City of Ipswich

Floodplain Management Strategy

#FloodSmart

Ipswich.qld.gov.au

City of Ipswich

Resources

Ipswich City Council – Ipswich.qld.gov.au

Queensland Flood Commission – Floodcommission.qld.gov.au

Get Ready Queensland – Getready.qld.gov.au

Queensland Reconstruction Authority – Qldreconstruction.org.au

Bureau of Meteorology – Bom.gov.au

Brisbane River Catchment Flood Studies – Qld.gov.au/environment/water/catchments/brisbane-river-studies/

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Untitled by D Neumann
Enviroplan Photographic Competition 2012

Background

Sunset on the Bremer Bridge by S Gardner
Enviroplan Photographic Competition 2014

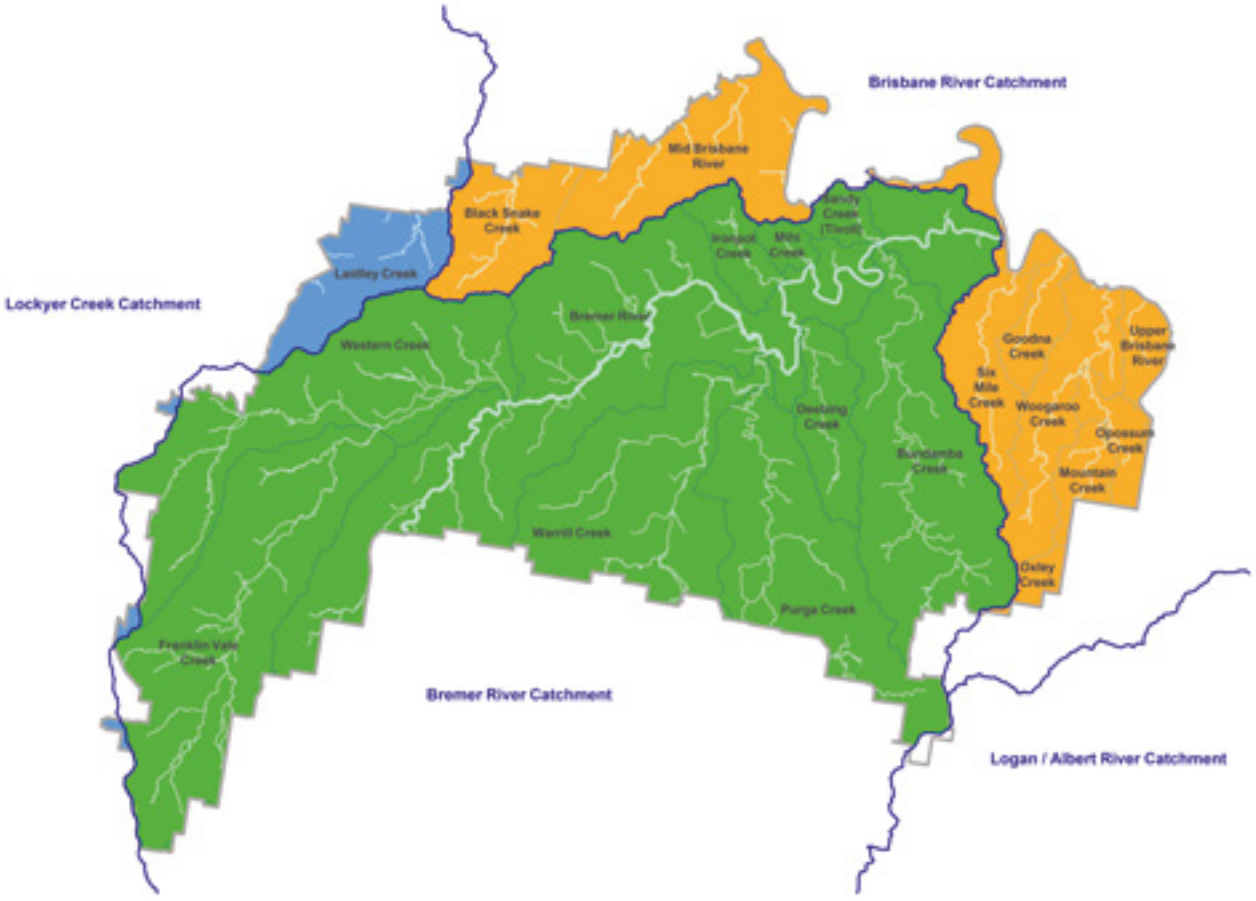
Ipswich is a city with a complex flood story due to its location on both the floodplains of the Bremer and Brisbane Rivers. The Bremer River is an important part of the much larger Brisbane River catchment (13,570km^2 in size) and river levels are also influenced by tides from Moreton Bay.

