome Reports

Where Moderate (in-situ) Site Intervention or Active Dispersals are undertaken on Council land an outcome report will be produced. It anticipated the report will be based on the Outcome report template produced by EHP in the Flying-Fox Roost Management Guideline modified to the needs of Council. This will involve additional reporting of post action outcomes and cross referencing with Council's roost monitoring and risk management zones mapping process.

5.2 Costs

The costs associated with planning, implementing and monitoring flying-fox management actions can be substantial. In general, costs increase relative to the level of intervention. That is, minimal intervention actions such as education are relatively low cost in comparison with significant vegetation modification or dispersal actions which may have substantial ongoing costs.

A well document example of potential cost implications is the ongoing dispersal program conducted in the Melbourne Botanic Gardens. To date the program has costed in excess of $3,000,000 over a period of 7 years, with efforts still ongoing (Roberts et al. 2011). In addition, new areas of costs may be expected – the Australian Government's recent introduction of cost recovery arrangements for environmental impact assessments under the EPBC Act a case in point.

Costs are also closely linked with risks. Again, as management actions move from minimal intervention towards intrusive vegetation modification or dispersal the risk of potential failure increases. This is an important link to highlight as repetitive, highly intrusive management actions will require substantial, ongoing funding sources.

5.3 Review Period

This management plan will be subject to review 5 years from its adoption date. Should a change in legislation or policy render this plan unlawful, inaccurate or misleading an earlier amendment or review will need to be considered.

6.0 Supporting Information

6.1 Flying-fox Biology and Ecology

Australia's flying-foxes belong to Pteropodidae, a family of megabats also known as fruit bats. Three species visit south-east Queensland living in camps located in communal roosts. All of Australia's major cities along the east coast, along with many other towns, contain continuously occupied flying-fox roosts (Plowright et al. 2011). As a result of continuing urban development, a greater proportion of flying-fox camps are becoming urbanized (Parry-Jones & Augee 2001; Markus & Hall 2004; McDonald-Madden et al. 2005).

The overlap between humans and flying-fox camps is continuing to increase as the shift towards a more urbanized and developed landscape continues (Eby et al. 1999; Parry-Jones & Augee 2001). Following increased contact, the number of people concerned about the various implications of living in close proximity to flying-fox roosts has also grown.

Flying-foxes deliver important ecosystem services. Primarily this refers to their function as long distance dispersers and pollinators of numerous native plant species (Eby 1991; Fujita & Tuttle 1991). Flying-foxes have a pivotal role in the maintenance of various forested ecosystems (Hall & Richards 2000). The extent of foraging range, dispersal ability and migratory distances is dependent on the degree of diet specialization between individual species (Hall & Richards 2000; Markus & Hall 2004).

6.1.1 Black flying-fox

The black flying-fox, *Pteropus alecto*, ranges from sub-tropical to tropical latitudes spanning the entire northern coast and the majority of the East coast of Australia (Palmer & Woinarski 1999). The species is regarded as a generalist, feeding on a wide range of resources, including nectar, pollen and fruits (Richards 1995).

Like all flying-foxes in Australia, the black flying-fox roosts in large camps ranging in size from a few hundred to hundreds of thousands (Hall & Richards 2000). Roosts are generally located within dense vegetation with thick, weedy understory, close to sources of water where humidity is high (Loughland 1993). Roost choice is also closely associated with the proximity and abundance to foraging resources (Palmer & Woinarski 1999). Given that black flying-foxes are highly mobile, they often migrate large distances to follow the availability of foraging resources (Markus & Hall 2004).

Black flying-foxes give birth to only one young per year, as do other flying-fox species. The timing of births varies considerably based on location. Around South-East Queensland most births occur between October and November (Vardon & Tidemann 1998). Generally the peak birth rates for black flying-foxes are strongly associated with maximum food availability however other environmental factors may also be influential (Vardon & Tidemann 1998).

Approximately one third of black flying-foxes survive from birth to adult size (Vardon & Tidemann 2000). Given this mortality rate, it is estimated that each breeding female would need to produce six young in their lifespan to ensure a stable population - meaning all young would need to survive until

at least age seven (Vardon & Tidemann 2000). This raises concerns that *P. alecto* may be suffering rapid population decline leaving it more vulnerable to extinction (Vardon & Tidemann 2000).

Black flying-foxes are also vulnerable to mass mortality events following extreme heat events. A temperature above 37^{o}C has a substantial effect on flying-foxes and upwards of 42^{o}C is considered a critical point where mortality increases exponentially (Welbergen et al. 2008). These events have increased in frequency as black flying-foxes habituate areas further South where temperatures are highly variable and often spike in Summer (Welbergen et al. 2008). It is suggested that this southern expansion can be attributed to a decrease in the number of days with frost, which black flying foxes cannot tolerate, in southern parts of the East coast (Tidemann 1999).

6.1.2 Grey-headed flying-fox

The grey-headed flying-fox, *Pteropus poliocephalus*, is found only in Australia ranging along the East coast from Finch Hatton in the North to Melbourne in the South (Paris & Hazell 2005; Snoyman & Brown 2010). Interestingly this makes it the most southerly distributed member of the *Pteropus* genus (Peacock 2004). The distribution of grey-headed flying-foxes aligns with some of the most heavily populated areas of Australia, which often leads to conflict with residents who interact with the species (Snoyman & Brown 2010).

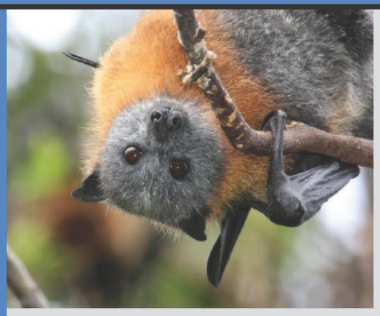
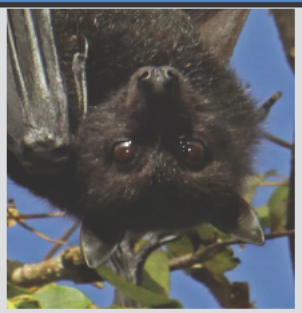
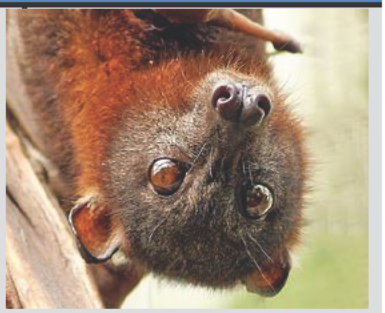
Their diet is very similar to the black flying-fox, feeding on various fruits, nectar and pollen (McDonald-Madden et al. 2005). Consequently grey-headed flying-foxes also migrate long distances in response to available food supplies (Tidemann & Nelson 2011). Like black flying-foxes they are also important pollinators and seed dispersers (Schmelitschek et al. 2009).

The grey-headed and black flying-foxes also share a number of other traits. Sharing of roost sites is common and the two species are similar in size and are often difficult to tell apart. Table 7 provides an identification key that can be used when trying to distinguish between the local species.

Grey-headed flying-foxes have an average life expectancy estimated at 7.1 ±3.9 years (Tidemann & Nelson 2011). Females generally have a single offspring annually around September to October. After the first few weeks young are left in camps while females leave to forage at dusk.

Loss of foraging and roosting sites due to urbanisation, forestry and agriculture has led to a rapid decrease in the size of the grey-headed population (Duncan et al. 1999). It is estimated that numbers are 35% lower than they were a decade ago (Eby & Lunney 2002). Grey-headed flying-foxes appear to have a greater capacity to deal with extreme heat events compared to the black, although they too often perish in heatwave events.

Other human influences are also concerning. In a study, Tidemann and Nelson (2011) found that 18.6% of their grey-headed study sample died of electrocution and nearly 10% died from entanglement in either fruit-tree protective netting or barbed wire. The grey-headed flying-fox is currently listed as a vulnerable species under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Distinguishing Characteristic	Grey-headed Flying-fox (*Pteropus poliocephalus*)	Black Flying-fox (*Pteropus alecto*)	Little red flying-fox (*Pteropus scapulatus*)
Photos	 Image: Vivian Jones	 Image: Vivian Jones	 Image: Brandon Keim
Head	Head covered in light grey fur. Large, dark brown eyes.	Head covered in thick black fur. Large, dark brown eyes.	Thinner fur ranging from dark brown to a light grey in colour. Large, dark, brown eyes. Ears very prominent.
Neck	Thick, prominent, scarf like band of bright orange fur, wrapping the entire neck. Sharp colour contrast between head, neck and the rest of the body.	Often messy patches of dark brown to dark orange fur on the back of the neck. Does not wrap the entire neck.	Thin, auburn coloured hair, which often wraps the entire neck. Contrast between head, neck and body fur, not as pronounced as P.*poliocephalus*.
Body	Long, light to dark grey fur extending from the base of the neck to the toes. Often a similar colour to the head. Weight between 600-1000g.	Shorter, dark black fur, spanning from the head to the inner thighs. Legs and ankles are hairless. Weigh between 600-1000g.	Light to dark brown fur (sometimes dark reddish) spanning from the neck to the thighs. Legs are hairless. Significantly smaller, weighing between 200-600g.
Wings	Large black wings, connected from the forefingers to the ankles. Wings are opaque.	Large black wings, connected from the forefingers to the ankles. Wings are opaque.	Smaller, lighter coloured wings. Wings are semi-transparent.
Roost Behaviour	Often roost in the mid to lower canopy. Roost wingspan apart.	Often roost higher than other flying-fox species. Roost wingspan apart.	Always found roosting in the lower canopy, wherever space is available. Roost in tight clusters.

Note: When nursing young, all species of flying-fox rest their babies on the inside of the wings attached to either armpit. Young are easily spotted in flight or when observing from below roosting adults.

Figure 7. Flying-Fox Species Identification Key

6.1.3 Little red flying-fox

The little red flying-fox has the widest geographical range of Australia's flying-foxes encompassing more than 3-5 million km² across a variety of different climates (Hall 1987). Little reds are highly migratory and are considered to be nomadic, changing roosts frequently. It has been suggested that the little red flying-fox exists as one giant metapopulation, based on the little genetic variation between sub-populations (Sinclair et al. 1996).

Considering they have an overall population estimated in the millions, roosts tend to swell in size when little red flying-foxes arrive (Sinclair et al. 1996). Similar food sources are also shared with other flying-fox species, as is the trend of moving to follow the changing food supply (EHP 2011). Unlike the other two species, little reds do not often consume fruit as part of their diet (Birt et al. 2008).

Little reds are the smallest flying-foxes in Australia, with large males weighing around 550g, and the majority between 200-600g (Sinclair et al. 1996). They are easily distinguished next to other species due to their smaller size, reddish brown body fur, semi-transparent wings and hairless legs (See Figure 7).

Mating season also differs from the other species, with the majority of mating occurring in November-December (O'Brien 1993). Gestation periods usually last 5 months with young being born in April and May (O'Brien 1993).

Whilst black and grey-headed flying-foxes usually roost arm's length apart, little reds clump together with numerous individuals on a single branch (EHP 2011). They also roost lower to the ground than other flying-fox species (EHP 2011). In general, little red flying-foxes have been poorly studied, with the majority of academic focus centred on their grey-headed counterparts. However, the little red flying-foxes are currently considered to be of least concern from a conservation perspective.

In south-east Queensland little red flying-foxes are largely a Summer species arriving and departing in concert with seasonal flowering of eucalyptus species.

6.1.4 The variable nature of Flying-fox Camps

Flying-fox camps are highly variable in species composition, numbers and distribution over time. The seasonal migration of nomadic little red flying-foxes is one of the main reasons for this variation. Camps often swell in size dramatically with their Summer influx but their seasonal residency often means that these changes are short lived. This is a key factor for consideration in any management action. A large proportion of flying-fox related complaints are driven by this seasonal influx meaning resource intensive and expensive management actions may be inappropriate and unnecessary.

The behavioural ecology of flying-fox species also causes variability. Their ability to fly and tendency to migrate large distances in search of food means that many flying-foxes change their roosting site frequently. A study by Tidemann and Nelson (2004) followed two radio collared grey-headed flying-foxes with results supporting this variability. One of the tracked flying-foxes moved from Dallis Park near Murwillumbah in April 2000 and roosted in a total of 15 other roosts before returning to its original roost in September 2000 (Tidemann & Nelson 2004). Another flying-fox made similar movements between 7 different roosts (Tidemann & Nelson 2004). Both flying-foxes travelled more

than 2,000km between roosts during this period, and moved through 4° (440km) of latitude (Tidemann & Nelson 2004).

This variable and dynamic nature has considerable implications for roost management. Given the large swings in roost population sizes, assessing the requirements, best form and success of management action can be difficult. Often, successful flying-fox relocations have been confused with the animals moving and or migrating based on their natural behaviour (Thiriet 2005). In addition, after a roost is emptied by dispersal attempt flying-foxes are frequently recorded moving back a few days or weeks later.

Recent events recorded in Ipswich provide an insight into the dynamic and variable nature or flying-fox roosts. Following a heat related mortality event in the Queens Park Nature Centre in January 2014, nearly the entire camp, totalling over 3,000 flying-foxes succumbed to heat stress. However, less than a week later, the site was recolonized with more flying-foxes than had ever been previously recorded. Further, while planning a dispersal of this roost, Council officers recorded changes in flying-fox species composition, total numbers and roosting locations on a frequent and sometimes daily basis.

For these reasons case by case assessment of flying-fox roosts and any associated community conflict is a key principle build into this plan. This approach is considered essential to identify and implement the most appropriate, site specific management action without further exacerbating conflict levels.

6.1.5 Flying-fox breeding cycles

Flying-fox breeding cycles have a major influence on dynamics within the roost. In addition, a number of animal welfare considerations, statutory requirements and best practice considerations are associated with species during mating, birthing or raising of young.

The following table is based on (Birt 2005), and shows the critical periods in the lifecycle of local flying-fox species. Disturbance, particularly sustained, in the form of dispersal or relocation attempts should be avoided during mating and birthing seasons to avoid lifecycle impacts. However, breeding cycles may be varied in response to environmental conditions and nutritional stress so site specific assessment is important prior to planning any management action.

Table 1. Critical periods in the fling-fox life cycle and associated management considerations.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
GHFF												
BFF												
LRFF												
	Birthing & lactating - sustained disturbance may lead to late term abortion, dependent young abandoned											
	Mating period - disturbance may disrupt number of successful matings, territory and harem formation											
	Non breeding cycle - most suitable time for roost management action											

As can be seen from the table, the breeding cycle of little red flying-foxes is not aligned with that of black and grey-headed. Where all three species are present in a roost opportunities for intensive roost management actions such as vegetation removal or dispersal are significantly restricted.

6.2 Flying-foxes and Public Health

The perceived health risk from flying-foxes is often blown out of proportion by the media (Thiriet 2005). However, genuine risks may be present and community requests for management action resulting from fear of disease must be carefully considered and assessed. Council must assess whether the risk of infection from flying-foxes has the potential to become realized and what mitigation strategies and actions are appropriate. In doing so Council will rely on expert agencies such as Queensland Health and Biosecurity Queensland and ensure the public have access to the most up to date sources of information.

While flying-foxes may carry viruses and bacteria which can be harmful to humans, with appropriate management, the risk of infection is low. People should avoid assisting or handling flying-foxes directly. If you find a sick, injured, orphaned or dead flying-fox immediately call the RSPCA on 1300 264 625, the Department of Environment and Heritage Protection on 1300 130 372 or Bat Conservation and Rescue Queensland on 0488 228 134.

In the past two decades the emergence of Hendra virus (HeV) and Australian bat lyssavirus (ABVL) has sparked health concerns within the community. Infected flying-foxes rarely exhibit any signs of either disease however infection can sometimes be associated with neurological symptoms and paralysis of the hind limbs (Parsons 2014 pers. comm., Feb 18).

The rapid emergence of human pathogens from a single host genus in a short period of time suggests that recent changes in host ecology may play a role in their emergence (Plowright et al. 2008). Namely this refers to the increasing urbanisation of the flying-fox roosts due to large scale development and deforestation (Wynne & Wang 2013). Logically the emergence of these viruses has coincided with increasing human to bat contact meaning that the recent discovery of these diseases does not necessarily indicate that they are newly developed (Tidemann et al. 1997).

In general, the potential for disease exposure from infected flying-foxes does not relate to the size of the flying-fox camp (Streicker 2013). A commonly stated management approach where flying-foxes generate community conflict is to reduce the size of populations through culling or dispersal as an attempt to reduce disease exposure. However, studies have shown that culled camps often display a higher viral exposure than other camps due to the increased dispersal and spread (Streicker et al. 2012; Blackwood et al. 2013).

6.2.1 Hendra Virus (HeV)

A sudden outbreak of acute respiratory syndrome amongst thoroughbred horses in the Brisbane suburb of Hendra in 1994 led to the discovery of a new virus from the family Paramyxoviridae (Field et al. 2001). The disease subsequently named Hendra virus led to the death of 13 horses in the first outbreak as well as the death of a horse trainer (Field et al. 2001).

Following the initial case, 13 other outbreaks have been recorded, each of them resulting in the death of horses (Plowright et al. 2013). Five of these events have also seen transfer to humans, each leading to illness or death (Plowright et al. 2013). The transmission of the virus from flying-foxes to horses is presumed to be through consumption of pasture or feed which is contaminated with flying-fox urine, saliva, faeces and/or placental fluids (Halpin et al. 2000).

Horse owners should be vigilant and note any signs of infections, including increased temperature, respiratory distress and/ or neurological signs. In these circumstances, horse owners should contact their local veterinarian and/or Qld Health for advice. Horse owners should also note that a vaccine is available to immunise horses prior to exposure to the virus. No post-exposure treatments are readily available.

