

## Building a Flood Resilient Bendigo

*Bendigo Urban Flood Study*

City of Greater Bendigo, Victoria



**NORTH CENTRAL**  
Catchment Management Authority  
*Connecting Rivers, Landscapes, People*



**CITY OF GREATER  
BENDIGO**

### Key Messages

- One of the most technically comprehensive studies for flood mapping in Victoria
- Extensive and tailored community consultation was effective, resulting in a more informed community and better outcomes
- The Bendigo Urban Flood Study was implemented into the Greater Bendigo Planning Scheme

### Project Overview

The Bendigo Urban Flood Study includes detailed hydrological and hydraulic modelling for the Bendigo Creek catchment from Kangaroo Flat to Huntly, including the outlying suburbs of Maiden Gully, Strathfieldsaye and Junortoun. It covers all major waterways, tributaries and overland flow paths associated with the underground drainage network. It provides detailed information of a range of flood events, assisting in future land use planning and development decisions. The study allows the authorities and the community to prepare for and respond to flood events, and contributes to the prioritisation of future drainage investments.

*"[...] the North Central CMA, in partnership with the City of Greater Bendigo (Council) staff undertook an extensive community consultation process."*

### Community consultation

Community consultation was extensive. The six-month community consultation period included more than 700 one-on-one meetings and 9,000 individual letters being sent to residents and landholders affected by the outcomes of the study. These letters also provided initial information on the future planning scheme amendment. The letters were advising residents and landholders of one of the following:

- Currently in a flood overlay and confirmed as at risk of flooding.
- Currently in a flood overlay with likely removal and
- Currently not in a flood overlay but identified as at risk of flooding

North Central CMA and Council staff met with in the order of 700 residents during this period and received feedback on the results of this study. North Central CMA and Council reviewed this feedback and amended the flood shapes where appropriate.

### Organisations

- North Central Catchment Management Authority (project lead)
- City of Greater Bendigo (partner organisation)
- Water Technology (engaged through a public tender process)

## Objectives and Drivers

The City of Greater Bendigo was expected to grow from 110,000 people in 2013 to 130,000 people by 2023. Bendigo has a history of damaging flood events. In addition to the above factors, there was a lack of comprehensive flood mapping of the Bendigo Creek Catchment.

## Outcomes

The Bendigo Urban Flood Study identified 5,700 properties in City of Greater Bendigo area at risk of flooding. It determined flood levels, extents, velocities and depths for Bendigo Creek and its tributaries for a range of flood events.

The study helped with identification and assessment of flood risk, identification and preliminary feasibility of mitigation measures. Due to the study the Municipal Emergency Management Plan was reviewed and updated.

The study was also used to update the Greater Bendigo Planning Scheme by the Planning Scheme Amendment C221 in May 2018, by making changes to local policy and applying the Land Subject to Inundation Overlay and Special Building Overlay to more than 5,700 properties identified as liable to flooding in the Bendigo area.

## Cost

Total project cost: \$530,000.

It was jointly funded by North Central CMA, City of Greater Bendigo and the Victorian and Australian Government from the Natural Disaster Mitigation Program (now Natural Disaster Resilience Grants Scheme).

## Timeframe

The study took three years to complete.

## Lessons Learnt

- Tailored, one on one consultation is far more effective than traditional Town Hall style meetings.
- When undertaking community engagement it is important to be prepared to discuss solutions, not just the problem.
- A working partnership was extremely important and has strengthened the North Central CMA's relationship with the City of Greater Bendigo.
- Good rainfall and river gauge information is important to improve the overall quality of the flood study. It is also important to strengthen community acceptance of the results.
- Climate change is relevant, important and needs to be considered as part of any flood modelling and future planning scheme amendments.

## More Information

For more information visit the resource library on the Clearwater website <https://www.clearwatervic.com.au>, or contact the North Central CMA: email [info@nccma.vic.gov.au](mailto:info@nccma.vic.gov.au) or phone 03 5448 7124.

