

Newstead Flood Study

Information Sheet

June 2024 v2.0

1. What is a flood study?

A flood study is a comprehensive assessment of flood risks within a specific catchment or area. The purpose of a flood study is to understand the potential impacts of flooding, identify areas at risk, and develop strategies to manage and mitigate these risks. It will also inform potential planning scheme amendments. A flood study is being undertaken for the area around Newstead indicated in Figure 1.

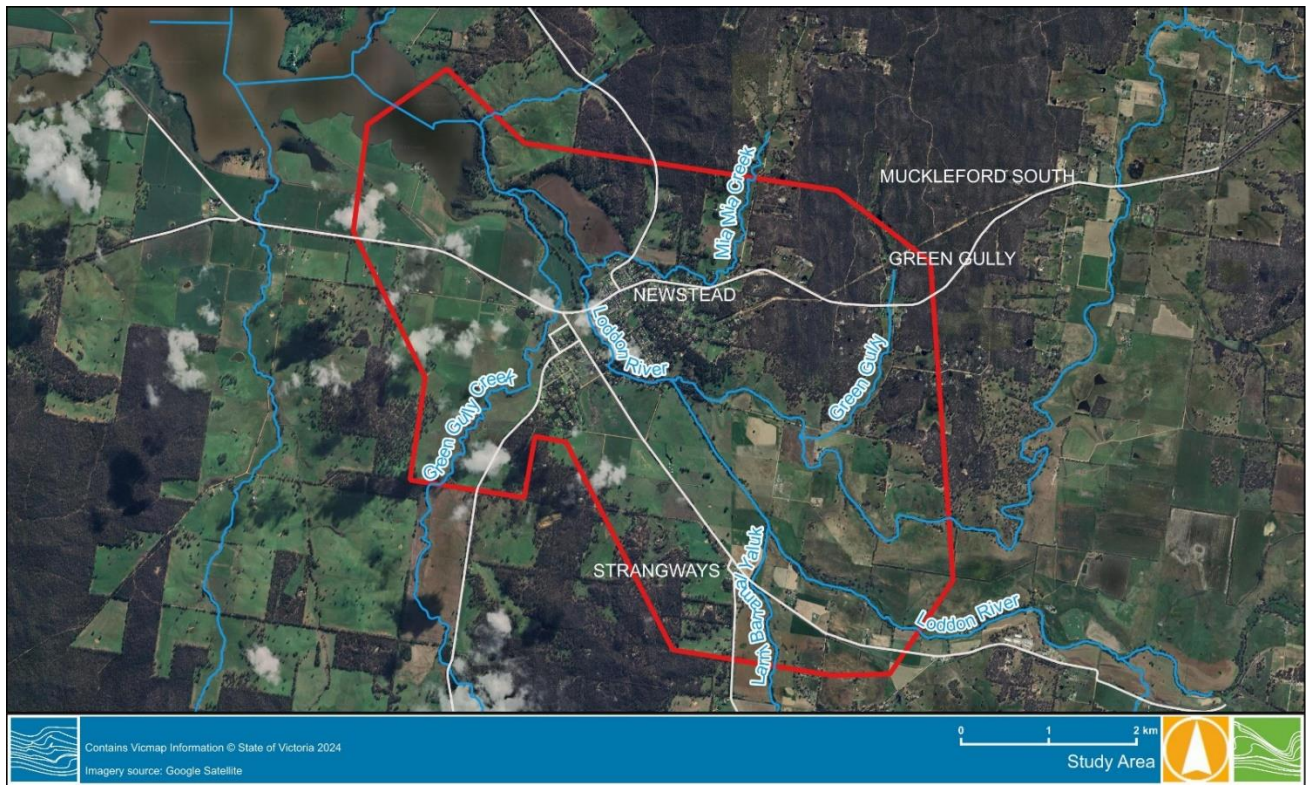


Figure 1 - Newstead Flood Study Area

2. Why do we need a flood study for Newstead?

Newstead has a history of flooding, with the town experiencing recent events in 2000, 2010, 2011, 2016 and 2022.