Flooding has always been a natural occurrence in the region and this was recorded as early as 1824 by the explorer John Oxley. While riverine floods usually dominate, flooding also occurs along the many local creeks, as well as numerous overland flow paths which exist. In terms of rainfall, Ipswich typically receives approximately half its average yearly rainfall (900mm) in the months of December to March.

The majority of the Ipswich Local Government Area (LGA) lies within the lower Bremer River floodplain. The upper catchment areas lie within the Scenic Rim floodplain whilst the north-eastern and north-western parts are located directly on the Brisbane River floodplain. The Brisbane River also forms the city's north eastern boundary. The Bremer River catchment has a total size of approximately 2,030km^2 with a 100km river length from its source in the Scenic Rim to the Brisbane River.

A number of major creeks flow into the Bremer River within Ipswich, namely the Western (Franklin Vale), Warrill (Purga), Ironpot, Mi Hi, Deebing and Bundamba Creeks. The Six Mile, Goodna, Woogaroo and Sandy Creeks flow directly into the Brisbane River along the city's north-east boundary. Black Snake Creek, which flows through the township of Marburg, also feeds into the Brisbane River at Fernvale.

Urban development in Ipswich has historically been concentrated along the Bremer River and the eastern creeks, primarily along the Deebing, Bundamba, Six Mile, Goodna and Woogaroo Creeks. The City is currently experiencing a high level of urban development in the Ripley Valley area (Bundamba Creek), Springfield area (Woogaroo Creek) and Redbank Plains as well as Collingwood Park areas (Six Mile Creek). This level of growth has been acknowledged in the recently adopted Advance Ipswich (the plan) with the state forecasting a population growth to 435,000 people by the year 2031 from the current population of approximately 190,000.



What is Floodplain Management

Travelling the Water Ways by T Percy-Greer
Enviroplan Photographic Competition 2015

Floodplain management (also referred to as flood risk management) is a hierarchical process which ultimately aims to manage the expected flooding risks within an area to an acceptable level.

As most cities are historically located within floodplains, the process aims to find a balance between increasing community resilience to floods while facilitating the use of the floodplain for appropriate purposes as a valuable and sustainable resource. There are many aspects to the floodplain management process.

Purpose of the Strategy

In consideration of Ipswich's flood background and location, this Floodplain Management Strategy (FMS) aims to formalise a strategy document on Ipswich's progress in the management of flooding, align with the city's Integrated Water Strategy and future focus of the city outlined in Advance Ipswich.

The objectives of the strategy are to:

- communicate the city's vision and goals in relation to floodplain management
- provide information on Ipswich flooding matters and ways in which Ipswich is managing flood risks
- provide a platform for a consistent approach on current and future floodplain management activities
- be a document to communicate and engage with the community on flood issues.