Transmission from infected horses to humans is rare indicating that very specific and extreme conditions are required. Until the horse is examined and cleared by a veterinarian, horse owners should limit contact with sick horses and avoid contact with any body fluid, including nasal discharge. If horse owners are concerned about their own health, they should contact their doctor or their local public health unit immediately.

Queensland Health advises that there is no evidence of human-to-human transmission of Hendra virus. Testing of people who have come in contact with a person infected with the Hendra virus, including health care workers and family contacts, has shown no evidence of the virus. There is also no evidence that the virus can be passed directly from flying-foxes to humans, from the environment to humans, from humans to horses, or that it is airborne (Queensland Health 2012).

For further information on the risk of HeV visit the Department of Agriculture, Fisheries and Forestry (DAFF) website: Hendra virus. Or view the Queensland Health Fact Sheet: http://access.health.qld.gov.au/hid/InfectionsandParasites/ViralInfections/hendraVirusInfection_fs.pdf.

6.2.2 Australian Bat Lyssavirus (ABL)

Whilst screening for HeV in the 1990's, researchers also discovered a lyssavirus, closely related to the classical rabies virus, which is now known as Australian bat lyssavirus. Though extremely rare, ABL is often fatal to humans who become infected. An animal handler became the first recorded human death in 1996 (Fraser et al. 1996).

Since this time two other people have died as a result of ABL, all of whom were either bitten or scratched by an infected bat (Queensland Health 2013). Being bitten or scratched is the only currently known way of becoming infected with ABL. However, any contact with bat faeces, blood or urine should be avoided despite the minimal contamination risk. Fortunately, living in close proximity to, playing or walking near bat roosting areas are not considered to represent an exposure risk (Queensland Health 2013).

It is essential that no person attempt to handle a bat unless they are a qualified and immunized professional. If you find a sick, injured, orphaned or dead flying-fox immediately call the RSPCA on 1300 264 625, the Department of Environment and Heritage Protection on 1300 130 372 or Bat Conservation and Rescue Queensland on 0488 228 134.

Those who come into frequent contact with flying-foxes can receive a pre-exposure vaccination that is an effective safeguard for ABL. A similar post-exposure vaccination is available for those who are bitten or scratched by a flying-fox along with procedures developed by Queensland Health. Although the disease is very serious with potentially fatal consequences, if the correct procedures are followed it is very treatable.

All four species of Australian flying-foxes are known to carry ABL (DAFF 2013). Although nearly all bats have the potential to carry the virus it is actually uncommon, with less than 1% of flying-foxes infected at any time (DAFF 2013).

For further information on ABL view the Queensland Health fact sheet: http://access.health.qld.gov.au/hid/InfectionsandParasites/ViralInfections/australianBatLyssavirus_fs.pdf. Or visit the DAFF website: australian-bat-lyssavirus-overview.

6.3 Heat Related Mortality Events

Extreme heat events have been known to periodically impact significantly on flying-fox populations, often resulting in large mortality events (Welbergen et al. 2008). Black flying-foxes are particularly vulnerable being a species of the tropics where uniformity of temperature is the norm. Ipswich's wide ranging extremes which can spike dramatically to over 40°C have on occasion had a dramatic impact with high species mortalities.

It is also suggested that black flying-foxes have lower physiological limits than other species (Welbergen et al. 2008). Observations reveal that dependent young and females are also more vulnerable in a heat event (Welbergen et al. 2008). Losing adult females and dependent young may have dramatic impacts not only on the current generation, but also on the next generation, through loss of reproductive capacity.

The critical trigger point, above which mortality will increase exponentially, is 43°C (Department of Environment and Heritage 2014; Welbergen 2014, pers comm., 9 Jan). Contrary to popular belief, these animals are not dying from dehydration, but suffering from organ failure and body shutdown due to extended periods of heat stress.

In 1994, Ipswich recorded its highest ever temperature at 44.3°C, which was followed by the deaths of around 1,000 flying-foxes from throughout the city (Welbergen et al. 2008). A similar event in 2000 (40.7°C) killed around 500 individuals (Welbergen et al. 2008).

In January 2014, a series of days over 40°C peaked at 43.9°C on Saturday 4th. This heatwave resulted in unprecedented loss of flying-foxes with almost every roost within the city suffering substantial losses. Worst hit were the roosts located at Lorikeet Street Reserve, Pan Pacific Peace Gardens, Woodend Flying-fox Precinct and the Queens Park Nature Centre, all of which lost the majority of their black flying-fox populations.

Estimated mortalities of approximately 15,000 were collected at this time as detailed in Table 2. An additional unknown number of flying-foxes perished on private property, high in trees or at unknown locations. Information collated by Welbergen et al. (2014) suggests that around 45,500 flying-foxes perished throughout the entire south-east Queensland region as shown in Figure 8.

Unfortunately around 98% of mortalities were black flying-foxes, with the remainder being grey-headed and a few little reds. The combined estimate of black flying-fox mortalities in south-east Queensland indicates this species has suffered a major population decline. The loss of large numbers of juveniles will also impact on the future viability of the species.

In areas of Australia where mass mortality events have occurred, temperatures have noticeably increased by around 0.17^{o}C per decade (Jones et al. 1999). This trend is expected to continue increasing and it is therefore assumed that the frequency and intensity of extreme weather events will also increase (Easterling et al. 2000). In Ipswich, which encompasses the southern part of the black flying-fox range, these extreme heat mortality events are also likely to increase and potentially become more severe.

Table 2: Overall estimate of flying-fox deaths from 04/01/2014 to 14/01/2014 within the Ipswich LGA sorted by roost site. The comments section outlines the relative proportions of the total made up by members of each species.

LGA	Roost Site	Longitude	Latitude	Number of Mortalities (as of 8:37am 14 Jan 201	Comments
Ipswich	Woodend Flying Fox Precinct, Coalfalls	152.7485	-27.6031	214	93%Bff; 7%Ghff. Small proportion of black popualtion.
Ipswich	Pilny Reserve, Camira	152.9206	-27.6315	37	100% Bff; Have not roosted here recently.
Ipswich	Mill Reserve, Camira	152.9228	-27.6315	211	98%Bff; 1%Ghff; 1% Lrff. Plus 1000's on priavte property.
Ipswich	Pan Pacific Peace Gardens, Redbank	152 880163	-27.599624	2119	95%Bff; 4%Ghff; 1%Lrff. Nearly all the blacks in park.
Ipswich	Lorikeet Street Reserve, Bundamba	152.81273	-27.612423	1203	87%Bff; 12%Ghff; 1%Lrff. 100% of Blacks in reserve.
Ipswich	Queens Park Nature Centre, Ipswich	152.767861	-27.619142	3474	Mostly blacks. Quantitative proportion not available.
Ipswich	Poplar Street Reserve, Walloon	152.67271	-27.602959	51	98%Bff; 2%Ghff. 25% of entire roost.
Ipswich	Brodzig Road, Chuwar	152.791081	-27.56709	1000	Presumed black. Only 1 Bff left at site.
Ipswich	Box Street, Yamanto	152.755601	-27.651449	551	98%Bff; 1%Ghff; 1% Lrff
Ipswich	Additional (not recognized roosts)	NA	NA	604	Smith Park, 74 Addison Road (on footpath), Scholtes Park
Ipswich	Private Property (General Collection)	NA	NA	5300	Mostly blacks. Quantitative proportion not available
				Total: 14764	

Figure 8: Locations around south-east Queensland recorded as having flying-fox deaths after the January 4, 2014 heat related mortality event. Image Justin Welbergen (2014).

6.3.1 Preparation for Heat Related Mortality Events

Future heat mortality events are a key species management issue, particularly for flying-fox roosts located on Council owned or managed land. Maximum daily temperature forecasts in excess of 37^{o}C are a sign that additional roost based management actions may be required. Heat stressed or deceased flying-foxes coming to ground are a source of significant community concern. In the past, lack of public education concerning these events has led to a number of people being unnecessarily bitten, scratched and exposed to potential infection.

Welbergen et al. (2008) described various signals and behaviours exhibited by flying-foxes suffering from heat stress during the heat events of 2002. The actions were noted in the following order:

I. Fanning with wings

II. Seeking shade

III. Panting; and

IV. Spreading their saliva

Often, after these stages, species unable to cope with temperatures were observed to descend or drop from branches some 15-20 minutes later. The timing and extent of these flying-fox behaviours,

as well as the number of mortalities, will depend not only on the temperature of the day as a whole but also the influence of the micro climate within a particular roost (Welbergen et al. 2008).

Of particular importance to flying-fox survival are good canopy cover for shade and access to water. Past mortality events have revealed that camps with access to a large water body, thick understory and denser canopy cover retain a larger proportion of the population after an event (Stanvic et al. 2013).

Where an extreme heat event is anticipated Council will provide advice to the public via the website. This will alert the public to the possibility of large amounts of heat stressed or deceased flying-foxes coming to ground or falling from trees. Advice will also be provided on recommended handling and clean up procedures where required.

Where roosts are located on Council owned or managed land efforts will be put in place to minimise contact between heat affected flying-foxes and the public. Subject to the nature of the heat event this may entail measures such as additional park signage, area access restrictions or park closures.

Council will also work closely with local wildlife carers and bat conservation groups to rescue and rehabilitate heat affected flying-foxes and orphaned young where appropriate. Following the 2014 heat event in Ipswich, Bat Conservation and Rescue Queensland did a terrific job rescuing and rehabilitating over 200 orphaned flying-foxes.

6.3.2 Mitigating Heat Related Mortality Events

During an extreme heat event, significant caution should be exercised by any persons entering a flying-fox roost, particularly whilst temperatures are above 37^{o}C. Whilst flying-foxes are suffering from heat stress, human disturbance may push them beyond their limits and greatly increase the chances of mortality.

Persons attempting to undertake animal welfare actions during these events should take note of the guideline *Managing Heat Stress in Flying-fox Colonies* available via the following link: http://www.fourthcrossingwildlife.com/HeatStress-StanvicMcDonaldCollins.pdf The guideline describes the protocols and practices which may be employed including the use of misting or spraying. Case studies highlighted in the guideline indicate the success of properly and executed animal welfare actions during historical heat events.

Animal welfare activities undertaken during heat events must be careful to ensure that any actions aimed at minimising flying-fox suffering do not inadvertently cause them any additional stress. For example, if spraying or misting leads to flying-foxes leaving the roost, or showing signs of greater heat stress, the action could not only worsen the situation for the animals, but also constitute a breach of the *Nature Conservation Act 1992*.

It is critical that live flying-foxes should only be handled by appropriately vaccinated persons who have undergone training in bat handling. This may include Council staff provided they meet the necessary requirements. Additional procedures for dealing with injured or orphaned flying-foxes on Council land have recently been put in place and this process will continue where a need is identified.

6.3.3 Record Keeping and Information Sharing

Accurate record keeping is important if the full impact of extreme heat events on flying-fox populations is to be better understood. Post heat event, Council will collect and count deceased flying-foxes on Council owned or managed land. Subject to the severity of the event Council may also consider clean up assistance to private property owners.

Council will record the following data:

- Number of mortalities by roost
- Percentage of mortalities by species (eg 95% black: 4% grey-headed: 1% little red)
- Number of orphans rescued

This information will assist in determining the impact the heat event has had on individual species at a local level. Council will make this data available to other agencies for the purposes of researching the impact of heat events on flying-fox species at the national or population level. This is important to ensure the protections afforded to individual flying-fox species appropriately reflects their threat of extinction in the wild.

6.4 Relevant Legislation

6.4.1 Commonwealth Legislation

The grey-headed flying-fox *Pteropus poliocephalus* is listed as a Vulnerable species under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) making it a matter of National Environmental Significance (NES). The Commonwealth cites significant population declines of approximately 30% in recent decades and a need to increase recovery efforts in its justification for listing the species. It is an offence to undertake an action that is likely to have a 'significant impact' on a matter of National Environmental Significance without approval from the Australian Government Minister.

The Draft EPBC Act Policy Statement: *Camp management guidelines for the Grey-headed and Spectacled flying-fox* is intended to ensure that there are no significant impacts on EPBC Act listed flying-fox species due to actions to manage their camps. The policy describes which camp based actions are likely to have a significant impact thereby necessitating referral to the Minister.

Minor or routine camp management activities are unlikely to cause significant impact or require EPBC Act approval, regardless of the camp size or significance, provided they are not intended to disperse or clear the flying-fox camp. Examples of these activities include:

- mowing of grass and similar grounds-keeping actions
- application of mulch or removal of leaf litter or other material on the ground
- weed removal, minor trimming of understorey vegetation or the planting of vegetation
- removal of tree limbs or a small proportion of the whole trees in a camp if they are significantly damaged and pose a health and safety risk, as determined by a qualified and experienced arborist
- minor habitat augmentation for the benefit of the roosting animals

- installation of signage or similar-scale infrastructure
- passive recreation (i.e. low noise recreation)
- noisy events of limited duration, such as firework displays or outdoor performances
- educational activities, such as study or observation of roosting flying-foxes

A network of nationally important flying-fox camps has been identified as important to maintaining a viable national population of grey-headed flying foxes. These camps are defined by size criteria, consistency of occupation and the importance of an ongoing network of large roost sites to the species recovery.

Proponents are required to check the *Nationally Important Camps of Grey-headed Flying-fox* mapping prior to undertaking any action at a camp. Maps are subject to frequent change and are updated with data from the National flying-fox monitoring program.

Further information on the *Nationally Important Camps of Grey-headed Flying-fox* mapping is available via the following link: http://www.environment.gov.au/system/files/pages/0f6f5576-50e8-4e02-be7c-18e7d3ad7f23/files/map-grey-headed-flying-fox-nationally-important-camps.pdf

Actions identified as having the capacity to directly or indirectly impact on nationally important flying-fox camps are described as:

- *in situ* management actions (which are not minor or routine in nature) intended to retain the camp whilst reducing conflict between flying foxes and people
- Clearing of vegetation in a flying-fox camp
- Dispersal of flying foxes through disturbance by noise, water, smoke or light
- Indirect actions that result in flying foxes permanently vacating a camp eg loud activities, changes to the water table and associated vegetation changes etc.

A system of best practice mitigation standards is provided for all actions conducted at nationally important camps with the exception of routine camp management. The standards acknowledge that risk of significant impact increases with flying-fox camp size necessitating a hierarchical approach to risk assessment and planning. It is also acknowledged that the Queensland *Code of Practice: Ecologically sustainable management of flying-fox roosts* (2013) is considered to achieve a similar outcome. In circumstances where best practice mitigation standards are not applied, significant impacts are likely and approval under the EPBC Act should be sought.

On 1 October 2014 the Australian Government introduced cost recovery arrangements for environmental impact assessments under the EPBC Act. At the time of writing this plan the current fee for lodgement of a referral application was $7,352. In addition base and complexity fees may also apply where a proposed project proceeds to the assessment stage.

Further information on the *Draft EPBC Act Policy Statement: Camp management guidelines for the Grey-headed and Spectacled flying-fox* is available via the following link: http://www.environment.gov.au/system/files/pages/0f6f5576-50e8-4e02-be7c-18e7d3ad7f23/files/flying-fox-policy-statement.pdf

6.4.2 State Legislation

All species of flying-fox in Queensland are protected under the state *Nature Conservation Act 1992* (NCA). Under section 88C of the *Nature Conservation Act 1992* a person cannot take (kill) or drive away flying-foxes or modify their roosts unless they are an authorised person or are authorised to do so under the Act. Note that a roost is defined as a tree or other place where flying foxes congregate from time to time to breed or rear there young.

Following amendments to the *Nature Conservation (Wildlife Management) Regulation 2006* enacted on 29th of November 2013, local governments in Queensland now have an as-of-right authority to manage flying-fox roosts in a defined Urban Flying-Fox Management Area (UFFMA), if they so choose.

This authority includes the ability to actively disperse a flying-fox roost or conduct other non-lethal management actions without a Damage Mitigation Permit. All management actions must comply with the Code of Practice: *Ecologically sustainable management of flying-fox roosts*: http://ehp.qld.gov.au/wildlife/livingwith/flyingfoxes/pdf/cp-wl-ff-roost-management.pdf.

The Code of Practice sets out the prescribed methods for management actions for local government, including:

- The Department of Environment and Heritage Protection must be notified at least two business days prior to commencing any management *actions* by completion of the flying-fox roost management notification form on the EHP website.
- No roost tree may be destroyed or modified when there are flying-foxes in the tree, or when flying-foxes are near to the tree and likely to be harmed as a result of the destruction or modification.
- All management actions must immediately cease and EHP is to be immediately notified if flying-foxes appear to have been killed or injured.
- During management actions any attempt to drive away flying-foxes:
    - Must be properly coordinated to ensure all actions are lawful and in compliance with this code.
    - May only commence after advice from a person knowledgeable about flying-fox behaviour, or with such a person present.
    - May only occur in the early evening and/or early morning.
    - When being carried out in the early evening, must commence immediately prior to the dusk fly out at a roost and continue for no longer than 2 hours.
    - When being carried out in the early morning, must commence immediately when flying-foxes start returning to a roost from foraging activities, and continue for no longer than 3 hours; and
    - Must be limited to the non-lethal deterrence methods such as noise and light.

Additional, non-code, considerations relate to important flying-fox life cycle events including breeding seasons and dependent young.

The UFFMA, includes lands designated under Council's planning scheme as having a residential or commercial urban purpose with the inclusion of a 1km buffer as shown as Figure 9. The UFFMA does

not include public recreational areas, open spaces or industrial areas unless they are covered by a 1km buffer zone around a residential or urban area.

A management action refers to a non-lethal action intended to stop flying-foxes from making use of a site or part of a site and includes vegetation modification, destruction or active dispersal. Although a permit is no longer required by local governments under the NCA, other relevant legislation such as the *Commonwealth Environmental Protection and Biodiversity Conservation Act 1999*, *Animal Care and Protection Act 2001* and *Vegetation Management Act 1999*, may still apply.

