City of Ipswich

Land Use Planning – Ipswich Integrated Catchment Plan

Discussion paper November 2020

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City of Ipswich

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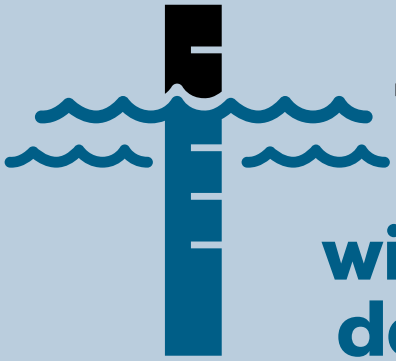
CHAPTER GOAL

To review existing and future planning controls that mitigate flooding risk, analyse potential changes in risk under future development scenarios, and provide recommendations for risk-based land use planning responses in Ipswich.

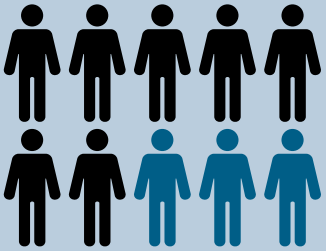
MANAGING FUTURE FLOODS SURVEY

The survey had **190 respondents** from **51 Ipswich suburbs** in late 2019.



70% also believed we would have a major flood **within a decade**.

70% thought a flood bigger than **1974** or **2011** was possible.



'Development controls' was selected as the most important measure for managing flood risk in Ipswich.

84% expected Council reports to have information on the level of flood risk to their home.

THE PROCESS

The findings from this chapter will provide direct benefit to council's draft new Ipswich Planning Scheme and long-term strategic land use planning responses to flooding.

REVIEW

- Existing planning controls (State Planning Policy and Ipswich Planning Scheme)
- Draft new planning scheme flood overlay
- Alignment with best practice floodplain management.

DETAILED MODELLING

- Understanding future changes to risk based on development scenarios
- Understanding areas of floodplain sensitive to changes in flooding behaviour.

DATA ANALYSIS

- Combination of all flood risk factors analysed in the Ipswich Integrated Catchment Plan (IICP), such as flood water hazard and how the water affects infrastructure and the community
- Reviewing these factors in the context of the current and draft planning schemes.

FINAL REPORT

- The IICP will provide considerations to support the development of codes and overlays in the draft new Ipswich Planning Scheme and long-term strategic land use planning responses to flooding.

WHAT WE FOUND

Land use planning and development control are some of the most cost-effective options for minimising future flood risk.

Flood information is used to inform land use planning to ensure new developments are built away from areas of incompatible flood risk, or take appropriate measures to manage the flood risk posed to the development.

State, regional and local planning instruments all have a role in ensuring development maintains an 'acceptable' or 'tolerable' flood risk by maximising storage potential of the floodplain and by ensuring no increase in run-off from new developments.

This concept of 'tolerability' (see p6) helps us identify what might be appropriate to manage the flood risk of a particular area. This might include where to locate certain facilities such as aged care or hospitals. Or it might be development requirements to manage flood risk on a site-by-site basis such as resilient design or emergency management procedures.

The work done in this Chapter is particularly beneficial for council as it drafts the new planning scheme. While flood overlays already exist, the IICP is able to create a picture of the hydraulic risk – the impact of flood events including the frequency and the depth of water and velocity.

This helps create a more informed approach to land use planning. Development controls can be tailored to meet the particular flood risks within an area. These may include measures which address areas that may be exposed to hazardous water, or may become isolated as flood islands, or areas that can be quickly inundated with water, or may be inundated for longer periods of time.

BE INVOLVED

Submissions on this and other IICP chapters can be made on the 'Managing Future Floods' page of Shape Your Ipswich.

The final IICP report will be provided to Ipswich City Council Q4 2020 for consideration.

CONNECTION WITH OTHER IICP CHAPTERS

Physical Mitigation – Large-scale options for reducing flood risk have been investigated. While these measures may lower floodwaters and reduce damages to existing development, it is important new development and planning controls do not rely on physical mitigation measures.

Property Specific Actions – Techniques such as retrofitting flood resilient design and materials may be appropriate to consider in brownfield residential development areas as a way to manage flood risk.

Community Awareness and Resilience – Priority suburbs have been identified based on their exposure to flood risk factors, and social vulnerability factors. These suburbs are considered most at-risk and require appropriate planning responses to ensure risks remain tolerable.

Emergency Management – Areas in Ipswich that may be difficult to evacuate were highlighted. These areas may require specific land use planning responses to ensure appropriate actions or mitigation is in place.

WHAT IS TOLERABILITY?

Flood is a reality of life in Ipswich. When a flood happens – whether a quick rise of a flash-flood creek or the slow rise of a major flood – roads, buildings and other community assets are affected in various ways.