Ipswich's Flood Story

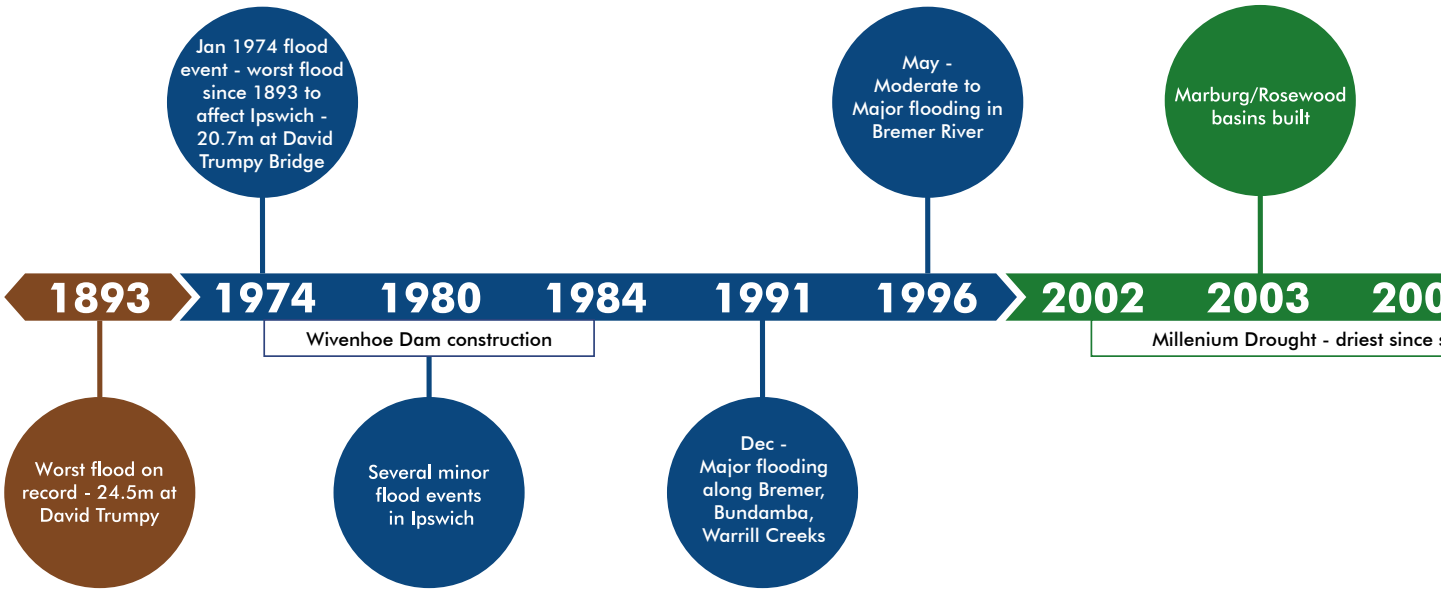
The risk of flooding has always been an issue for Ipswich, typically within the summer months whether from ex-tropical cyclones travelling from the state's north or from summer thunderstorms in the region. The city has experienced a number of notable flood events:

- **1893** – The largest known flood on record in Ipswich and Brisbane. The record of 24.5m AHD (Australian Height Datum) at the city gauge still stands today.

- **1974** – The second largest flood to occur in Ipswich and Brisbane when the city gauge reached a level of 20.7m AHD. While most of the flooding in Ipswich was attributed to floods from the Bremer River basin, the overall destruction from the Brisbane River in Brisbane was one factor which accelerated the construction of Wivenhoe Dam.

- **2011** – Third largest flood to occur in Ipswich and Brisbane. Unlike the 1974 flood where flooding was dominated by the Bremer River, flooding in the Ipswich LGA was dominated by high levels of backwater from the Brisbane River. The city gauge reached a level of 19.3m AHD.

The January 2011 event, despite not reaching the level of the 1974 flood, was noteworthy for its widespread impact to Queensland whereby more than 75% of the state were declared as disaster areas. The scale and losses attributed to the January 2011 flood brought the issue of flooding back into the spotlight and resulted in the Queensland Flood Commission of Inquiry (QFCI) between 2011 and 2012. The QFCI investigated a range of subject matters and resulted in recommendations for improvement to be implemented by the three levels of government