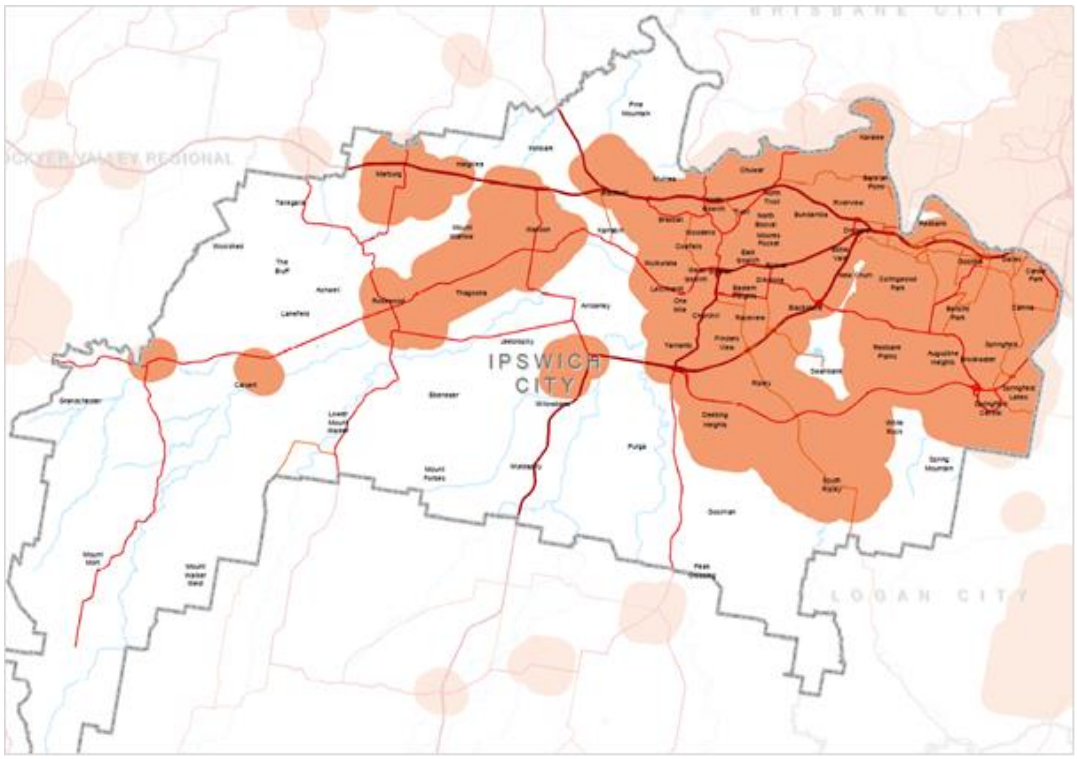


Figure 9. The Urban Flying-Fox Management Area for Ipswich City created by the Department of Environment and Heritage Protection (EHP 2013). Areas where Council may apply additional powers without the need for a Damage Mitigation Permit under the *Nature Conservation Act 1992* are highlighted Orange.

The as-of-right powers are only applicable to local governments. Individuals or other organizations wishing to undertake vegetation modification or dispersal action on their property must still apply for a Damage Mitigation Permit (DMP) under the NCA. Local governments wishing to either conduct non-code compliant activities within a UFFMA or manage a roost outside of the UFFMA will be required to obtain a flying-fox roost management permit from EHP.

While the as-of-right is solely for councils, where councils choose not to act, individuals, community organisations or businesses can still apply for a damage mitigation permit directly through the Department of Environment and Heritage Protection (EHP), subject to land owner authority. In considering the public interest, EHP may have regard to any reasons given by the council not to take action on the roost.

An additional self-assessable authority exists for councils and community members to conduct low-risk management activities in accordance with a Code of Practice – low impact activities affecting flying-fox roosts. This code sets out the prescribed methods for low impact activities that a person may undertake at a flying-fox roost including:

- No roost tree may be trimmed when there are flying-foxes in that part of the tree being trimmed, or when flying-foxes are near to the tree and likely to be harmed as a result of the trimming.
- Any trimming of roost trees must be limited to 10% of the total canopy of the roost.
- Low impact activities must immediately cease, and EHP be immediately notified, if a flying-fox appears to have been killed or injured; and
- Where low impact activities are required to be undertaken during the day time, works must immediately cease and EHP be immediately notified if 30% or more of the adult flying-foxes leave the roost for five minutes or more.

Any member of the public can conduct these low impact activities provided their intent is not to disturb or move flying foxes and they comply with the code of practice above. Examples of low impact activities include mowing, weeding and minor tree trimming under or near roost trees where flying-foxes are not present in the subject trees.

Any person planning to conduct management actions or low-impact activities should also refer to the *Flying-Fox Roost Management Guidelines* before conducting any activities. This document provides guidance and recommendations for how to best conduct and coordinate any management actions or low-impact activities. The Flying-Fox Roost Management Guideline can be accessed at: http://ehp.qld.gov.au/wildlife/livingwith/flyingfoxes/pdf/gl-wl-ffrm.pdf.

Lawful flying-fox management actions involving vegetation modification or removal are not automatically exempt under other State legislation. The follow pieces of legislation should also be consulted during planning of any actions:

- *Animal Care and Protection Act 2001*
- *Vegetation Management Act 1999*
- *Water Act 2000* (Riverine Protection Permit)
- *Nature Conservation Act 1992*

In relation to animal welfare issues the *Animal Care and Protection Act 2001*, Section 6, states that the Act is not applicable to an animal in the wild and protected under the *Nature Conservation Act 1992* or an animal that is the property of the state under the relevant act. Section 6A specifies that if an action is authorised under the NCA, a person cannot commit an offence under the Animal Care and Protection Act. Should an action not be lawful under the NCA, it could also be an offence under the Animal Care and Protection Act.

6.5 Roost Monitoring Program

Flying-foxes and their roosts are highly dynamic, changing frequently with season and the local availability of food sources. Gaining an understanding of flying-fox ecology and management requires frequent, structured monitoring at the national (population) and local (roost) level.

Local roost monitoring is important for maintaining an accurate and useable knowledge base of flying-fox movements throughout the city. In the preparation of this plan local roosts on Council land were subject to 4 formal monitoring sessions between December 2013 and August 2014. Data obtained from this program is presented in Figures 11-16. These figures are intended to display the dynamic nature of local flying-fox roosts during this time and are not an accurate record of current or future flying-fox distribution.

Regular monitoring will provide information about species numbers and distributions throughout the city. Further, regular monitoring will advise on seasonal and historical movements of flying-fox camps, roost boundaries and their proximity to places of residence, critical infrastructure or other sensitive facilities.

To assist field identification of individual species (grey-headed and black flying-foxes may be easily confused) a species identification key has been developed and is found in Figure 7.

6.5.1 Monitoring Periods and Timing

Council will monitor flying-fox roosts located on Council owned or managed land on a structured quarterly, Summer season and 'as required' basis. Quarterly monitoring will be undertaken in February, May, August and November each year. These times align with the National Flying-fox Monitoring Programme conducted by the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

Additional monitoring will be conducted throughout the Summer months. Local flying-fox camps often swell at this time with the seasonal influx of little red flying-foxes. This is also the time when community concerns are heightened and requests for Council interventions peak. Monitoring the movements of little reds will increase understanding of their roost dynamics and interactions with other flying-fox species increasing Councils ability to respond to community concerns.

In addition, where a flying-fox roost is identified as being of medium or high conflict additional monitoring will be undertaken to advise and inform potential management action.

Further information on the National Flying-Fox Monitoring Programme is available from the Department of Environment website at:
http://www.environment.gov.au/biodiversity/threatened/species/flying-fox-monitoring

6.5.2 Data Collection and Sharing

To collect, maintain and retrieve data in a timely and consistent manner Council has developed an electronic field monitoring template and associated database. A mobile tablet is used in the field to record data on the following parameters:

- Species present

- Population estimate for each species
- Determination of breeding status
- Presence of young or juveniles
- Roost habitat condition
- Area occupied by roosting flying-foxes

Survey reports from the mobile tablet are downloaded directly into a central database and linked spatially through Council's Geographical Information System (GIS). An example monitoring survey report is attached as Appendix D.

For quarterly monitoring, and at other times where required, field surveyors will also prepare a map of the roost location and extent similar to those illustrated in Section 6.6. In this way data on a particular roost is available via either the historical roost identifier in the database (eg Woodend Flying-Fox Roost) or via the spatial GIS link.

Compiling and analysing mapped roost extents and survey data is a useful tool for tracking and identifying historical changes and patterns in roost occupation and dynamics over time. Some of the key information themes which may be analysed from this data include:

- Species type present
- Historic extents of individual flying-fox roosts
- Quarterly flying-fox roost extents
- Seasonal occupancy and roost extents
- Percentage of time a particular roost is occupied

Where field surveyors find a roost, or part thereof, is not accessible due to private property or other access constraints, a best estimate is made from the nearest accessible point. Roost monitoring will also be undertaken in manner which minimises the species stress levels. In particularly, times when flying-foxes are mating, carrying young or raising juveniles will be avoided along with days where the maximum temperature exceeds 37^{o}C. Importantly, Council's roost monitoring program can largely be conducted from the roost outskirts and direct access below roosting flying-foxes is largely avoidable.

Persons engaged in Council's roost monitoring program will be required to wear appropriate Personal Protective Equipment including a broad brimmed hat, sunglasses, long-sleeved shirt, long pants and sturdy boots. While survey staff are not required to be immunized against Australian Bat Lyssavirus they should be knowledgeable about the risks of infection and have completed an appropriate risk assessment.

Data from Council's roost monitoring program will be shared with the CSIRO, EHP, research institutions and other local governments where it is able to assist greater understanding of flying-fox movements, responses to management actions, population status and health.

6.6 Flying-fox Roosts within Ipswich City

Subject to changes in season and food availability, Ipswich has been home to between 4 and 10 flying-fox camps in the past year. All are located in roosts found along natural or man-made water courses in urban, peri-urban and rural areas of the city as shown in Figure 2. The highest number of both camps and individual flying-foxes occurs during the summer months with the seasonal influx of little red flying-foxes.

Research undertaken in the preparation of this plan has identified a number of temporal and spatial associations between local roosts. While some linkages are more certain than others a historical pattern of large roosts splintering into multiple smaller roosts emerged as illustrated in Figure 10.

This first commenced with the mass movement of flying-foxes from Sapling Pocket to Woodend following a dispersal action in 1984. Following degradation of roosting habitat at W number of smaller local roosts have emerged. In several instances roost based ma appear to have been the key driver for new roost development.

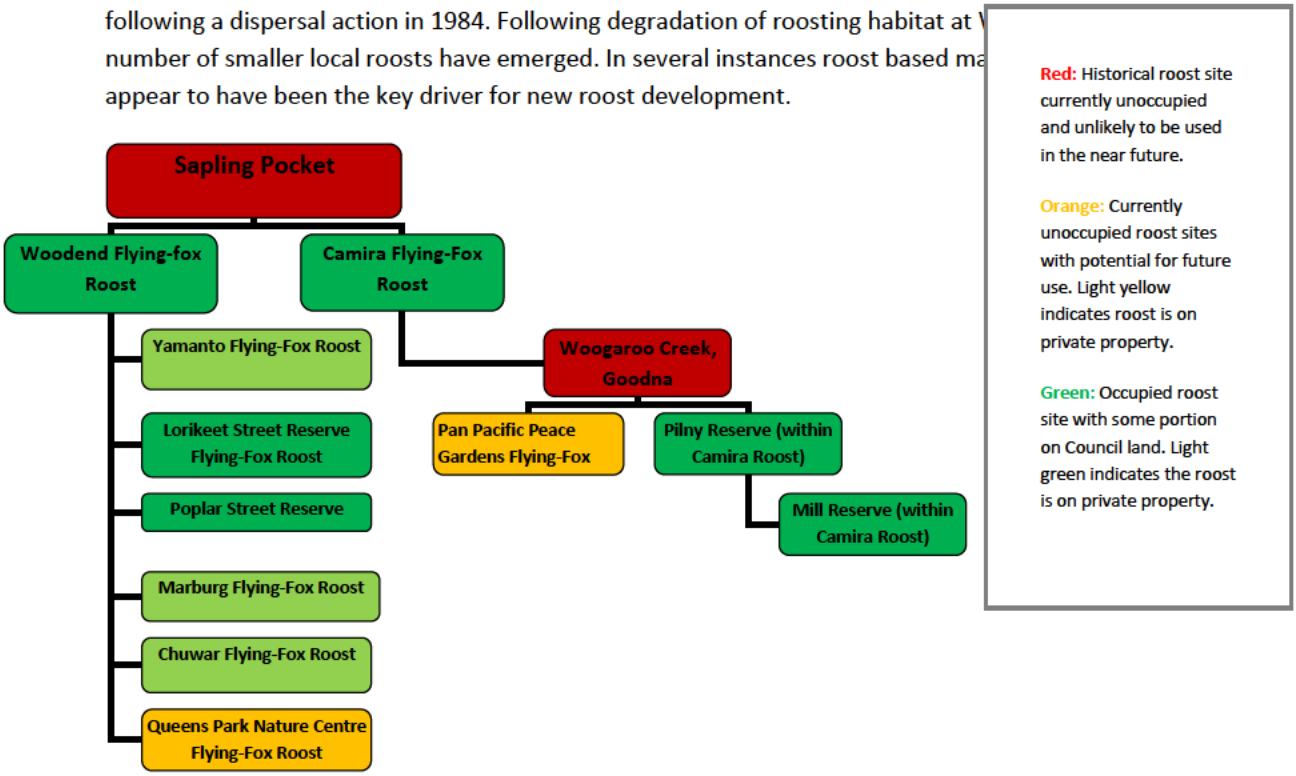


Figure 10: Flow chart of probable flying-fox roost site habituation throughout the city of Ipswich. Green sites were occupied during the August 2014 monitoring run. Yellow sites have been occupied as late as 2013 but unoccupied in recent history – these have the potential to resume active status in the near future. Red sites are roosts no longer occupied and have not been active in recent history.

6.6.1 Sapling Pocket Flying-Fox Roost

Sapling Pocket is a large area of dry vine scrub located in the suburb of Pine Mountain on the Brisbane River, around 14kms from the Ipswich CBD (See Figure 2). The area is rural or natural in nature and at times was believed to house a camp containing hundreds of thousands of flying-foxes.

In 1984 large scale human disturbance and alleged shooting raids performed by members of the public resulted in the majority of the camp dispersing to other locations around the city. At the time a gravel extraction company had been active at the site for a number of years and land clearing from their operations may also have resulted in significant disturbance. In recent history, Sapling Pocket is considered to be the 'mother' of all camps in Ipswich and its demise is likely responsible for subsequent development of many of the smaller camps in Ipswich and, potentially, surrounding local government areas.

It is presumed that some flying-foxes continued using the site after the 1984 events, although this poorly understood. The last recorded survey of the site conducted by the Department of Environment and Heritage Protection (EHP) in 2010 estimated around 2100 black and 4900 grey-headed flying-foxes. Ipswich City Council has not actively monitored Sapling Pocket in recent times as its isolation has meant there were no community concerns, whether flying-foxes have been permanently located at the site or not.

6.6.2 Chuwar Flying-Fox Roost

In 2011, Council was informed of several hundred flying-foxes roosting on private property at Brodzig Road, Chuwar. The camp was located on a small island located in the middle of a dam.

The camp size ranged from around 100-200 black flying-foxes until September 2012, after which the roost was empty. EHP records indicate the site remained empty until August 2013. Following an influx of little red flying-foxes in December 2013 the camp reached a population size of approximately 1,000 flying-foxes comprising both little reds and blacks. The camp remained relatively low-key with sporadic records of public complaints from adjoining property owners.

Following the heat related mortality event in early January 2014, all bar one black flying-fox perished on the site and contractors were hired to clear the property of dead flying-foxes (Appendix C). On the 23rd of January 2014 the roost was recorded empty following the exodus of little red flying-foxes, potentially on their natural migration. Data collected by the Department of Environment and Heritage indicates that flying-foxes recolonised the site in mid-2014.

6.6.3 Marburg Flying-Fox Roost

The presence of several hundred flying-foxes roosting on private property at Marburg was brought to Councils attention in January 2014. However, there is anecdotal evidence the camp may have been established for at least a couple of years.

A number of black flying-foxes were visible from Kennedy Street. However, it is not possible to determine whether other species are present or gain an accurate estimate of population size due to private property access requirements. To date Council is not aware of any community concerns associated with this camp.

6.6.4 Woodend Flying-Fox Roost

Following the exodus from Sapling Pocket circa 1984, thousands of black and grey-headed flying-foxes colonised areas of Woodend and Coalfalls around 12km to the South and less than 2km from the Ipswich CBD. By 1988, following an influx of around 200,000 little red flying-foxes, community

concern regarding the camp became a pressing issue. After several failed attempts at dispersing the camp in 1989, and a successful injunction taken out by a member of the public, Ipswich City Council sought to manage the area for the purposes of flying-fox conservation.

This was the start of a concerted effort by Council and the State Government to manage flying-foxes at the site. A property was purchased and gazetted as the Ipswich *Pteropus* Conservation Park with Council as trustee on behalf of the State. A residence on site was modified to provide visitor interpretive facilities on the outside with meeting rooms inside. A range of community consultation initiatives and on ground rehabilitation activities followed.

In 2005 a Memorandum of Understanding was signed between Council, the State Government and community conservation group Noah's Ark. This aimed to achieve co-ordinated management of flying-foxes within the Woodend Flying-Fox Precinct comprising a range of public and private properties located between Macrae Street and the Bremer River. Further works to improve habitat condition and engage with the community were undertaken on both the conservation park and Noah's Ark properties.