An earthen levee currently provides the township of Newstead a level of protection against flooding, however the characteristics of the levee is unknown, and no formal management arrangement exists.

There are no automated local warning systems for the complex flood scenarios that occur. A thorough investigation is required to understand flood risk for Newstead and inform options for mitigation.

3. What is the process?

The Newstead Flood Study consists of a number of stages.

Stage 1 – Undertake preliminary assessment of frequency and severity of flood events in Newstead, as well as impacts of climate change.

Stage 2 – Find out from the community about all possible options to manage flooding in Newstead.

Stage 3 – Synthesize data and develop draft Newstead Flood Study.

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Stage 4 – Use results of the Newstead Flood Study to inform mitigation recommendations and development of design for an updated levee.

4. What is the timeline for the project?

Consultants Water Technology have started work and are targeting completion of the study by June 2025.

5. How is the project funded?

The Victorian Government and the Australian Government's Disaster Ready Fund (DRF) are funding the flood study. Council are project managing the flood study with technical support from North Central Catchment Management Authority.

A detailed design phase to follow the study is funded by Council and the Australian Government's Disaster Ready Fund.

Funding for construction work is not yet available. Council plans to advocate for this through State and Federal grants with potential Council contribution.

6. Who is involved?

There is a Project Steering Committee that brings a broad range of stakeholders, knowledge and experts into the project. These include the funding partners as well as representatives from North Central Catchment Management Authority, Bureau of Meteorology, Coliban Water, Department of Energy Environment and Climate Action (DEECA), Department of Transport and Planning, Dja Dja Wurrung, Goulburn Murray Water, Victoria Police, Victorian State Emergency Service, Councillors and community representatives. The community will also be invited to provide input during the project.

7. What is being done in the study and why does it take so long?

During the first two months review of historical data, surveying of ground and floor levels and community consultation will be undertaken. Community members may notice surveyors in the area gathering information. This feeds into hydrologic and hydraulic computer modelling that reflect the movement of water over the catchment in different scenarios depending on the existing state of the landscape and where, how much and how quickly rain occurs.

The modelling also includes projections for climate change. This process is expected to run for six months due to the complexity of flooding from multiple sources that must be considered for Newstead.

Once the models are suitably working, damage assessments for individual locations are run and mapped. Then mitigation options are assessed and their effects and feasibility judged before recommendations that best mitigate all of the factors and events modelled are presented in a final report in mid 2025.

8. Is there community consultation and gathering of local knowledge?

Yes. At least three face-to-face community sessions will be run with representatives from Council, the North Central Catchment Management Authority and Water Technology. Community consultation will take place during the following stages of the project:

- During the project data review – introduction of the project and initial historical data collection/community survey. We will ask the community for information about historical flood events at Newstead, including recollections of flood levels and photos. Data maps will be available to discuss and an online portal for viewing and collection of data will be turned on about a week before the session. **(Planned for 3-7pm 19 June 2024 at the Newstead Mechanics Institute. Arrive anytime)**

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- Presentation of the calibration and scenario modelling with potential mitigation options. Community discussion of results and input into pre-feasibility of mitigation options to be considered. Attendees will be able to view and comment on draft mapping (Planned for January 2025)
- At the completion of the project – presentation and discussion of final results. (Planned for May 2025)

9. What if I can't get to the drop-in session?

You can provide feedback online via www.shape.mountalexander.vic.gov.au/newstead-flood-study anytime between 12 and 26 June. If you require another way to share your knowledge of flooding in Newstead, contact Council's Engineering team on 5471 1700 or info@mountalexander.vic.gov.au.