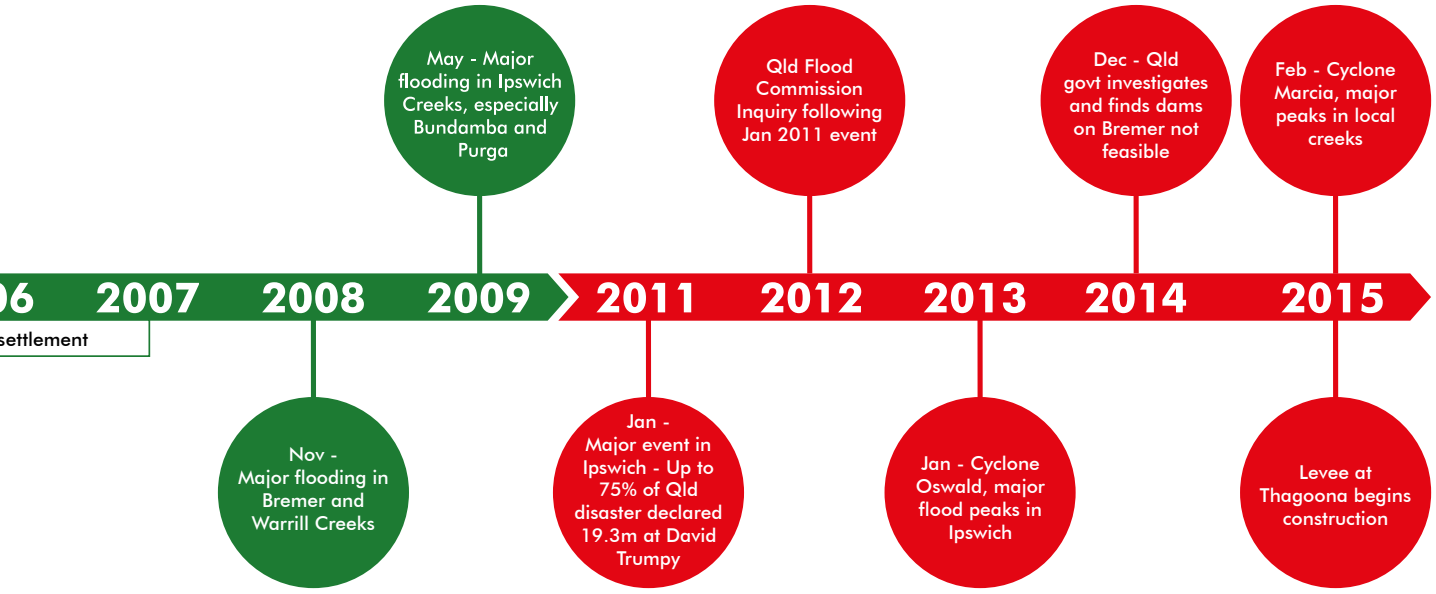
(federal, state and local government) and associated agencies.

A number of these recommendations have been completed including:

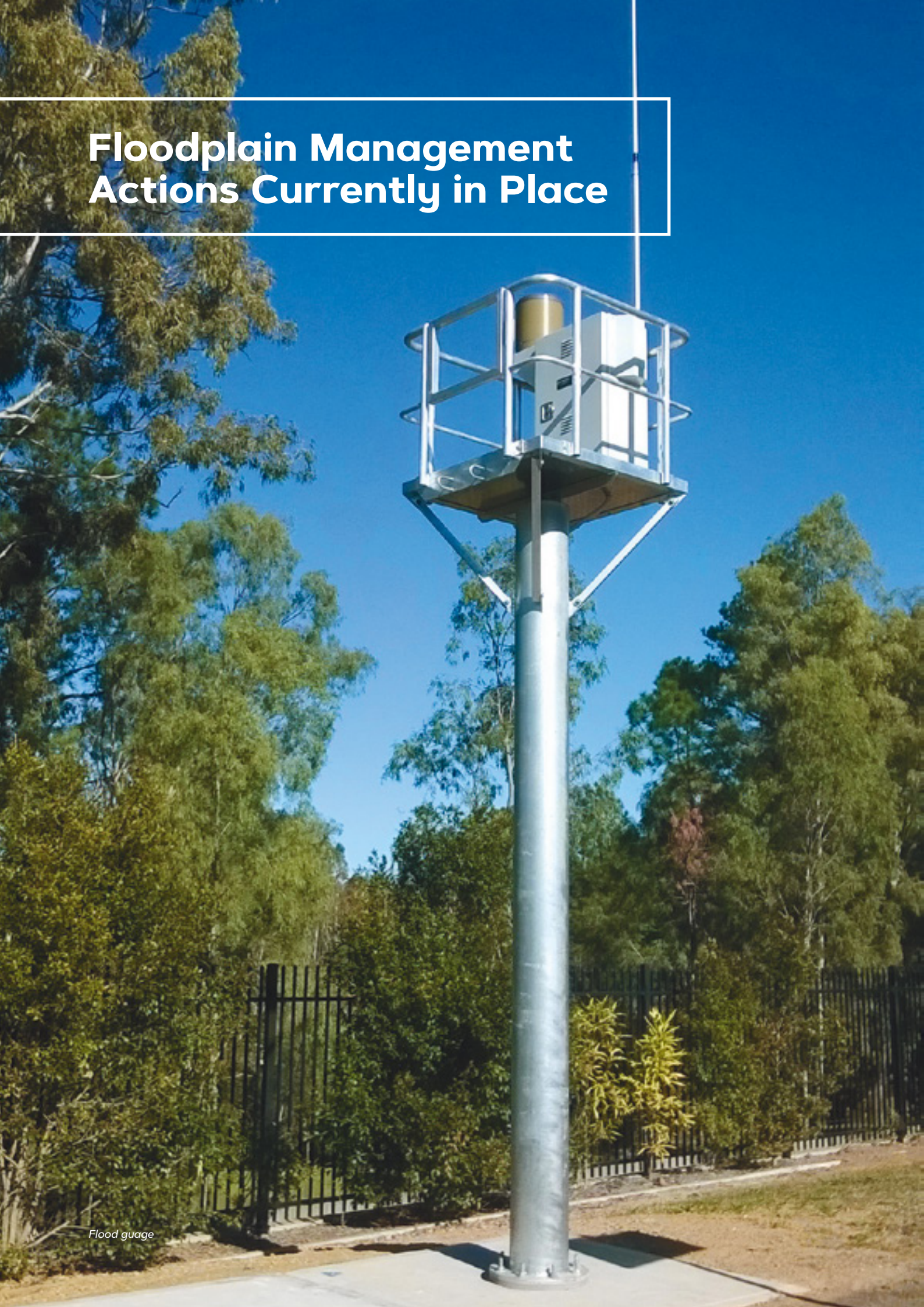
- completion of flood studies in urban catchments which allow council to understand flooding behaviour which could then lead to the assessment and implementation of floodplain management actions
- making historical flood extents available for the community to improve understanding of past flooding
- review of the City's Planning Scheme which provide guidance on current and future developments
- progression of floodplain mitigation options
- continuous engagement with the community via community safety programs such as the 'RACQ Get Ready' campaign.

The January 2011 event also reinforced the fact that Wivenhoe Dam could only provide a limited measure of protection from flood risks. While the dam could mitigate floods originating from the upper half of the Brisbane River catchment (approximately 7,500km^2 in size), the risk to Ipswich of floods originating from rivers and creeks downstream of the dam such as the Bremer River and Lockyer Creek would remain.

A timeline of notable flood related events in Ipswich is below.



Floodplain Management Actions Currently in Place



Flood guage

Planning scheme

Ipswich City Council's main land use planning tool for floodplain management (relating to development) is through the city's Ipswich Planning Scheme.

The Planning Scheme strategically governs and guides the city's development. The primary form of regulation is through an Adopted Flood Regulation Line (AFRL) and associated codes and provisions which assist in identifying suitable areas for development, setting development levels and land use outcomes. The Planning Scheme is continually revised as required in response to changing policy, technology and best practice with major reviews at mandated regular intervals.

Revisions to the Planning Scheme often include input from the community. In addition, the prescriptive guideline "Implementation Guideline No. 24 Stormwater Management" is also used extensively in supporting the Planning Scheme when assessing developments.