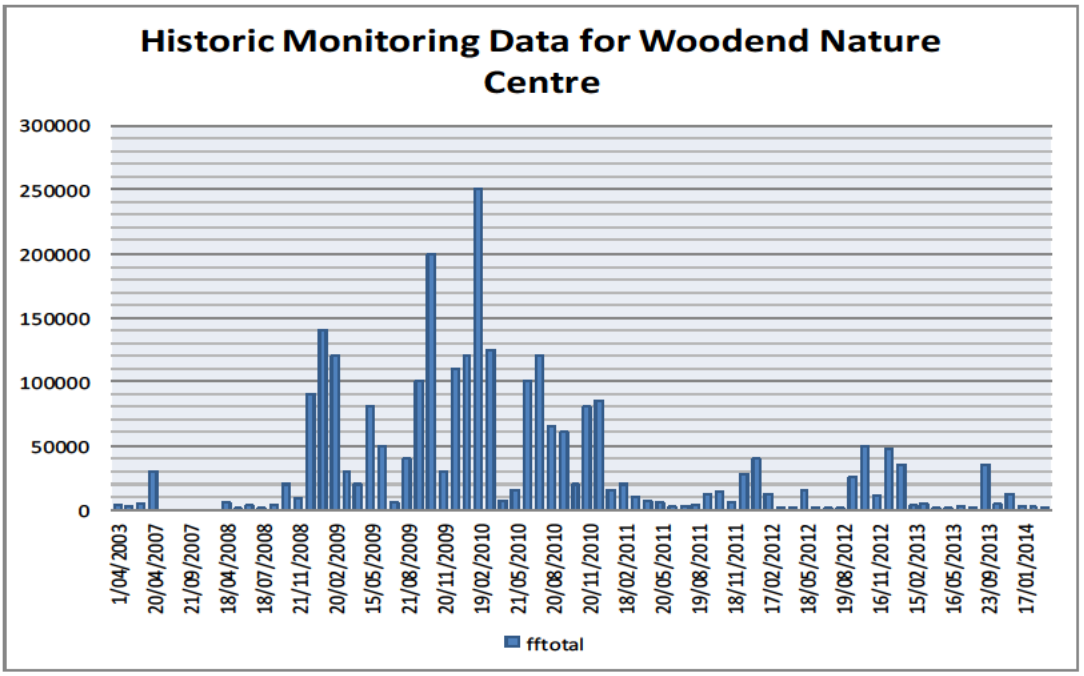
The number, species composition and distribution of flying-foxes have varied dramatically since the 1980's when the camp first established. As of the year 2000, an estimated 500,000 flying-foxes were using all parts of the precinct. Since the early 2000's numbers have steadily decreased, being particularly low between 2003 and 2009. This decrease was attributed to the stripping of vegetation - caused by enormous numbers of flying-foxes present coupled with the little reds tendency to cluster together in tight groups.

However numbers spiked again during the period of 2009 and 2011 but noticeably never reached the 500,000 seen in the year 2000. Following substantial declines at Woodend in 2008, 2010 and 2011, several other smaller camps began appearing throughout the city.

The precinct was also heavily impacted by the flying-fox heat mortality event in January 2014. Over 2000 individuals were killed, the majority being black headed flying-foxes. The historical numbers recorded at Woodend are depicted in Graph 1 with the total extent of roost occupied, at various times since circa 1984 shown in Figure 11.

The presence of flying-foxes within close proximity to places of residence has resulted in ongoing conflict with some residents. The southern parts of the precinct, including parts of Macrae and Harlin Road Reserves, are subject to regular requests for Council action. Most recently, Council works undertaken in Harlin Road Reserve have created a tree free buffer between roosting flying-foxes and an adjacent residence.

Despite this history it should be noted that the majority of residents in this area have lived peacefully with the flying-fox presence for several decades. The area has attracted community conservation interest through Noah's Ark and some residents foster orphaned flying-foxes through the Orphan Native Animal Rear and Release Association. The site has also featured in Sir David Attenborough's 'Life on Earth' series of documentaries.



Graph 1: Historic records of flying-foxes at Woodend Nature Centre based on Department of Environment and Heritage Protection (2003-2013) and Ipswich City Council (2013-2014) monitoring data.

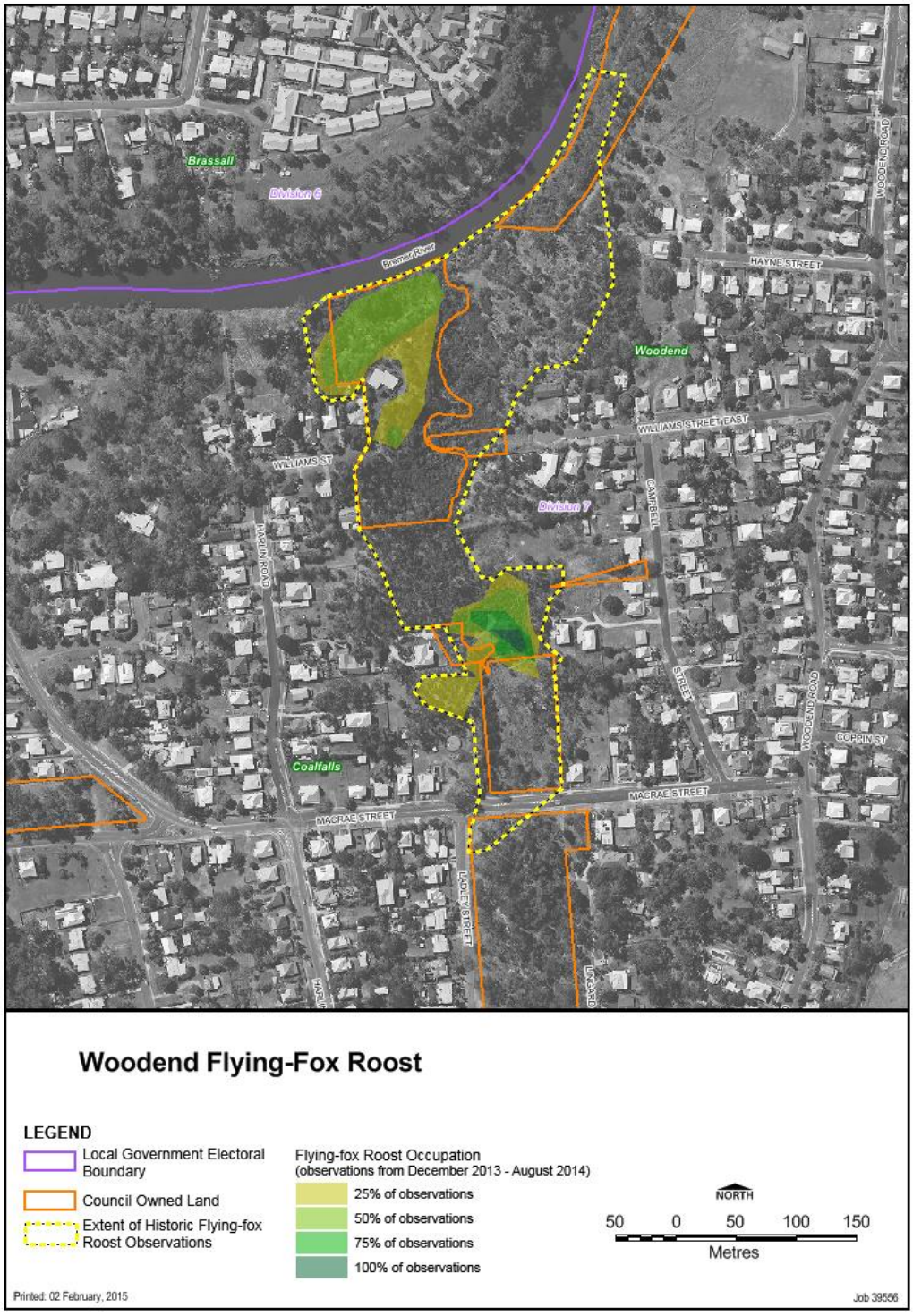


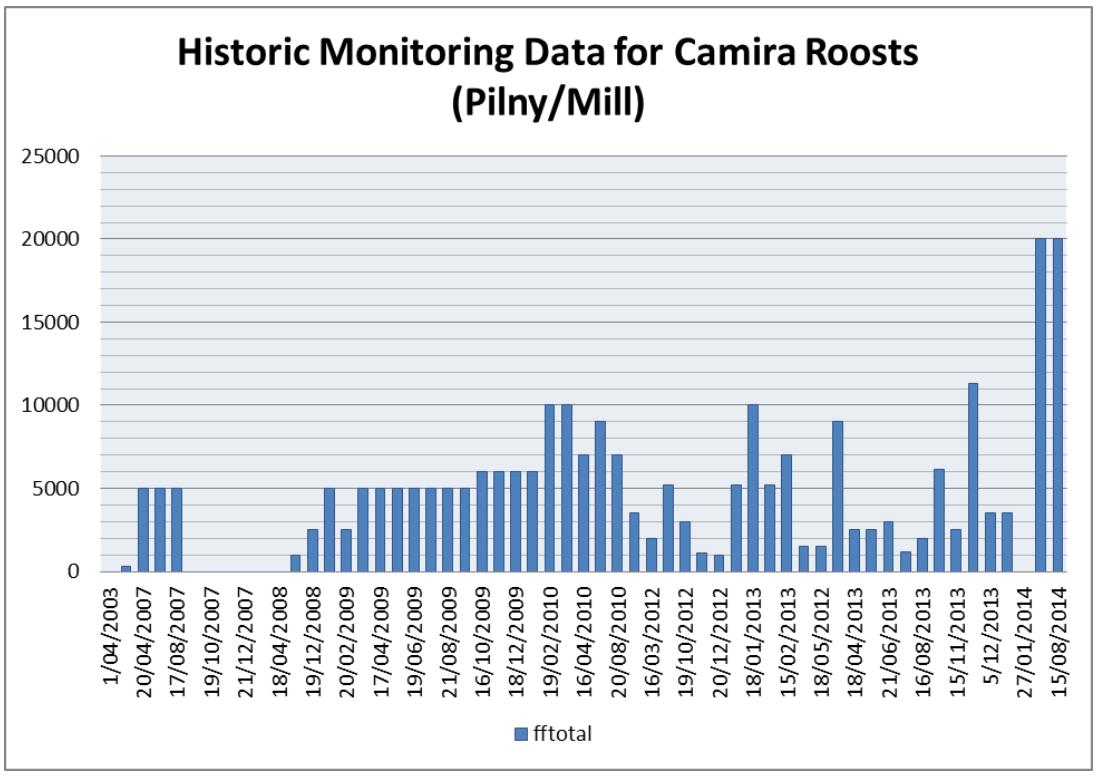
Figure 11. Aerial plan of the Woodend Flying-fox Precinct showing historic extent of recorded flying-fox roost observations along with roost occupation data recorded between December 2013 and August 2014.

6.6.5 Camira Flying-Fox Roost (incorporating Pilny and Mill Reserves)

Pilny Reserve and other areas of Camira are believed to be a long-term historic roosting site for flying-foxes that may have also formed after the demise of the Sapling Pocket camp as shown in Figure 10. However, an accurate history of flying-foxes in Pilny Reserve prior to the year 2000 is difficult to obtain.

The reserve is believed to have been used temporarily throughout recent history. Graph 2 displays this effectively, with large gaps in time where very few flying-foxes have been found in the reserve. The majority of flying-foxes present in Pilny Reserve prior to 2003 are believed to have moved to a roost along Woogaroo Creek in Goodna, around 3.5kms away. The Woogaroo Creek roosting site was eventually cleared of vegetation and in 2009 many flying-foxes returned to Pilny Reserve and other areas around Camira.

Since early 2014, no flying-foxes have been noted roosting in Pilny Reserve, hence it's listing as unoccupied in Figure 10. However, around 20,000 flying-foxes have been observed roosting in nearby Mill Reserve and along several private properties on Siesta Street and Addison Road as depicted in Figure 12. Mill Reserve and neighbouring properties were vacated briefly over the summer of 2013-2014 before flying-foxes returned in April 2014.



Graph 2: Historic records of flying-foxes at Pilny and Mill Reserves based on Department of Environment and Heritage Protection (2003-2013) and Ipswich City Council (2013-2014) monitoring data.

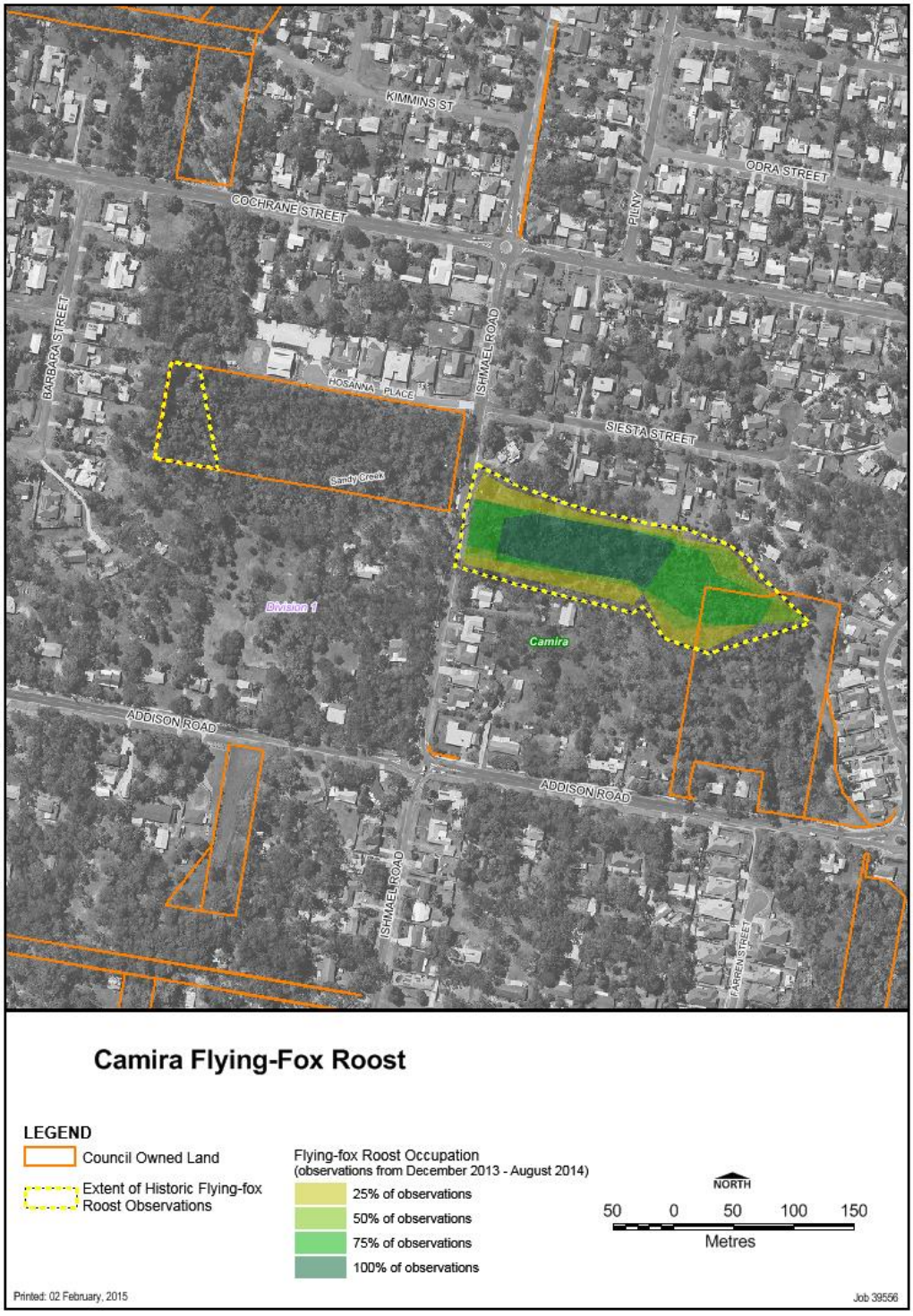


Figure 12. Aerial plan of the Camira Roost (incorporating Mill and Pilny Reserves) showing historic extent of flying-fox roost observations along with roost occupation data recorded between December 2013 and August 2014.

6.6.6 Pan Pacific Peace Gardens Roost

Pan Pacific Peace Gardens, located in Redbank, was a relatively new roost around 12kms east of the Ipswich CBD. The park is largely used as a recreation and picnic destination and was constructed to commemorate soldiers of World War II as well as representing Ipswich's history through other memorial plantings.

It may be inferred from historical records that Pan Pacific was colonised by flying-foxes following the clearance of vegetation at the nearby Woogaroo Creek roost in Goodna circa 2009. The camp grew steadily in size until an influx of little red flying-foxes in late 2013 caused it to swell drastically.

On 23 December 2013, the camp was estimated to have 11,000-12,000 flying-foxes with around 80% of these being little reds. The population reached its maximum recorded size and extent at that time (Figure 14). Despite the large numbers of flying-foxes present in a high visitor area, no history of community complaints was recorded from this park.

Monitoring conducted in January 2014 noted that the camp had decreased substantially in size following a heat related mortality event and was only occupying the most southerly section of the park adjacent to the Ipswich motorway. This declining trend continued until the site was eventually recorded as empty on the 28th of January 2014.