The concept of 'tolerability' can be hard to define but it is an important element in floodplain management.

In other IICP chapters we were able to use data and modelling to identify and analyse various flood hazards and social vulnerability. This identified areas with the greatest flood risk.

The next step is to evaluate community tolerability to that flood risk.

- Acceptable risk: Individuals and the community can live with this risk without feeling the necessity to reduce the risk further.
- Tolerable risk: Individuals and the community can live with the risk but believe that, as much as is reasonable practical, steps should be taken to reduce the risk further.
- Intolerable risk: Individuals and the community will not accept this risk and measure are to be put in place to reduce the risk (to at least a tolerable level).

Flood tolerability can include many aspects related to how a community prepares and responds to flood, such as attitude to flooding, insurance, emergency plans and community networks.

People who experience regular flooding with low-hazard water may see it as 'tolerable' to live in this area – their houses may be on stumps, and they have plans in place for when a flood happens. However it may be considered 'intolerable' to put an aged care home in this area so council may use development controls to ensure land uses are appropriate.

Understanding the tolerability helps council understand what actions or measures would be appropriate in the circumstances to manage flood risk. Land use planning is just one method of reducing flood risk.

PLANNING FOR FLOOD

The work done in this IICP Chapter provides direct input to the draft Ipswich Planning Scheme.

Flood overlays create a 'footprint' that helps council determine appropriate land uses for those areas. The IICP will help council develop a more informed land use planning approach that uses a risk-based approach.

Comprehensive data and modelling will inform the development of a new flood hazard overlay. This will ensure the level of exposure from new development is appropriate to the level of risk.

With this information, council can better ensure land uses align with the area's flood risk category. It's an approach to future land use planning that aligns with floodplain management best practice.

There are other ways the IICP will assist the drafting of the new Ipswich Planning Scheme to take a contemporary approach to managing flood risk for future development. This includes managing vulnerable uses within the floodplain, examining the impact of climate change, and introducing flood resilient precincts.

The draft Ipswich Planning Scheme is still in development.

RISK-BASED RESPONSES

There are many ways that land use planning can help manage particular flood risks.

Hydraulic Risk: The frequency and impact of flood events including the depth of water and velocity.

Land use planning responses may include:

- restrictions on future development intensity
- ensuring flood water is not impeded by built structures
- controls that support building critical infrastructure (eg hospitals, motorways) in areas that have lowest hydraulic risk.

Time to inundation: How many hours it takes water to reach a property from a flood source. If it takes less than 6 hours for floodwaters to reach a property then residents have a short time to react.

Land use planning responses may include:

- restrictions on future development intensity
- avoid allowing land uses that are vulnerable or difficult to evacuate
- consideration of specific requirements, such as Flood Emergency Management Plans, to demonstrate how occupants are able get to higher ground in times of flooding and how the land use functions in a flood event.

Duration of inundation: How many hours properties will be affected by flood water. If properties are affected for more than 36 hours, residents may need to be self-sufficient for an extended time if sheltering at home.

Land use planning responses may include:

- restrictions on intensity of accommodation or residential land uses
- avoiding allowing land uses that are vulnerable or difficult to evacuate
- consideration of specific requirements, such as the use of flood resilient building materials that reduce economic damages and enable residents to safely return to their homes faster.

Flood islands: Areas that are surrounded by flood water and at risk of isolation.

Land use planning responses may include:

- avoiding the creation of new flood islands in future development by having regard to flood events up to the Probable Maximum Flood.
- restrictions in increasing the density of existing (brownfield) development on low flood islands
- restrictions on new development (greenfield) on flood islands
- avoid vulnerable, accommodation and residential land uses on flood islands
- consideration of specific requirements such as sheltering in place strategies.

FUTURE FLOOD RISK

Part of the work in this Chapter was to assess future development scenarios in the floodplain.

With Ipswich's population set to double in 20 years, it is important to consider how increased development can affect the behaviour of flood waters.

The modelling created two 'ultimate development' scenarios – essentially considering all future development areas that could reasonably be expected to be developed.

This was not a 'crystal ball' exercise to try and predict the future, but rather to capture potential changes to river and creek catchments and understand areas that may require tailored land use planning responses.

The assessment identified areas that are highly sensitive to filling and development activities within the floodplain. For these areas it may be important to:

- make sure that areas that allow floodwater to flow are not developed in a way that creates ponding or blocks floodwater
- ensure that filling activities do not worsen the flow of floodwater or flood storage in an area
- assess impacts of development on flood events beyond the traditional 'defined flood event'.

WHAT HAPPENS NEXT

The IICP final report will present more detailed information on what council may consider, including in the new Ipswich Planning Scheme, to inform policy decisions that ensure flooding risks remain tolerable now and into the future.

City of Ipswich

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