Flood data

One of the key information sources for floodplain management is flood data, either from actual historical floods or from flood studies. Both of these complement understanding on the nature and extent of flooding within the city's boundaries.

The city continually undertakes studies of important creeks and areas of interest, for example a study of those subject to stormwater flows since the 1990s. A major flood study program was undertaken between 2010 and 2014 during which time council completed more than 20 flood studies across various creeks and urban catchments in Ipswich, for a variety of purposes ultimately providing further understanding of flooding within Ipswich. From these studies, floodplain management actions could be assessed and prioritised.

A key recommendation from the Queensland Flood Commission of Inquiry's (QFCI) is the Brisbane River Catchment Flood Study (BRCFS). This is a major study which models a spectrum of different flood events for the Brisbane River catchment at a regional level (the catchment is 13,570km^2 in size).

This study uses the latest modelling techniques and is currently being managed by the Queensland Government with active participation from various stakeholders, including Ipswich City Council.

The BRCFS will develop a regional floodplain management strategy and plan as early as 2018. This BRCFS will, for the first time, provide a consistent region-wide flood model for the Brisbane River catchment which will include the lower Bremer River. Council's existing flood studies will be reviewed and updated to ensure consistency when the BRCFS is completed.

Flood gauge network

Ipswich City Council and the Bureau of Meteorology maintain a network of 38 rainfall and river level measurement gauges across Ipswich. These gauges provide a continuous record and valuable intelligence during periods of rainfall and floods. The data from these gauges is also used by BOM to inform their flood forecast warnings.

This network is also augmented by gauges operated by other agencies such as Seqwater and the Department of Natural Resources, Mines and Energy (DNRME). The information from these gauges is shared among all the agencies and is also publicly available through BOM's website.

Emergency preparedness and response

Ipswich City Council has established a Local Disaster Management Plan (LDMP) which was prepared in conjunction with various state and non-government partner agencies. This plan provides the necessary guidance to prepare and enhance the city's ability to respond to the impact from floods as well as other threats through effective pre-planning and preparation. The plan is an important tool for managing the impact from potential disasters and is a demonstrated commitment towards enhancing the safety of the community.

Under the Local Disaster Management Plan, council acts as the primary control agency for floods and severe storm events. The procedures in the LDMP are periodically updated and include a flood intelligence monitoring team which provides support during major rainfall events or for predicted flood events designated by BOM via their flood forecast warnings. The flood monitoring intelligence team rely on the flood gauge network (and other data and state of the art models) to provide effective intelligence.

Council also recently implemented an Early Warning Network service whereby residents who register to the service will receive alerts on dangerous weather warnings.

Structural mitigation

Major structural mitigation projects completed in Ipswich include the two regional detention basins protecting the towns of Marburg and Rosewood. These basins were constructed in 2003 and have proven their worth by reducing the impacts of flooding on properties over a number of heavy rainfall events, such as those in 2008 and 2009.

A number of recent structural mitigation works are also nearing completion, including a flood levee to protect the township of Thagoona and upgrades to the current Rosewood detention basin which would provide additional relief from flooding in the township.

Other structural mitigation outside the Ipswich LGA such as Wivenhoe and Somerset Dams also provide a measure of protection from regional floods originating from the upper Brisbane River catchment. The responsibilities for these lie with their respective councils and management entities.

Integrated natural resource outcomes

Council also actively considers flood resilience building projects which can provide multiple outcomes, whether it improves water quality or environmental outcomes as well as mitigating the risk of flooding. Some of these projects provide not only the potential to reduce flooding levels in urban areas but also provide council and the community with new recreational spaces and potential reuse of captured floodwaters for irrigation. Recent projects of this nature include the Redbank Recreational Reserve and Jim Donald Parklands. Both of these projects incorporate elements of flooding reduction together with water quality improvement, harvesting and reuse as well as providing the local community with recreational areas and parklands.

There is also the potential for further integrated outcomes when the city's creek corridor plans are progressively developed and adopted. These corridor plans aim to provide high level over-arching direction on how these creeks could be developed to achieve a range of outcomes, including floodplain management.