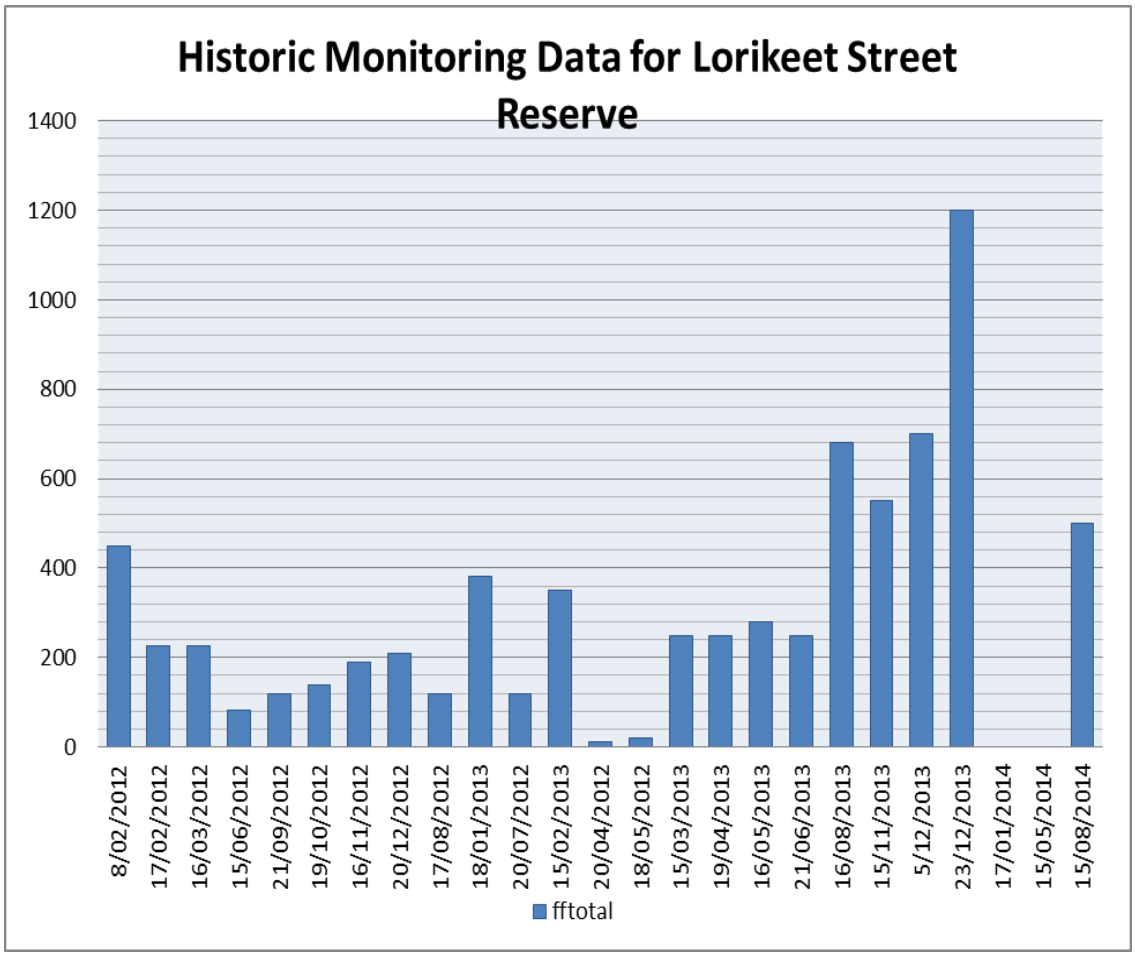
6.6.7 Lorikeet Street Reserve Flying-Fox Roost, Bundamba

Lorikeet Street is a narrow reserve located in Bundamba which contains an unnamed tributary of Bundamba Creek. Council was first informed of this camp in 2011 and EHP commenced monitoring the site in 2012. Of note, initial colonisation of this site occurred around the same time that the Woodend camp was undergoing a sizeable population decrease as depicted in Graph 1.

The population at Lorikeet Street remained steady at around 400 flying-foxes, comprised of a mix of grey-headed and blacks, until the middle of 2013. Following the arrival of little red flying-foxes in December 2013 the population reached a high of around 1,500 comprising all three flying-fox species (Graph 3).

During this time hundreds of flying-foxes were also roosting in adjacent private properties along Oak, Paice and Thompson Streets as depicted in Figure 13. The close proximity to people's homes resulted in elevated levels of community concern and some requests for Council to take action. However, other local property owners indicated they were aware of the flying-fox presence but had no concerns.

Things changed dramatically following an extreme heat event in early 2014. The camp suffered heavy mortalities and very few flying-foxes remained. On 13 January 2014 Lorikeet Street Reserve was noted as being empty. However monitoring conducted in August 2014 recorded a similar number and extent of roosting flying-foxes to August 2013 - prior to the heat event.



Graph 3: Historic records of flying-foxes at Lorikeet Street Reserve based on Department of Environment and Heritage Protection (2012-2013) and Ipswich City Council (2013-2014) monitoring data.

Figure 13. Aerial plan of Lorikeet Street Reserve showing flying-fox roost observations recorded between December 2013 and August 2014.

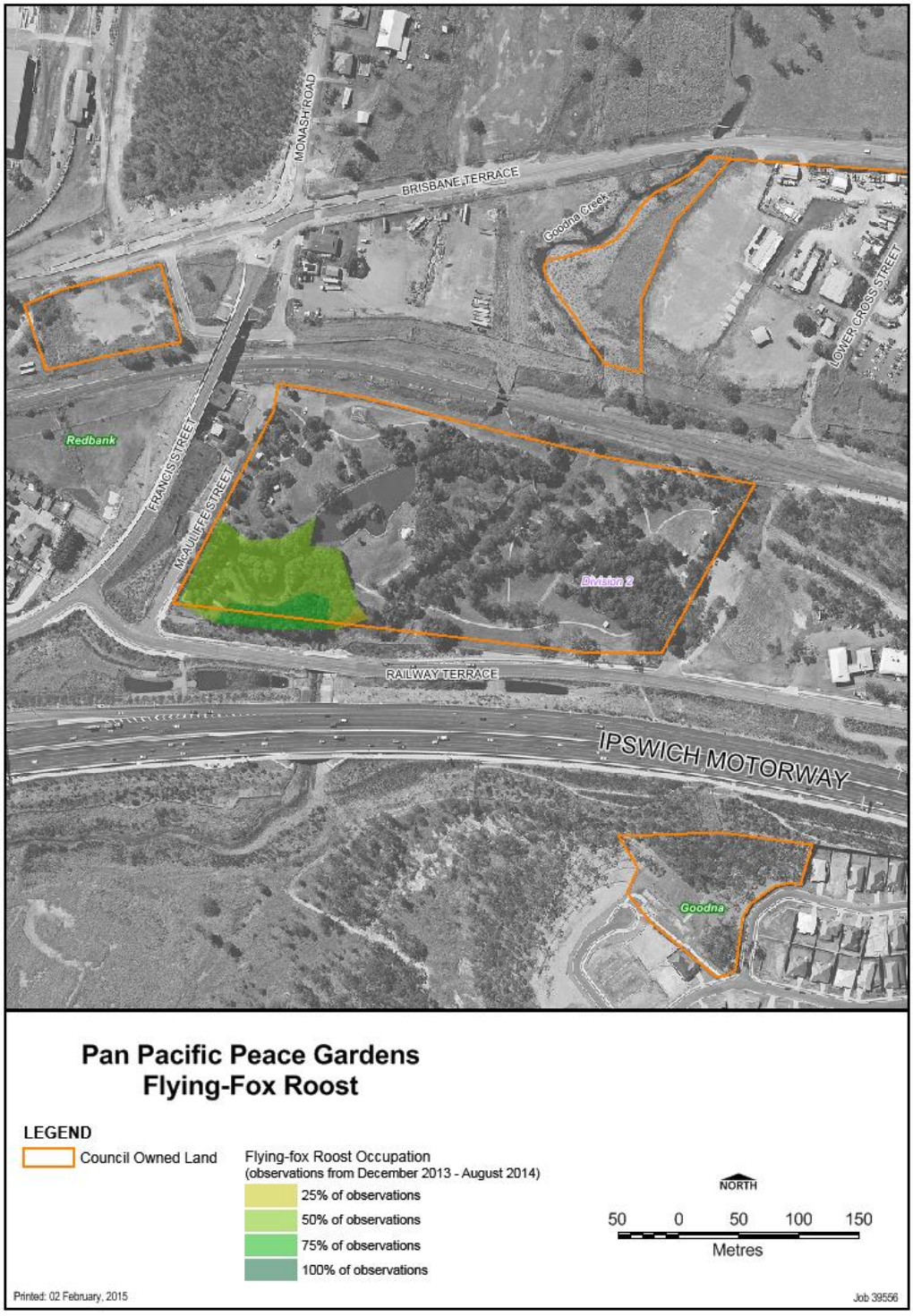


Figure 14. Aerial plan of Pan Pacific Peace Gardens showing flying-fox roost observations recorded between December 2013 and August 2014.

6.6.8 Queens Park Nature Centre Roost

Queens Park Nature Centre is a major tourist attraction for the city of Ipswich displaying a large variety of Ipswich's native wildlife and some domestic animals. In 2012 several hundred flying-foxes began roosting in trees above the Nature Centre's water feature. Due to high levels of public visitation the presence of flying-foxes drew local media coverage and sparked a mixed community reaction.

Like Lorikeet Street Reserve roost, the colonization of flying-foxes in Queens Park is believed to be linked with the decrease in flying-fox numbers at the Woodend Flying-fox Precinct in 2011 and 2012. Woodend is around 2.5 km west of Queens Park.

For the majority of 2013 the Queens Park camp comprised a total of 250 black flying-foxes, however this number began to rise in August and reached over 1,000 flying-foxes by December. This increase comprised a mass arrival of little red flying-foxes in addition to a steady increase in black flying-foxes and arrival of several grey-headed.

In January 2014 Queens Park Nature Centre was hit hard by a heat mortality event that killed the majority of the flying-foxes as detailed in Section 6.3.To the astonishment of Council staff the Nature Centre was quickly recolonized. Within a week a new population record was set with more than 2,000 black flying-foxes present.

Concerns for the health of visitors, staff and animals at the Nature Centre continued to grow until an influx of around 7,000 little red flying-foxes swelled the roost in March 2014 as shown in Figure 15. At this time Council decided to take intervention in the form of roost vegetation removal and active dispersal of flying-foxes.

The proposed management actions were not considered to represent a significant impact under the EPBC Act and all works were undertaken in accordance with the Code of Practice: *Ecologically sustainable management of flying-fox roosts.* Following limited removal of roost vegetation, dispersal activities were conducted as flying-foxes returned to roost over three consecutive mornings in early April. A combination of flood lighting (road-works type), noise deterrence and people presence was employed.

Over half the colony was dispersed on the first morning with the balance dispersed by the completion of the third morning. While the destination of the flying-foxes was not actively tracked both the Box Street, Yamanto and Woodend colonies (the only other active local roosts) recorded increased numbers around this time.

To date, flying-foxes have not returned to the Nature Centre however future attempts to recolonise this site may be anticipated. To accommodate some future flying-foxes presence within the facility Council has implemented are range of additional staff procedures for dealing within dead, sick or injured flying-foxes in a public setting.

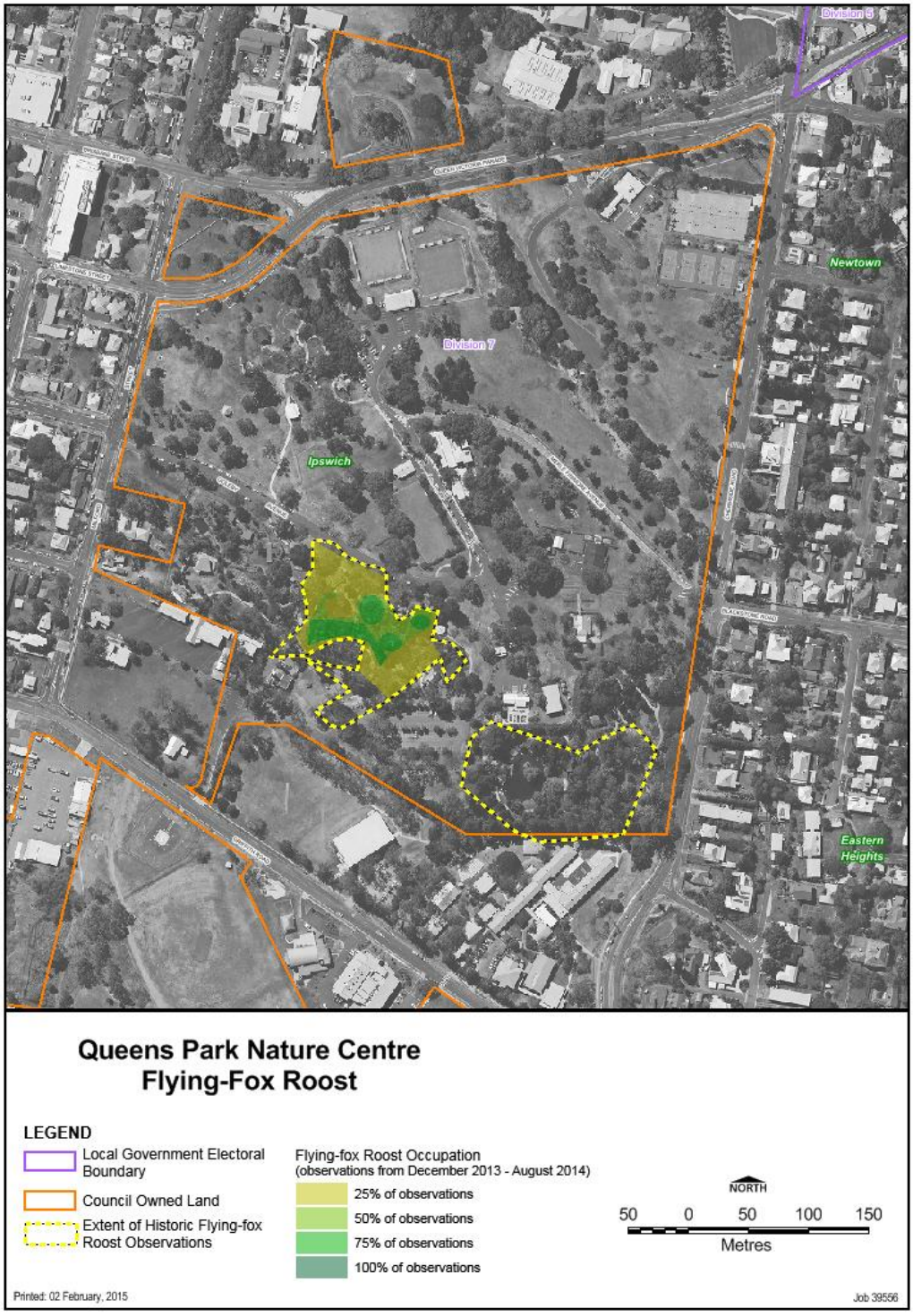


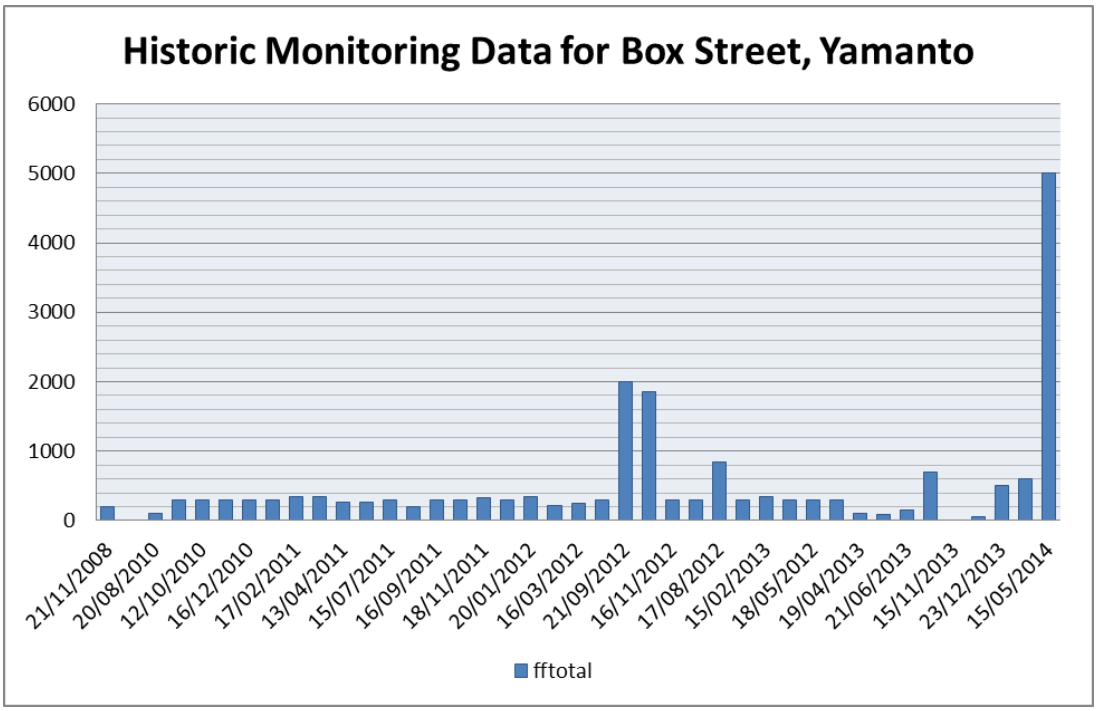
Figure 15. Aerial plan of Queens Park Nature Centre showing historic extent of flying-fox roost observations along with flying-fox roost observations recorded by Ipswich City Council between December 2013 and August 2014.

6.6.9 Yamanto Flying-Fox Roost

Yamanto is home to a camp of flying-foxes located predominantly on private property just south of the Ipswich CBD. Some confusion surrounds the history of this small camp as it was only brought to Councils attention in 2011, whereas EHP had been monitoring the site since at least 2008. Although it is again presumed that this camp may have formed in the aftermath of flying-foxes periodically vacating the Woodend Precinct.

EHP estimates that at its height this camp contained 2,000 flying-foxes with 75% of these being grey-headed. Justin Welbergen from James Cook University visited the camp in January 2014 following a heat wave and estimated a population of some 5000 flying-foxes (Graph 4). He noted that around 550 flying-foxes were killed at the site, 98% of which were black flying-foxes.