## References

1. North Central Catchment Management Authority: Bendigo Urban Flood Study. Website. <http://www.nccma.vic.gov.au/media-events/media-releases/bendigo-urban-flood-study> Accessed 12.10.2018
2. North Central Catchment Management Authority: Plans & Studies. Website. <http://www.nccma.vic.gov.au/plans-studies#node-165> Accessed 12.10.2018
3. Water Technology: Bendigo Urban Flood Study – Final Report. 2013.
4. Stanaway, Sarah: personal communication. North Central Catchment Management Authority. Accessed 24.10.2018

## Appendix:

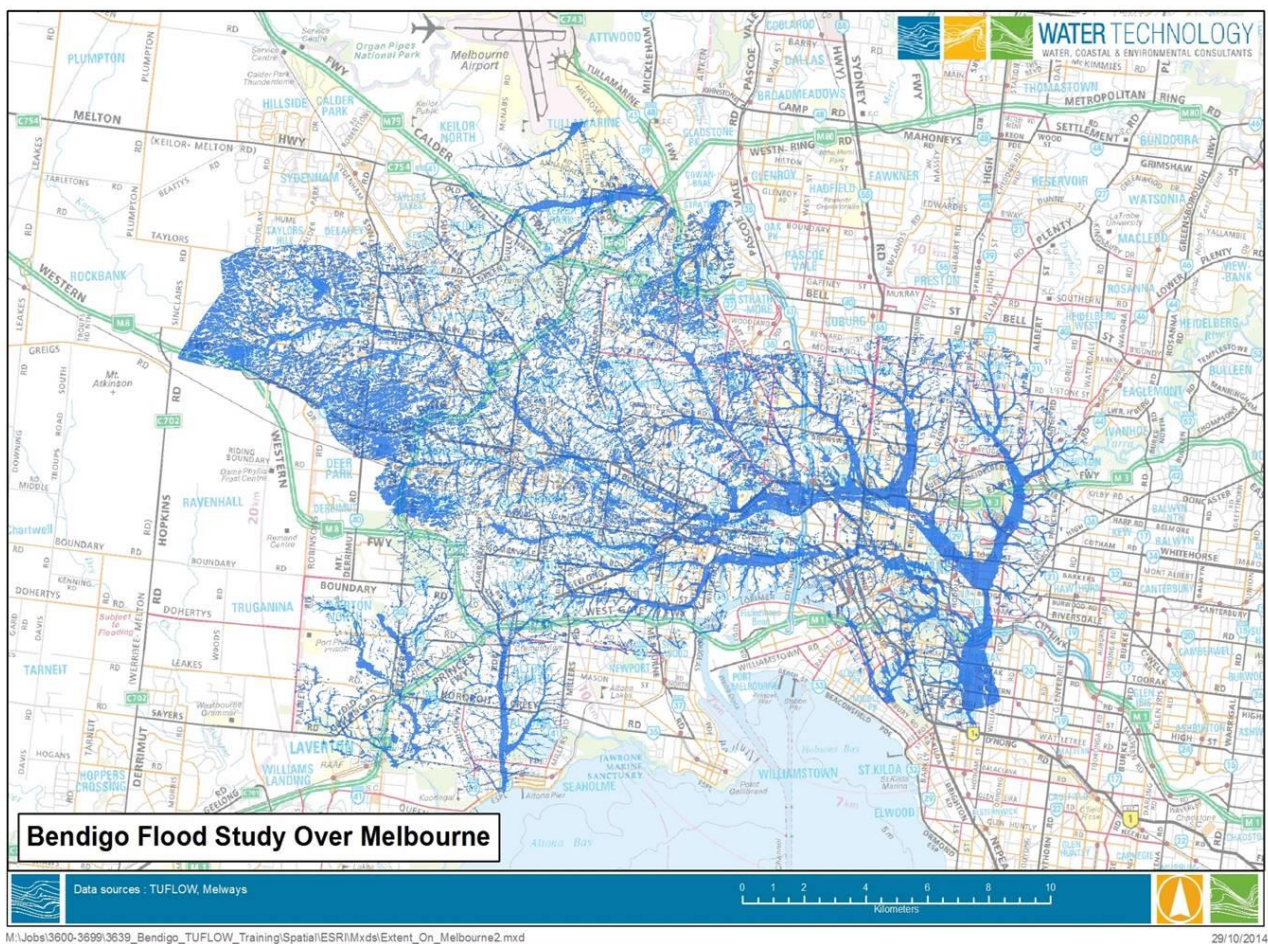


Figure 1: The extent of the study when overlaid over a map of Melbourne. Source: Luke Cunningham, Water Technology