Information sharing with the community

Council provides a variety of flood related information to the public, including historical flooding information through the flood map search tool on Council's planning website and the Adopted Flood Regulation Line (AFRL) which informs the regulation of development through Council's Planning Scheme. Council also engages with the community via information tools such as social media, particularly during flood events or periods of heavy rainfall.

Council regularly participates in public campaigns which aim to improve the preparedness of the community in regards to disaster and emergency scenarios. Such campaigns require a commitment to disseminate meaningful and useful information to the at risk community, as embodied by events such as the RACQ's Get Ready campaign which was aimed at encouraging the community to prepare emergency plan and kits, as well as the ability to obtain the latest information or warnings before, during and after events.

Wetland establishment at Redbank Plains Recreation Reserve

Ipswich's Future Priorities

Bremer River at Night by P Rettke
Enviroplan Photographic Competition 2014

Continue to build flood knowledge and understanding

- Continue to identify areas with limited flood information, collect data in these areas and update existing studies to maintain relevance in accordance with the city's priorities and requirements.
- Improve public availability of findings from recent flood studies to inform the community better.
  - Summary fact sheets to be prepared for recent catchment flood studies and made available to the public.
  - Update council's website to include a more comprehensive flood portal including catchment descriptions, key data and summary fact sheets.
- When completed, the BRCFS will provide a new baseline flood study for the South-East region. This will trigger a review of existing studies including a revised flood study of the Bremer River using latest modelling techniques.
  - Incorporate the regional BRCFS outcomes into council's overall Floodplain Management Strategy and Planning Scheme.
  - Complete a sub-regional Bremer River model (including its tributaries) to be consistent with the regional BRCFS outcome and update existing creek models.
- Continue to integrate with other flood databases to ensure consistent information is available across all levels of government and to the public.
  - Queensland has a Floodcheck database which was a result of the QFCI recommendation and at a Federal level, an Australian Flood Study Database. Council will continue to contribute to these databases.
- Continue to improve mapping of the city's urban overland flow paths through the continued use of latest modelling technologies and evolving best practice.

Continuous improvement in Floodplain Management

- Review the Ipswich Planning Scheme following release of the Brisbane River Catchment Flood Study (BRCFS) to move to a full risk-based approach to floodplain management.
  - Subject to integration / alignment of the catchment and sub-catchment flood studies with the BRCFS, full incorporation of those studies in defining the Adopted Flood Regulation Line and regulating development within the city.
- Review and refine guidelines which govern flood controls including measures aimed at improving resilience for new developments and to encourage integrated waterway outcomes such as Council's creek corridor plans and strategies.
- Incorporate a consistent approach to account for climate change.
- Review the feasibility of a program to help manage the impacts of flooding on existing properties which are at risk from flooding.

Maintain capacity and function of current stormwater infrastructure

- Maintain flood mitigation and planning controls to ensure capacity of current stormwater infrastructure is not overwhelmed.
- Develop sub-catchment scale mitigation strategies in areas where there is limited stormwater network improvement potential.
- Continue to find ways to progressively manage existing flooding issues in older urbanised parts of Ipswich that will have very limited potential for stormwater upgrades.
- Continue to forward plan and prioritise upgrades as well as new stormwater infrastructure across the city, including the use of sub-catchment area strategies and other structural mitigation measures.
    - Council will maintain a yearly prioritisation list of stormwater infrastructure and flood mitigation projects.