Detailed inspections by Council officers have not been undertaken as the roost is largely on private property. It is believed that EHP continues to monitor the roost.



Graph 4 Historic records of flying-foxes at Yamanto based on Department of Environment and Heritage Protection (2008-2013) and Welbergen 2014 monitoring data.

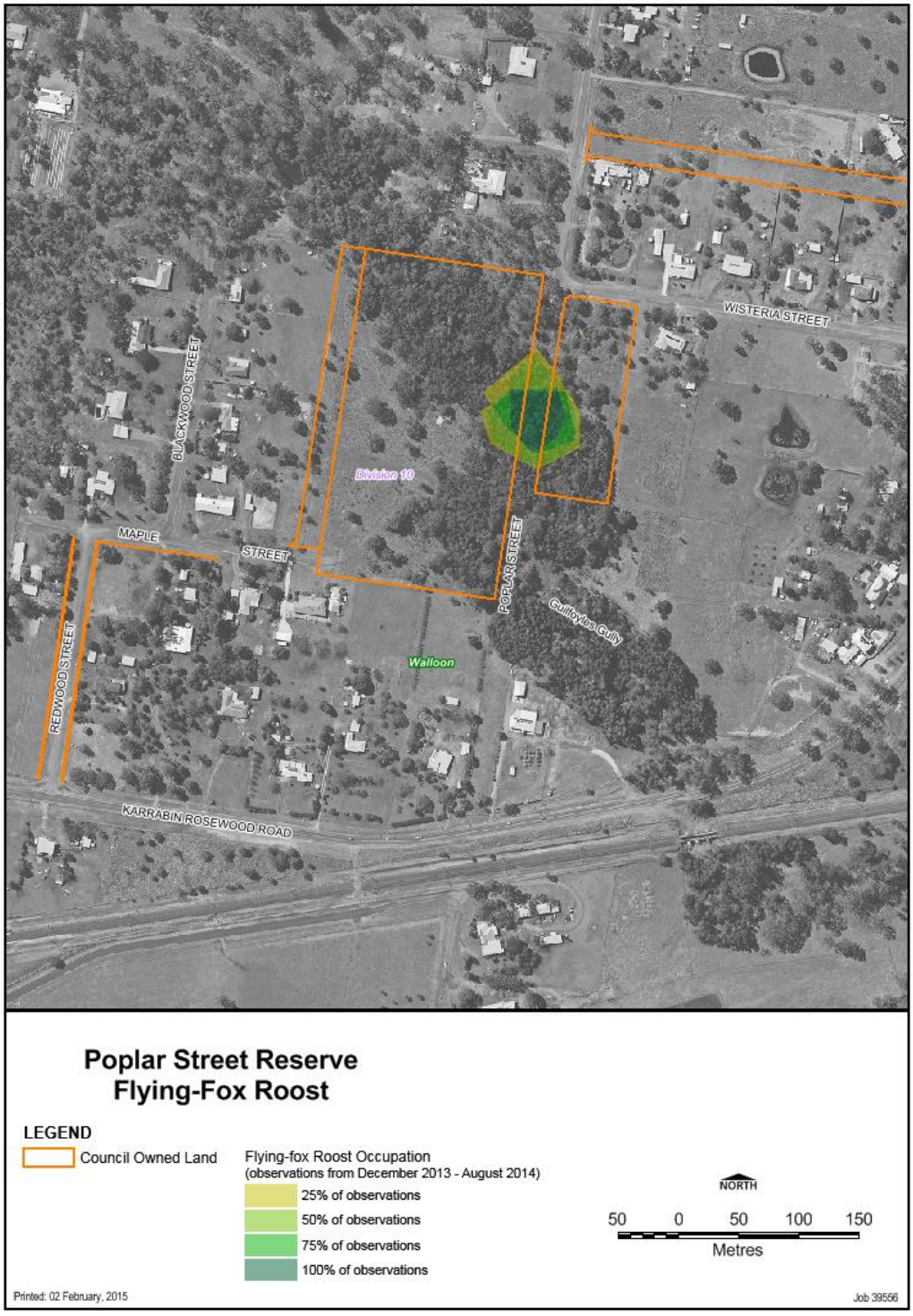


Figure 16. Aerial plan of Poplar Street Reserve showing flying-fox roost observations recorded by Ipswich City Council between December 2013 and August 2014.

6.6.10 Poplar Street Reserve Flying-Fox Roost

Poplar Street Reserve is located around 9kms west of Ipswich city along Guilfoyles Gully in the suburb of Walloon. Flying-foxes were first noted roosting in the reserve after a routine Council inspection in 2010. This colonisation date also aligns closely with the 2010 population collapse at the Woodend Precinct.

In late 2013, Council estimated that there were 350-400 flying-foxes roosting in the reserve. This camp is generally dominated by grey-headed flying-foxes with smaller numbers of blacks and periodic influxes of little red flying-foxes. Following a heatwave in January 2014, 51 flying-fox mortalities were recorded – mostly black headed.

On the 29th of January 2014 the reserve was recorded as empty however by May, after 4 months with no flying-foxes, the site was active again comprising around 1,000 bats (60% grey-headed; 40% black). A similar number and species balance was recorded during the August 2014 monitoring run.

In general the area used by roosting flying-foxes has a sizeable buffer to adjoining residences as depicted in Figure 8. However, the proximity of horses to the flying-fox camp has generated concerns for potential transmission of the Hendra virus. A grazing lease over the reserve was terminated in 2010 by agreement between Council and the leasee. In addition, a number of surrounding properties also contain horses. To date there have been no community concerns raised in relation to this camp.

7.0 Further Information

Information on living with flying-foxes: Living with Flying-foxes

Bat Conservation and Rescue Queensland: http://www.bats.org.au/

Wildlife Queensland: http://www.wildlife.org.au/wildlife/speciesprofile/mammals/flyingfox/

Australasian Bat Society: http://ausbats.org.au/

Brisbane City Council: http://www.brisbane.qld.gov.au/2010%20Library/2009%20PDF%20and%20Docs/4.Environment%20and%20Waste/4.7%20Wildlife/environment_and_waste_flying_foxes_CAS_2010_d4.pdf

NSW Government Department of Environment and Heritage: http://www.environment.nsw.gov.au/animals/flyingfoxes.htm

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9.0 Appendices

Appendix A – Council's Statement of Management Intent

City of Ipswich	**STATEMENT OF MANAGEMENT INTENT - FLYING-FOX ROOST MANAGEMENT IN IPSWICH CITY**	Version: 1.1 Document No.:

1.1 Objective:
To protect the health, wellbeing and livelihoods of the residents of Ipswich City while recognising the important ecological role performed by flying-fox populations.

1.2 Regulatory Authority:
Under recent changes to the State *Nature Conservation Act 1992*, and associated regulations, Councils have a voluntary as-of-right authority allowing them, if they so choose, to implement additional management actions for flying-fox roosts in a defined urban area. The as-of-right management actions are limited to non-lethal methods, and may only be undertaken in accordance with the statutory *Code of Practice – ecologically sustainable management of flying-fox roosts*.

In administering the as-of-right authority Councils must still abide with a range of other legislation and policy. Key among these are protections afforded to the Grey-headed flying-fox under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* which is not affected or diminished in any way by the State changes.

1.3 Policy Scope:
This document establishes a policy framework for management of existing and new flying-fox roosts located within the city. The State provisions define areas within Council's planning scheme having a residential or commercial purpose, including a buffer of one (1) kilometre, as the Urban Flying Fox Management Area (UFFMA)*. Council's policy will apply to roosts located both within and outside of the UFFMA.

Council will manage flying-fox roosts located on Council owned or managed land. In addition, where a roost occupies both Council land and adjacent private property, Council will work with the respective land owner/s to develop management solutions, consistent with this policy, and the subsequent flying-fox management plan. A hierarchical approach to flying-fox roost management will be employed favouring education and minimal intervention strategies developed on a case by case basis.

Council will support private property owners to manage flying-fox roosts on their land. A city-wide flying-fox management plan will underpin the provision of a range of services for private land owners including:

- Provision of education materials

- Provision of technical support
- Provision of research data and support
- Referral to expert information sources

In exceptional circumstances Council may assist a private property owner to develop and implement a roost specific management action. These situations will be identified through risk assessment processes applied on a case by case basis as detailed in the section of this policy titled Management Plan.

A number of flying-fox matters are outside the scope of this policy including any management of roosts or flying-foxes matters in association with:

- State owned or managed land
- Commonwealth owned or managed land

Management of flying-foxes in these locations should be discussed with the respective land owner or manager. Further, this policy clarifies Council's role in relation to a number of additional matters of flying-fox management and human health.

1.4 Policy Statement:

The following key policy statements will guide Council's management of flying-fox roosts and associated management issues and actions:

- Human health and wellbeing will be given primary consideration over the health and wellbeing of flying foxes where significant conflict is found to exist between the two;
- Flying foxes perform an essential ecological role, pollinating and dispersing the seeds of native plants and maintaining forest health;
- Due to the highly mobile and dynamic nature of flying-fox roosts any management actions will be considered and developed on a case by case basis;
- Council will follow a hierarchical approach to flying-fox roost management favouring education and minimal intervention;
- A risk based assessment process will be used to determine the requirement for any roost specific management actions;
- Roost specific actions including dispersals will only be considered after less intrusive actions have been tried and found to be unsuccessful. Dispersals have a low documented success rate in Australia with significant potential to exacerbate the existing situation; and

<u>Management Plan</u>

Council will develop a city-wide flying-fox management plan for existing and new roosts located within and outside the UFFMA. The plan will contain the necessary information required to guide and support well informed, balanced and consistent flying-fox management actions.

Key elements to be developed and implemented through the plan will include:

- Quarterly monitoring of roost locations, species and numbers on Council owned and managed land;
- Risk based management zones and strategy development for roosts are defined as

being:

- 'High risk' if located within 100 metres of sensitive sites such as schools, medical and formal equestrian facilities;
- 'Medium conflict' if located within 50 metres of residential or commercial development and greater than 100 metres from a sensitive site;
- 'Low conflict' if located greather than 50 to 100 metres of residential or commercial development and greater than 100 metres from a sensitive site;
- 'Preferred roost locations' if located on protected areas declared under the *Nature Conservation Act 1992,* for which Council is trustee, or greater than 100 metres from residential or commercial development; and
- 'New roosts' where a site is occupied for less than three (3) months with no previous roosting history.

- Mapping of historical and current roost areas and management zones in association with Council owned and managed land;
- Roost histories incorporating locations, species composition, population numbers, major roost changes, actions, interventions and associated outcomes;
- A community consultation strategy based on Council's hierarchical approach to flying-fox roost management;
- A package of support for private land owners with flying-fox issues delivering educational and research materials and technical support
- The legislative framework associated with flying-fox and associated habitat management; and
- A risk and benefit framework for management actions.

1.5 Roles and responsibilities

In addition to Council a number of agencies and organisations play an important role in the management of flying foxes.

Flying-fox biology and management

Further information on flying foxes, their biology and management options for roosts located on private property are available from the Department of Environment and Heritage Protection.

Health and Safety

For up to date information on flying-fox related human health matters residents are advised to contact the Queensland Health hotline.

Flying-fox rescue

Residents are advised never to touch or attempt to aid a sick or injured flying-fox. For assistance with sick or injured flying foxes contact Bat Conservation and Rescue Queensland.

1.6 Definitions:

Urban Flying Fox Management Area (UFFMA) – those land parcels defined within a local government planning scheme as having a residential or commercial purpose with the addition of a one (1) kilometre buffer.

Management actions – non lethal actions intended to stop flying-foxes from making use of a site or part of a site. * Mapping is available from the Department of Environment & Heritage website at http://ehp.qld.gov.au/wildlife/livingwith/flyingfoxes/maps/ipswich-city.pdf **1.7 Policy Author:** Planning Officer (Biodiversity)
Date of Council resolution: 22 April 2014 **Committee Reference and date:** Policy and Administration Board No. 2014(03) of 1 April 2014 - City Management and Finance Committee No. 2014(04) of 15 April 2014 **No of resolution:** 2 **Date to be reviewed:** 22 April 2016

Appendix B – Flying-Fox Friendly Plant List

Subject to the suitability of the site, some suggested roosting and feeding trees for the Ipswich area include:

- White Cedar *Melia azedarach*
- Endemic Fig trees *Ficus* spp.
- Queensland Blue Gum *Eucalyptus tereticornis*
- Lemon-scented Gum *Corymbia citriodora*
- Grey Gum *Eucalyptus major*
- Grey Ironbark *Eucalyptus siderophloia*
- Narrow-leaved Ironbark *Eucalyptus crebra*
- Gum-topped Box *Eucalyptus molucanna*
- Broad-leaf Apple *Angophera subvelutina*
- Rough-barked Apple *Angophera floribunda*
- Pink Bloodwood *Corymbia intermedia*
- Silver-leafed Ironbark *Eucalyptus melanophloia*
- Silky Oak *Grevillea robusta*
- Broad-leaved Paperbark *Melaleuca quinquenervia*
- Weeping Bottlebrush *Callistemon viminalis*
- River Oak *Casuarina cunninghamii*
- Weeping Lilly Pilly *Waterhousia floribunda*
- Black Tea-tree *Melaleuca bracteata*
- Brush Cherry *Syzygium australe*
- Native Laurel *Pittosporum undulatum*
- Soap Tree *Alphitonia excelsa*
- Black Bean *Castanospermum australe*

Appendix C - Dispersal Case Studies

Using dispersal or relocation of flying-fox camps as a management approach can have considerable costs and their success is often questionable (West 2002; Nelson 2008). Nevertheless, dispersal of flying-foxes is both a common and popular method of flying-fox management with significant historical analysis within the scientific literature.

Table 1 was taken from Australasian Bat Society (2013) and lists all recorded and published attempts at flying-fox dispersals in Australia. One clear conclusion which can be drawn from the data is the huge expense, and low success, of dispersal actions which do not incorporate vegetation modification. Vegetation modification, although also expensive, appears to be the only clear way of removing flying-fox conflict from the original site efficiently. Of note, in areas such as Charters Towers where there was refusal to modify the vegetation, repeated and ongoing dispersal efforts were ineffective.

Table 1: List of all recorded and published attempts at flying-fox dispersals in Australia. Taken from Australasian Bat Society (2013). A full list of referenced case studies is provided at the foot of the table.

Location	Species	FF population estimate at time of dispersal	Method	Did the animals leave the local area?	Did the local population reduce in size?	How far did they move?	Were new camps formed (number of new camps if known)?	Number of separate actions	Cost (if known)	Was conflict resolved at the original site?	Was conflict resolved for the community?	Source+
Barcaldine, Qld	R	>50,000	VN	no	no	≈2 km	yes (1)	trees in township felled		yes	no	a,b
Batchelor, NT	B	200	BNS	no	no	<400 m	yes (1)	2		yes	yes	c,d
Boyne Island, Qld	BR	25,000	LNS	no	no	<500 m	yes (2)	3		yes	no	e,f,g
Bundall, Qld	GB	<1600	V	no	no	uk, but 6 camps were within 5 km	yes (2)	1 action over 21 days		yes	yes	h,i,j, k
Charters Towers, Qld	RB	variable	HLNPOW	no	no	200 m	no (returned to original site)	repeated since 2000	>$500,000	no	no	l,m
Dallis Park, NSW	BG	28,000	V	no	yes	300 m	yes (1)	2		yes	no	n
Duaringa, Qld	R	>30,000	VNFO	no	no	400 m	yes	1	$150,000	yes	uk	o
Gayndah, Qld	RB	200,000	VN	no	no	600 m	yes	3 actions, repeated		yes	no	i
Maclean, NSW	BGR	20,000	NS	no	no	350 m	yes (7)	>23	>$400,000 and ongoing	no	no	n
Mataranka, NT	BR	>200,000	BHLNOSW	no	no	<300 m	uk	>9		no	no	n
North Eton, Qld	B	4800	VNFB	uk	no	<1.5 km initially	yes (≈4 majority temporary)	2	$45,000	yes	yes (conflict at one site)	j,p,q,r