10. What will be delivered by the flood study?

Deliverables for the flood study include:

- Calibrated hydrologic and hydraulic computer models which will provide detailed flood information, including flood map extents, depths, heights and velocities for a range of flood events of different sizes and Annual Exceedance Probabilities (AEP) including 1% AEP (see next item for further information on AEP). The models are to factor likely climate change aspects.
- Flood intelligence to be incorporated into the Municipal Flood Emergency Plan including roads impacted and buildings that may experience above-floor flooding.
- Flood mapping to be incorporated into the Mount Alexander Planning Scheme updating the flood related planning controls.
- Recommendations regarding flood mitigation options including an understanding of the current level of protection offered by the Newstead Township Levee and identification of works to upgrade this infrastructure.
- A comprehensive final report that outlines the methodology, findings, and recommendations.
- Update to flood intelligence products including pre-prepared maps, impacted buildings and impacted transport routes

11. What is a 1% AEP flood?

A 1% AEP* flood is a level of flooding that has a 1% chance of occurring in a given year. It is considered to be a very large flood and is used as the minimum design standard for new development in Victoria.

The 1% AEP flood is the technical definition of what used to be referred to as the 1 in 100 year ARI**. If an area experiences a 1% AEP flood event in any particular year there is a 1% chance it may occur again in the following year.

As this is based on the average of historical events there is always the chance that a 1% AEP flood event could happen multiple years in a row.

Annual Exceedance Probability – is the likelihood of occurrence of a flood of given size or larger occurring in any one year. AEP is expressed as a percentage (%) risk and may be expressed as a reciprocal of ARI (Average Recurrence Interval).

**Average Recurrence Interval – is the likelihood of occurrence, expressed in terms of the long-term average number of years, between flood events as large or larger than the design flood event. For example, floods with a discharge as large as or larger than the 100 year ARI flood event will occur on average once every 100 years.

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12. What happens after the flood study?

Once the flood study recommendations are available implementation is planned in two stages.

- **Detailed design** of the selected mitigations knowing the technical detail of how the catchment behaves. The mitigations are likely to be changes to the levee that will require detailed engineering designs. This is forecast to be completed by the end of 2025.
- **Construction and Implementation of Mitigations** (currently unfunded). The specific solutions and their cost are not yet known but are likely to be beyond the finances of Council. With the design in hand and costs more accurately estimated Council will be able to pursue grants that require this specific level of detail to fund the work. Once funded the works will be able to be tendered noting planning approvals will also be required.

Note: there is currently no guaranteed funding or timeline as to when construction and implementation of levee improvements will occur.

13. Will there be any changed or new Planning controls effecting Newstead properties?

If the Newstead Flood Study identifies properties that are likely to be affected by flooding in the future, this may see new planning controls affect each identified property differently. These changes will guide existing and future property owners and developers to develop their land according to flood risk, which may include the need for planning permits.

14. What else is Council doing?

Council has allocated funding in its 2023/2024 Budget to upgrade the existing flood gate in Newstead.

A request to tender to upgrade the existing flood gate is currenting out to tender. Further updates will be provided about delivery of the new flood gate once a tender has been engaged.

Note: Works on the flood gate are independent of the study.

Council's Flood Resilience and Recovery Team, based on community consultation, are co-designing a localised community flood preparedness and response plan. This will be developed in the next few months. Led by mutual arrangements between agencies and community groups it will help support disaster preparedness, response and recovery and foster resilience to future events.

15. How can I get updates?

In addition to the community consultation sessions, Council will provide project updates through www.shape.mountalexander.vic.gov.au/newstead-flood-study – simply 'follow' the project page.

Poster updates will be displayed on the Newstead IGA and Post Office noticeboards, along with information in The Newstead Echo.

More information

If you have questions or want to learn more about this project, contact Council's Engineering team on (03) 5471 1700 or email info@mountalexander.vic.gov.au.



Image: SES Newstead Local Flood Guide

The Newstead Flood Study is provided with the support of the Victorian and Australian Governments

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