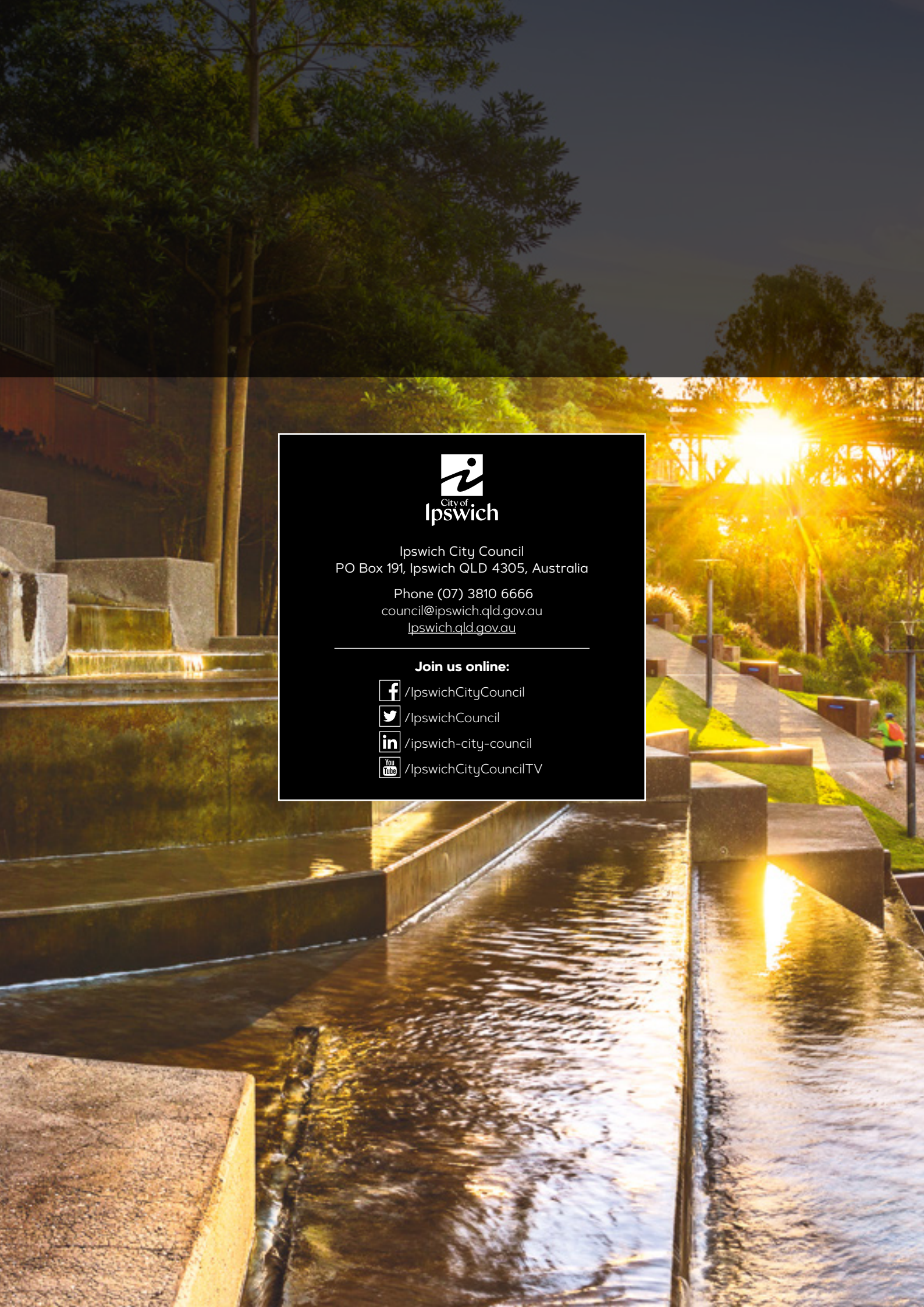
Enhance community understanding, awareness and acceptance of flood risk and appropriate responses

- Continue to engage with the community with regards to flood study information and level of preparedness, such as ongoing community programs.
- Continue to improve in advising the community of ways to access flooding information using current and emerging communication technologies.

Improve collaboration across agencies

- Continue to develop and maintain relationships in cross-agency engagement (BOM, Brisbane City Council, Scenic Rim Regional Council, Queensland Rail, Seqwater etc.) before, during and after a flood event.
    - Continue to participate in interagency flood preparedness meetings prior to the wet season and throughout the year.
    - Establish and maintain protocols for communication and requirements across entities.
    - Engage and collaborate with agencies who have common infrastructure commitments to ensure community wide benefits.

God's Promise by P Rettke
Enviroplan Photographic Competition 2013



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