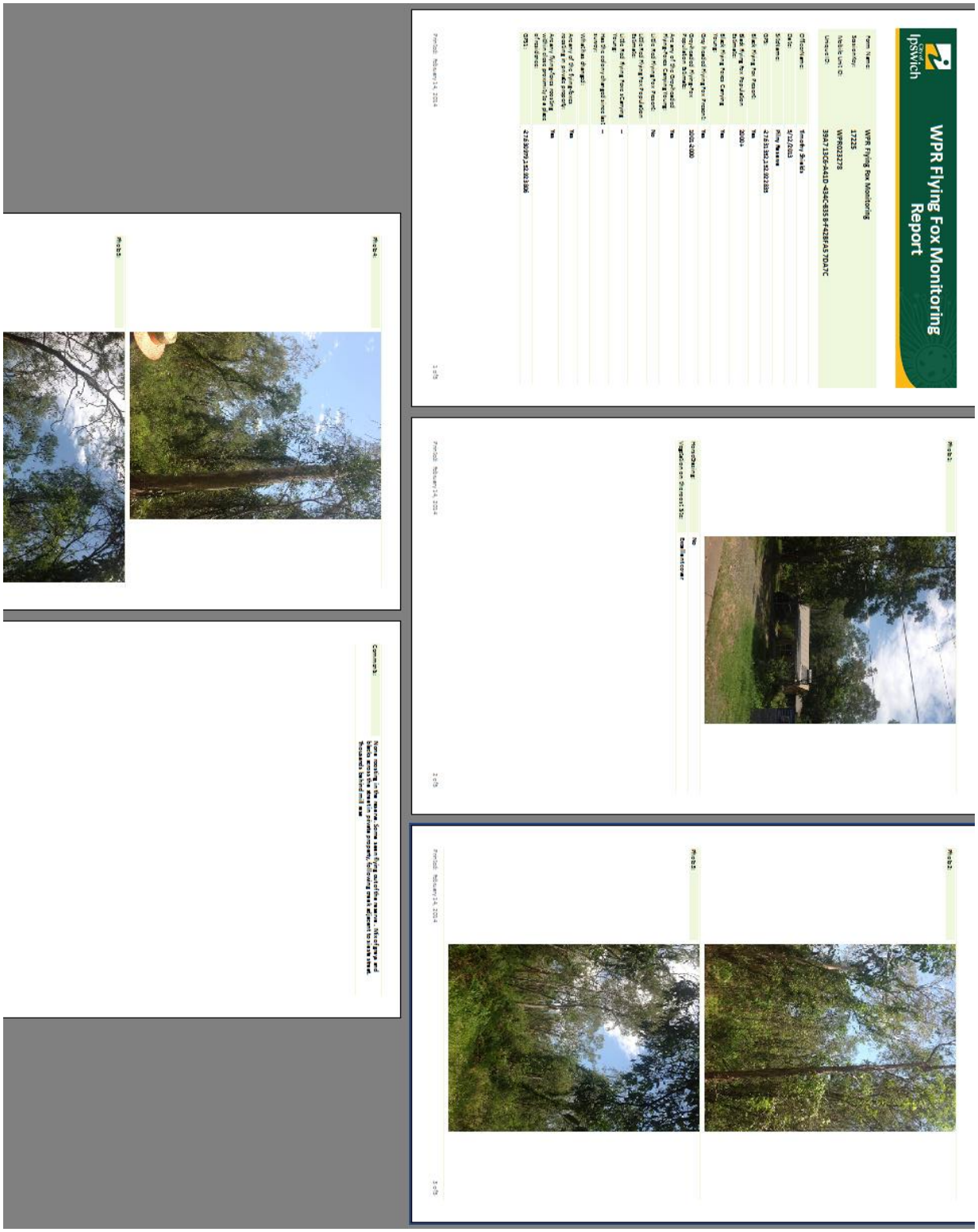
Location	Species	FF population estimate at time of dispersal	Method	Did the animals leave the local area?	Did the local population reduce in size?	How far did they move?	Were new camps formed (number of new camps if known)?	Number of separate actions	Cost (if known)	Was conflict resolved at the original site?	Was conflict resolved for the community?	Source+
Royal Botanic Gardens, Melbourne, Vic	G	30,000	NS	no	no	6.5 km	yes (2)	approx daily for 6 mths	$3 million	yes	yes, ongoing management required	m
Royal Botanic Gardens, Sydney, NSW	G	3,000	LNPOW	no	no	4 km	no	ongoing daily actions for 12 mths	>$1 million and ongoing	yes	yes	m,s,t
Singleton, NSW	GR	500	LNUW	no	no	<900 m	no (returned to original site	>3	$117,000 and ongoing	no	no	n,u
Townsville, Qld	BR	35,000	BNS	no	no	400 m	no (returned to original site)	5		no	no	n
Warwick, Qld	GRB (dispersal targeted R)	200,000	NLBP	no	no	≈1 km	no (site known to be previously occupied by GB)	5 days	$28,000	yes	no (complaints persisted until migration)	h,v,w
Young, NSW	L	<5000	VN	no	no	<600 m	yes (1)	uk		yes	no	x

* G = grey-headed flying-fox; B = black flying-fox; R = little red flying-fox
# B = "birdfrite"; F = fog; H = helicopter; L = lights; N = noise; P = physical deterrent; O = odour; S = smoke; U = ultrasonic sound; V = extensive vegetation removal; W = water.
[a] Storm Stanford (Wildlife carer, pers. comm. 2013); [b] Louise Saunders (BCRQ, pers. comm. 2013); [c] Phillips *et al.* (2007) Displacement of Black flying-foxes *Pteropus alecto* at Batchelor, Northern Territory *Australian Zoologist* 34: 119-124; [d] John McCarthy (Northern Territory Government, pers. comm. 2010); [e] Roberts (2006) *Management of Urban Flying-fox Camps: Issues of Relevance to Camps in the Lower Clarence, NSW.* Valley Watch Inc., Maclean; [f] Information from Gladstone Regional Council in 2010 and 2013; [g] Joe Adair (formerly DEHP, pers. comm. 2010); [h] Trish Wimberly (Australia Bat Clinic pers. comm. 2013); [i] Information obtained from Department of Environment and Heritage Protection (DEHP) in 2013; [j] Billie Roberts unpublished data; [k] Information from Ecosure [l]Scott Sullivan (DEHP, pers. comm. 2010); [m] Information from Charters Towers Regional Council in 2010 and 2013; [n] Roberts *et al.* (2012b) and additional references within; [o] Perry Deeds (Central Highlands Regional Council, pers. comm. 2013); [p] Jarmaine (2010) *Species Management Plan,* Mackay Regional Council; [q] Heidi Jarmaine (Mackay Regional Council, pers. comm. 2013); [r] Daryl Barnes (Walkerston resident, pers. comm. 2013) [s] Peggy Eby (Ecologist, pers. comm. 2013) [t] John Martin (Sydney RBG, pers. comm. 2013); [u] Singleton Council Meeting Minutes; [v] Information from the Southern Downs Regional Council in 2013; [w] Tim Low (pers. comm. 2013); [x] Young Shire Council.

It is also important to note that when flying-foxes are removed from the original site, community conflict is rarely resolved. Thiriet (2005, pg. 233) sheds some light on why this might be the case: "If they leave, it is more likely to be as a result of seasonal migration. Generally they return a few weeks or months later. In some circumstances, relocation exercises simply result in the animals dispersing into even less suitable sites such as nearby private yards".

In light of the challenges around flying-fox dispersal Roberts et al. (2011, pg. 284) recommend determining the "magnitude of the perceived problem before exploring potential management options, including relocation. For example, if noise, smell and faeces from a camp affect only a small number of residents, then more local-scale mitigation options such as creating buffers between houses and roosting flying-foxes or constructing sound barriers may be more effective solutions than attempted wholesale relocation of a camp".

Appendix D – Sample of Electronic Flying-fox Monitoring Template



Flying-fox Management Plan – Lorikeet Street Reserve

CONTEXT:

This management plan has been developed to provide strategies and actions to minimise the impacts of roosting flying-foxes within Lorikeet Street Reserve on adjacent residents along Paice Street, Oak Street and Thompson Street, Bundamba.

HISTORY:

Council first became aware of flying-foxes in Lorikeet Street Reserve in 2011 with formal monitoring commencing in 2012. Timing suggests that this colony is one of many in South east Queensland that formed after food shortages in 2010 and has since remained active.

Lorikeet Street is a mixed use colony containing black and grey headed flying-foxes in addition to summer influxes of little red flying-foxes. The colony typically stays below 500 animals with occasional spikes of up to 2000 animals depending on availability of surrounding food sources. Flying-foxes use a variety of tree and shrub species within the reserve for roosting, including large native eucalypts, weeds and non-endemic planted species from the wet tropics.

The reserve has been highly affected by heat waves in the past. The heat waves in January 2014 killed over 1200 flying-foxes in Lorikeet Street Reserve, close to 100% of the colony. A large influx of little red flying-foxes in summer 2015-2016 caused extensive destruction within the reserve, including the complete stripping of several roosting trees.

The area of occupation for the colony is highly variable, however most animals can typically be found throughout the middle of the reserve, as illustrated below:

COMMUNITY CONCERN:

Council has received a series of complaints from residents adjacent to Lorikeet Street Reserve, many of whom also have flying-foxes on their own property. Complaints occur primarily in summer (Nov-March) when little reds frequent the colony. This also correlates with peak flowering and fruiting season as well as breeding season for the larger species, thus creating a typically larger and noisier colony.

The most common cause for complaint is concerns regarding the noise and smell of the flying-fox colony and how this affects the lifestyle and mental health of the residents. Loss of sleep, inability to use backyards and alleged decreases in property value are often cited as secondary impacts to noise and smell. Mess from flying-fox guano is also a repeated concern, with particular reference to restrictions to laundry practices and inconvenience associated with repeatedly cleaning cars and houses.

Disease risk has been mentioned as a concern of several occasions. In these instances education and facilitation of correct information has been sufficient to reduce concern.

Destruction of vegetation by flying-foxes roosting within the reserve has also been cited as a concern.

MANAGEMENT OPTIONS:

Following recent amendments to the *Nature Conservation (Wildlife Management) Regulation 2006*, local governments in Queensland now have an as-of-right authority to manage flying-fox roosts in a defined Urban Flying-Fox Management Area (UFFMA), if they so choose. This authority includes the ability to actively disperse a flying-fox roost or conduct other non-lethal management actions without a Damage Mitigation Permit.

Under the Ipswich City Council Flying-fox Roost Management Plan, Lorikeet Street Reserve is classified as a medium conflict roost. The goal in medium conflict roosts is to resolve or mitigate impacts between the community flying-foxes without major vegetation modification or active dispersal. Options include creation of vegetative buffers, public education and other mitigation measures. Management options such as dispersal and more intensive vegetation modification are treated as last resort options.

PROPOSED ACTIONS FOR LORIKEET STREET RESERVE:

Lorikeet Street Reserve has a range of competing interests including scenic amenity, local green space and biodiversity values. Any management action prescribed for the reserve relating to flying-fox management must account for these interests and not compromise them.

Vegetation Modification

Vegetation modification is prescribed for small areas of the reserve that are consistently used by flying-foxes, with particular emphasis on consistently affected residences at 2,4,6,8 and 10 Oak

Street. Vegetation in this area will require both Council action within the reserve and joint action on private property to be successful. As part of this vegetation modification the following is suggested:

- Removal of consistently used roosting trees close to houses on Oak Street
- Removal of weed species within the reserve, including Singapore daisy, purple succulents and exotic grasses

Work on private properties is subject to approval from the landholder and agreement with Council. Removal of these trees can be partially funded by Council subject to signing of a Licence Agreement between the two parties.

Any vegetation modification must comply with the Queensland Flying-fox Management Guideline, with particular emphasis on animal welfare and breeding seasons.

Heat Street Refuge

Densely vegetated areas on and behind 17 Paice Street are not used regularly as roosting vegetation for flying-foxes but have proven to be successful refuge areas during heat events. As such this area should remain in its current state for periodic refuge during 40^{o}C+ days.

Similarly dense areas behind 12 Paice Street provides valuable shade habitat during heat events. While retention of this habitat is recommended, this area can be considered as part of Joint Vegetation Modification should the landholder desire the removal of this vegetation.

The large hoop pine at the back of the reserve adjacent to 14-16 Thompson Street has also been identified as a crèche and maternity tree and should not be removed for any reason.

Creek Rehabilitation

Plantings completed or in progress throughout the creek area will not be altered or interfered with as a result of this management plan. Plantings in this project thus far have included species that are not likely to be suitable for flying-fox roost trees e.g. sandpaper figs and reed species.

Bushland Maintenance

In Bushland Maintenance zones current reserve management practice will remain in place. Flying-foxes use some of these areas occasionally, in particular during summer months. Vegetation modification is not currently recommended for these areas but can be reassessed on an as needs basis.

LEGISLATIVE RESTRICTIONS FOR RESIDENTS:

A self-assessable authority exists for councils and community members to conduct low-risk management activities in accordance with a Code of Practice – low impact activities affecting flying-fox roosts. This code sets out the prescribed methods for low impact activities that a person may undertake at a flying-fox roost including:

- No roost tree may be trimmed when there are flying-foxes in that part of the tree being trimmed, or when flying-foxes are near to the tree and likely to be harmed as a result of the trimming.
- Any trimming of roost trees must be limited to 10% of the total canopy of the roost.
- Low impact activities must immediately cease, and EHP be immediately notified, if a flying-fox appears to have been killed or injured; and
- Where low impact activities are required to be undertaken during the day time, works must immediately cease and EHP be immediately notified if 30% or more of the adult flying-foxes leave the roost for five minutes or more.

Examples of low impact activities include mowing, weeding and minor tree trimming under or near roost trees where flying-foxes are not present in the subject trees.

Residents can also apply for a Damage Mitigation Permit should they feel that additional and more intensive actions are required.

RECOMMENDED ACTIONS FOR RESIDENTS:

There are a number of things that affected residents can also do to mitigate the impacts of living next to a flying-fox colony, particularly when concerned with issues such a noise, smell and mess.

This includes:

- Use of car covers, garages and car shelters to reduce the impact of guano on vehicles
- Invest in a clothesline cover to reduce the impact of guano on washing
- Invest in high pressure cleaners to clean outdoor areas and furniture
- Use air condition and/or fans on hot, wet and humid days where smell is likely to be exacerbated.
- Using free plant allocations to plant a layer of aromatic plants can be an effective way to screen flying-foxes away from a particular area

TIMING:

Flying-foxes in Lorikeet Street Reserve will be monitored regularly throughout the coming months to determine the most appropriate time to conduct works. Particular attention needs to be payed to where mothers with dependent young are crèching their offspring during the night. Until it can be confirmed that no flying-foxes will be present in trees during the night, any vegetation modification works cannot commence. Given the late season babies in the colony this may not be until May or later. Flying-foxes may also leave the roost temporarily during winter, presenting ideal conditions for vegetation modification.

Conservation and Environment Committee	
Mtg Date: 18.06.2018	OAR: YES
Authorisation: Graeme Kane	

GD:GD
A4877972

6 June 2018

M E M O R A N D U M

TO: ACTING CHIEF OPERATING OFFICER
(HEALTH, SECURITY AND REGULATORY SERVICES)

FROM: EXECUTIVE SUPPORT AND RESEARCH OFFICER

RE: SUSTAINABILITY ADVISORY GROUP FEBRUARY 2018 MINUTES

INTRODUCTION:

This is a report by the Executive Support and Research Officer dated 6 June 2018 attaching the minutes of the Sustainability Advisory Group meeting held on 22 February 2018.

BACKGROUND:

Setting a sustainability vision and targets will require a whole of council response that is both bold and clear to address the challenges of growth and climate change. It was proposed that to progress the development of Council's Sustainability Strategy a cross-functional Advisory Group be established comprising Councillors and Senior Staff representatives, with participation by external stakeholders and subject matter experts as required. The role of the Advisory Group will be to ensure the framework, sustainability pathways, vision and targets of the Sustainability Strategy are adhered to.

ATTACHMENT/S:

Name of Attachment	Attachment
Minutes of the Sustainability Advisory Group meeting held on 22 February 2018	Attachment A

RECOMMENDATION:

That the report be received and the contents noted.

Gemma Dunne
EXECUTIVE SUPPORT AND RESEARCH OFFICER

I agree with the recommendation/s contained in this report.

Graeme Kane
ACTING CHIEF OPERATING OFFICER (HEALTH, SECURITY AND REGULATORY SERVICES)

Meeting Minutes

Meeting: Sustainability Advisory Group Date: 22 February 2018

Time: 3.30pm – 4.30pm Location: IGIC Presentation Room

Invitees *(A = Attended, D = Delegated, P = Apologies, N = Not present)*			
Invitee	**Name**	**Invitee**	**Name**
A	Mayor Andrew Antoniolli	A	Sean Madigan
A	Councillor Silver	A	Nick Vass-Bowen
P	Councillor Stoneman	A	Tiffany Rees
P	Councillor David Morrison	A	Gary Ellis
A	Councillor Sheila Ireland	A	Bryce Hines
A	Councillor Wayne Wendt	A	Kaye Cavanagh
A	Gemma Dunne	A	Nicole Grant
		A	Allison Grant

Item #	***Agenda***	***Outcomes and Action***	***Action By***	***Required By***	***Date Completed***
	Meeting Open	Meeting opened at 3.30pm			
	Minutes	Minutes were not attached. Previous minutes to be sent to all members	GD	ASAP	22.02.2018
Pathway 1 – Sustainability through education, awareness and community involvement					
	Container Refund Scheme	Paper presented to Group. Recommendation: Report to be provided to Council on potential partnership opportunity – ICC to be supporting partner and not the lead. Report to be compiled for a future C&E committee meeting.	BH		
	Recycle Mart Discussion Paper	Paper presented to Group. Recommendation: Submit paper to C&E committee for approval to advertise expressions of interest.	BH		
	Youth Sustainability Summit Feedback	Noted			
	Sustainable Future Forum	Noted			
	Sustainability Week	Noted Cr Silver mentioned the Tangalooma Ecomarines and proposed that we invite them to speak at the Youth Sustainability Summit.	NG		
Pathway 2 – Protection of urban ecology and the natural environment					
Pathway 3 – Corporate Sustainability					
	Waste to Energy Report	Recommendation Noted A report to be provided once Phase 2 of the	BH		

Meeting Minutes

Meeting: Sustainability Advisory Group | Date: 22 February 2018

Time: 3.30pm – 4.30pm | Location: IGIC Presentation Room

Item #	Agenda	Outcomes and Action	Action By	Required By	Date Completed
		project has been completed. It was suggested to change the options. Instead of the report stating the options are Business as Usual and 1a, 1b, 2a etc. for the options to be changed to A – G. Cr Silver also raised concerns about fly ash and would like a more detailed explanation on the environmental impacts.	BH		
Pathway 4 – Supporting sustainable industry					
	Nil Items				
Other Business					
	Guest Speaker Natalie Isaacs from 1 Million Women	Presentation 1 million women app - $5000 first year Foundation members remain at $2500 from second year onwards Natalie will send through a contract for legal to peruse – once complete a report to be compiled for next meeting to ascertain if we will join.			
10	Meeting Closed	5.15pm			

Conservation & Environment Committee	
Mtg Date: 18.06.18	OAR: YES
Authorisation: Bryce Hines	

sas: sas
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8 June 2018

M E M O R A N D U M

TO: CHIEF EXECUTIVE OFFICER

FROM: ACTING CHIEF OPERATING OFFICER (WORKS PARKS AND RECREATION)

RE: PROPOSED SOLAR FARM - WHITWOOD ROAD LANDFILL - PROPOSED DEED OF VARIATION - DIVISION 3

INTRODUCTION:

This is a report by the Acting Chief Operating Officer (Works Parks and Recreation) dated 8 June 2018 concerning the proposed deed of variation for the proposed solar farm at Whitwood Road, New Chum.

BACKGROUND:

At the Council Ordinary Meeting held on the 27 March 2018 the following resolution was adopted:

A. That Council negotiate the terms of a Deed of Variation with LMS Energy Pty Ltd ACN 059 428 474 to vary the scope of the existing contract No: 11808, as detailed in the report by the Acting Chief Operating Officer (Works, Parks and Recreation) dated 6 March 2018.

B. That the final Deed of Variation with LMS Energy Pty Ltd be submitted to Council for consideration and approval.

A copy of the report is shown in Attachment A.

DRAFT DEED OF VARIATION:

Staff from Works Parks and Recreation have been working closely with LMS Energy Pty Ltd to finalise a proposed draft deed of variation and suggested amendments to the current contract.

Council's Legal Branch have reviewed the draft deed of variation and has made some slight changes as shown in Attachment B in preparation for the agreement to be executed.

BENEFITS TO COMMUNITY AND CUSTOMERS:

This proposal benefits the community through maximising the utilisation of land with very little alternative uses. The site presents an ideal opportunity for a solar farm. By linking the proceeds received under the partnership to the purchase of green energy through our energy retailers Council can utilise green energy for a highly visible parkland allowing Council to further its sustainability agenda.

The royalty offered as part of the submission is acceptable based on the financial analysis of the proposal after taking into consideration the volatility around future electricity pricing.

CONCLUSION:

Council has been approached by LMS Energy and their wholly owned subsidiary to establish a solar farm in conjunction with their existing landfill gas system at Council's Closed Landfill at Whitwood Road, New Chum. The establishment of a solar farm at this site is an excellent opportunity to maximise the use of land will little alternative uses while also allowing Council to demonstrate its commitment to sustainability.

ATTACHMENT/S:

Name of Attachment	Attachment
March 2018 Committee Report	Attachment A
Deed of Agreement (Track Changes)	Attachment B
Deed of Agreement (Clean Skin)	Attachment C

RECOMMENDATION:

A. That Council enter into a Deed of Variation with LMS Energy Pty Ltd ACN 059 428 474, to amend Contract No. 11808 as detailed in Attachment C of the report by the Acting Chief Operating Officer (Works Parks and Recreation) dated 8 June 2018.

B. That the Chief Executive Officer be authorised to negotiate and finalise the terms of the Deed of Variation with LMS Energy Pty Ltd to be executed by Council, and to do any other acts necessary to implement Council's decision in accordance with section 13(3)(c) of the Local Government Act 2009.

Bryce Hines
ACTING CHIEF OPERATING OFFICER (WORKS PARKS AND RECREATION)

Conservation and Environment Committee	
Mtg Date: 19.03.18	OAR: YES
Authorisation: Bryce Hines	

BH:BH
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6 March 2018

M E M O R A N D U M

TO: CHIEF EXECUTIVE OFFICER

FROM: ACTING CHIEF OPERATING OFFICER (WORKS PARKS AND RECREATION)

RE: PROPOSED SOLAR FARM – WHITWOOD ROAD LANDFILL
DIVISION 3

INTRODUCTION:

This is a report by the Acting Chief Operating Officer (Works, Parks and Recreation) dated 6 March 2018 concerning a proposal to establish a solar farm on Council's Closed Landfill situation at Whitwood Road, New Chum.

BACKGROUND:

During the operating life of the Whitwood Rd Landfill, Council entered into an agreement with LMS Energy to extract landfill gas from the landfill and utilise it to generate electricity. LMS Energy through their wholly owned subsidiary Joule Energy have approached Council to expand this operation with the establishment of a solar farm to augment the energy generation from landfill gas system. The full proposal from Joule Energy including the commercial proposition is provided as Attachment A.

The summary of the arrangement is that Joule Energy would be responsible for all elements including capital provision, construction and operations and would pay Council an agreed amount for the utilisation of the site. Legal advice has indicated that the contractual arrangements for the proposal can be dealt with through a Deed of Variation to the existing contract.

The first stages of the proposed solar farm are expected to have a capacity of 1.5Mw's which is enough to power approximately 600 homes. A possible third stage utilising the recently capped landfill area once settlement has occurred has also been proposed. Once complete the entire facility would have a capacity of 5-6Mw's which is enough to power approximately 2,000 homes.

While under existing power grid arrangements it is difficult to link the power generated by the solar farm to Council's electricity usage, there is an opportunity to promote both the solar farm and renewable energy through utilising the funds paid to Council by Joule Energy to acquire renewable energy from Council's energy retailers.

After a review of Council's energy usage it has been identified that the funds received from the development of the solar farm is approximately equivalent to the costs of providing green energy for River Heart Parklands. It is therefore proposed that the proceeds from the agreement with Joule Energy be utilized to purchase green energy for River Heart Parklands.

Should Council approve this approach, signage promoting this partnership and the use of green energy for River Heart Parklands would be erected to promote the initiative.

Joule Energy have indicated that should Council approve the partnership as per attachment A and subject to all necessary statutory approvals being received, the solar farm could be in operation in the first quarter 2019.

BENEFITS TO COMMUNITY AND CUSTOMERS:

This proposal benefits the community through maximising the utilisation of land with very little alternative uses. The site presents an ideal opportunity for a solar farm. By linking the proceeds received under the partnership to the purchase of green energy through our energy retailers Council can utilise green energy for a highly visible parkland allowing Council to further its sustainability agenda.

CONCLUSION:

Council has been approached by LMS Energy and their wholly owned subsidiary to establish a solar farm in conjunction with their existing landfill gas system at Council's Closed Landfill at Whitwood Road, New Chum. The establishment of a solar farm at this site is an excellent opportunity to maximise the use of land will little alternative uses while also allowing Council to demonstrate its commitment to sustainability.

CONFIDENTIAL BACKGROUND PAPERS:

This Confidential Background Paper is to be considered in a closed meeting Pursuant to Section 275(1)(e) of the Local Government Regulation 2012.

Name of Confidential Attachment	Confidential Attachment
Joule Energy Proposal – Commercial in Confidence	Attachment A

RECOMMENDATION:

Amended CE Ctee No. 2018(03) of 19 March 2018

A. That Council ~~enter~~ negotiate the terms of~~into~~ a Deed of Variation with LMS Energy Pty Ltd ACN 059 428 474 to vary the scope of the existing contract No: 11808, as detailed in the report by the Acting Chief Operating Officer (Works, Parks and Recreation) dated 6 March 2018.

~~B. That the Chief Executive Officer be authorised to finalise the terms of the Deed of Variation to the existing contract Number 11808 with LMS Energy Pty Ltd ACN 059 428 474 and do any other acts necessary to implement Council's decision in accordance with section 13(3)(c) of the *Local Government Act 2009*.~~

~~C. That the Chief Executive Officer be authorised to negotiate and finalise the proceeds from the Deed of Variation to be executed by Council, and to do any other acts necessary to implement Council's decision in accordance with section 13(3) (c) of the *Local Government Act 2009*.~~

B. That the final Deed of Variation with LMS Energy Pty Ltd be submitted to Council for consideration and approval.

Formatt

Bryce Hines
ACTING CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)

LANDFILL GAS CONTRACT
AMENDING AGREEMENT
("Agreement")

THIS AGREEMENT is made 2018

BETWEEN THE PARTIES

PARTIES

IPSWICH CITY COUNCIL ABN 61 461 981 077 (**Owner**) of 50 South Street, Ipswich, Queensland, 4305; and

LMS ENERGY PTY LTD ~~ABN 39 059 428 474~~ACN 059 428 474 (**LMS**) of 79 King William Road, Unley, South Australia 5061.

BACKGROUND

A. The Owner and LMS are parties to a Landfill Gas Contract dated 26 August 2002 ("the Contract").

B. On 3 November 2006, Landfill Management Services changed its name to LMS Generation Pty Ltd in accordance with section 157 of the *Corporations Act 2001* (Cth).

C. On 2 April 2012, LMS Generation Pty Ltd changed its name to LMS Energy Pty Ltd in accordance with section 157 of the *Corporations Act 2001* (Cth).

D. In 2016, LMS, through its wholly owned subsidiary Joule Energy Pty Ltd (ACN 053 307 761), identified Whitwood Landfill as a potential solar power generation site. Joule is a company specialising in the installation and management of solar power generation on landfill sites.

E. The Owner has agreed to make the Site available to LMS for solar power generation.

F. LMS has agreed to be responsible for costs and expenses incurred in installing solar power generation equipment and producing solar power.

G. The parties have agreed to ~~amend~~ a variation of the Contract only to the extent as provided for in this Agreement ~~as set out below.~~

IT IS AGREED by the parties, ~~in consideration of their mutual covenants and~~ in accordance with clause 24 of the existing ~~Contact~~contract, to vary the existing contract as follows:

1. Definitions and Interpretation

1.1 Each capitalised term used in this Agreement has the meaning ascribed to it in the Contract.

1.2 The provisions of clause 1.2 of the~~–~~ Contract apply in the interpretation of this Agreement.

2. Amendments

2.1 The Contract is amended by replacing the original First Schedule (Site Plans) with the First Schedule attached to this Agreement.

2.2 Clause 1.1 is amended by inserting immediately after "***Site***":

Solar Power Facility *means a photovoltaic solar power system and its associated infrastructure;*

Solar Power Facility Site *means that part of the Site located on the plan set out in the First Schedule; and*

2.3 Clause 3 is amended by inserting after subclause 3.4:

3.5 The Owner grants to LMS exclusive rights to construct and operate the Solar Power Facility on the Solar Power Facility Site for the term of this Contract and, notwithstanding any provisions to the contrary, LMS is entitled to any right and benefit that accrues from the Solar Power Facility.

3.6 The Owner shall not, during the term of this Contract, install a Solar Power Facility on the Site and/or permit a party other than LMS or a Related Body Corporate to do so.

2.4 Clause 4.1 is amended by inserting after subclause 4.1(c):

(d) the connection of electricity and other services to the Solar Power Facility including laying cables for that purpose along such route or routes as the parties shall agree upon, provided that cables do not interfere with the operations of the Owner.

2.5 Clause 4 is amended by inserting after subclause 4.9:

4.10 The Owner grants to LMS an exclusive licence to use the Gas Utilisation Facility Site for such purpose upon and subject to the terms of this Contract. The Owner will also grant LMS a right to access the Gas Utilisation Facility Site at all times with vehicles, plant and equipment by a reasonably acceptable and agreed route.

4.11 The Owner grants to LMS an exclusive licence to use the Solar Power Facility Site for such purpose upon and subject to the terms of this Contract. The Owner will also grant LMS a right to access the Solar Power Facility Site at all times with vehicles, plant and equipment by a reasonably acceptable and agreed route.

2.6 The Contract is amended by inserting "*and the Solar Power Facility"* after "*Gas Utilisation Facility"* wherever it appears in clause 5.

2.7 Clause 7.1 is amended by inserting "*and the Solar Power Facility,*" after "*Gas Utilisation Facility*" and by inserting "*or the Solar Power Facility Site as the case may be"* after "*Gas Utilisation Facility Site"* wherever the terms appear.

2.8 Clause 8.2 is amended by inserting "*and Solar Power Facility*" after "*Gas Utilisation Facility*".

2.9 Clause 11 is amended by inserting after clause 11.4:

11.5 In consideration of the rights to construct and operate a Solar Power Facility on the Site, LMS shall pay to the Owner an annual Licence Fee of $10,000, which shall be escalated annually by the Australian Consumer Price Index.

11.6 The Owner shall prepare and issue a Licence Fee invoice within 30 days of the date of the Amending Agreement and annually thereafter on the anniversary

of the date of the Amending Agreement. LMS shall pay the Licence Fee within 30 days of the receipt by LMS of a tax invoice issued by the Owner.

2.10 Clause 12 is amended by inserting "*or the Solar Power Facility*" after "*Gas Utilisation Facility*" wherever the term appears.

2.11 The Contract is further amended by replacing "*facsimile communication*" and "*facsimile*" with "*email*" and by deleting LMS' details for service of notices at clause 20 and inserting:

Name:	*LMS Energy Pty Ltd*
Address for deliveries:	*79 King William Road, Unley, SA 5061*
Postal address:	*79 King William Road, Unley, SA 5061*
Email:	*info@lms.com.au*
Attention:	*Chief Executive Officer*

3. General

3.1 This agreement takes effect on its date unless the parties otherwise agree in writing.

3.2 The parties confirm that the Contract remains in full force and effect, except for any variations as amended by this agreement.

EXECUTED by the parties as a deed.

~~The **COMMON SEAL** of **IPSWICH CITY COUNCIL** the fixing of which was witnessed by~~

IPSWICH CITY COUNCIL
Signed by [**Insert Name, Insert Position**] on
[**Insert Date**]
as duly authorised Council delegate
in accordance
with section 236 the *Local Government Act 2009*

Witness

Name of Witness (Print)

.....

~~.....~~
~~Signature of authorised person~~

~~.....~~
~~Name of authorised person~~

~~.....~~
~~Signature of witness~~

~~.....~~
~~Name of witness~~

EXECUTED by **LMS ENERGY PTY LTD** by being signed by those persons who are authorised under its Constitution to sign for the company

.....
Signature of Director

.....

.....
Signature of Director/Secretary

.....

Name Name

LANDFILL GAS CONTRACT
AMENDING AGREEMENT
("Agreement")

THIS AGREEMENT is made 2018

BETWEEN THE PARTIES

PARTIES

IPSWICH CITY COUNCIL ABN 61 461 981 077 (**Owner**) of 50 South Street, Ipswich, Queensland, 4305; and

LMS ENERGY PTY LTD ACN 059 428 474 (**LMS**) of 79 King William Road, Unley, South Australia 5061.

BACKGROUND

A. The Owner and LMS are parties to a Landfill Gas Contract dated 26 August 2002 ("the Contract").

B. On 3 November 2006, Landfill Management Services changed its name to LMS Generation Pty Ltd in accordance with section 157 of the *Corporations Act 2001* (Cth).

C. On 2 April 2012, LMS Generation Pty Ltd changed its name to LMS Energy Pty Ltd in accordance with section 157 of the *Corporations Act 2001* (Cth).

D. In 2016, LMS, through its wholly owned subsidiary Joule Energy Pty Ltd (ACN 053 307 761), identified Whitwood Landfill as a potential solar power generation site. Joule is a company specialising in the installation and management of solar power generation on landfill sites.

E. The Owner has agreed to make the Site available to LMS for solar power generation.

F. LMS has agreed to be responsible for costs and expenses incurred in installing solar power generation equipment and producing solar power.

G. The parties have agreed to a variation of the Contract only to the extent as provided for in this Agreement

IT IS AGREED by the parties, in accordance with clause 24 of the existing contract, to vary the existing contract as follows:

1. Definitions and Interpretation

1.1 Each capitalised term used in this Agreement has the meaning ascribed to it in the Contract.

1.2 The provisions of clause 1.2 of the Contract apply in the interpretation of this Agreement.

2. Amendments

2.1 The Contract is amended by replacing the original First Schedule (Site Plans) with the First Schedule attached to this Agreement.

2.2 Clause 1.1 is amended by inserting immediately after "***Site***":

Solar Power Facility *means a photovoltaic solar power system and its associated infrastructure;*

Solar Power Facility Site *means that part of the Site located on the plan set out in the First Schedule; and*

2.3 Clause 3 is amended by inserting after subclause 3.4:

3.5 The Owner grants to LMS exclusive rights to construct and operate the Solar Power Facility on the Solar Power Facility Site for the term of this Contract and, notwithstanding any provisions to the contrary, LMS is entitled to any right and benefit that accrues from the Solar Power Facility.

3.6 The Owner shall not, during the term of this Contract, install a Solar Power Facility on the Site and/or permit a party other than LMS or a Related Body Corporate to do so.

2.4 Clause 4.1 is amended by inserting after subclause 4.1(c):

(d) the connection of electricity and other services to the Solar Power Facility including laying cables for that purpose along such route or routes as the parties shall agree upon, provided that cables do not interfere with the operations of the Owner.

2.5 Clause 4 is amended by inserting after subclause 4.9:

4.10 The Owner grants to LMS an exclusive licence to use the Gas Utilisation Facility Site for such purpose upon and subject to the terms of this Contract. The Owner will also grant LMS a right to access the Gas Utilisation Facility Site at all times with vehicles, plant and equipment by a reasonably acceptable and agreed route.

4.11 The Owner grants to LMS an exclusive licence to use the Solar Power Facility Site for such purpose upon and subject to the terms of this Contract. The Owner will also grant LMS a right to access the Solar Power Facility Site at all times with vehicles, plant and equipment by a reasonably acceptable and agreed route.

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2.9 Clause 11 is amended by inserting after clause 11.4:

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11.6 The Owner shall prepare and issue a Licence Fee invoice within 30 days of the date of the Amending Agreement and annually thereafter on the anniversary of the date of the Amending Agreement. LMS shall pay the Licence Fee within 30 days of the receipt by LMS of a tax invoice issued by the Owner.

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Attention:	*Chief Executive Officer*

3. General

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3.2 The parties confirm that the Contract remains in full force and effect, except for any variations as amended by this agreement.

EXECUTED by the parties as a deed.

_____

IPSWICH CITY COUNCIL
Signed by [**Insert Name, Insert Position**] on
[**Insert Date**]
as duly authorised Council delegate
in accordance
with section 236 the *Local Government Act 2009*

_____
Witness

_____
Name of Witness (Print)

.....

EXECUTED by **LMS ENERGY PTY LTD** by being signed by those persons who are authorised under its Constitution to sign for the company

.....	.....
Signature of Director	Signature of Director/Secretary
.....	.....
Name	Name