

Maribyrnong River

Flood Mitigation Study

STUDY SCOPE (DRAFT WORK IN PROGRESS)

Melbourne Water seeks a comprehensive options assessment of long-term sustainable flood mitigation solutions for the Maribyrnong River catchment, both traditional and new innovative solutions.

The study is intended to identify feasible flood mitigation solutions for the riverine flood hazards, that prioritise the safety and resilience of the communities within the catchment and have the greatest impact on reducing the flood risk, both now and anticipated by the year 2100 and beyond. Consideration of applicability and scalability of options to the Melbourne-wide context should also be considered.

The scope excludes community awareness and preparedness education and planning scheme controls - this work is already underway in parallel.

Objectives

1. To identify a comprehensive list of national and international mitigation options, both traditional and new innovative solutions, and the context within which they are applied.

All previously considered options should be comprehensively assessed, as well as any additional options identified by the consultant, and by community and stakeholders, considered relevant to the catchment.

Assess options for their suitability to the Maribyrnong River context and whether they can be pragmatically delivered.

2. To undertake and document detailed flood modelling and comprehensive economic, environmental, social and cultural cost/benefit analysis of potential viable solutions.
3. Strategic stakeholder and community consultation must be embedded in the project at key points and feedback considered in the identification and assessment of options, and finalisation of recommendations.

Due to the multi-disciplinary nature of the scope, a multi-disciplinary team of technical experts, with a single Project Lead is required.

Context

In October 2022 significant flooding of the Maribyrnong River occurred. The flood was determined to be approximately a 2% AEP flood event.

Following the flood event, Melbourne Water appointed an independent Panel to review the flood event. The Panel made 15 recommendations; recommendation 15 of the Panel was: *Melbourne Water should investigate long term sustainable flood mitigation options for the Maribyrnong River.*

In 2023, Melbourne Water commissioned a high-level review of past flood mitigation studies for the Maribyrnong River (Maribyrnong Flood Mitigation Options, Evaluation of past options, 22 June 2023). The review included the following options:

- Arundel retarding basin
- Maribyrnong Township levee
- Channel modification
- Property acquisition
- Relocation
- Flood resilient design
- Planning scheme changes

Melbourne Water has recently completed new flood modelling for the Maribyrnong River, which includes the impacts of climate change. Now that the new modelling is complete, Melbourne Water is seeking comprehensive identification and assessment of mitigation options (previously identified traditional solutions, as well as any new innovative solutions), using the new modelling to understand the impact of each option. In addition, comprehensive economic, environmental, social and cultural impact assessment is required.

Stakeholder and community engagement

The community and other stakeholders impacted by the October 2022 Maribyrnong River flood have a high level of interest in mitigation solutions.

Melbourne Water is seeking a staged approach to this mitigation study which incorporates community and stakeholder engagement at critical stages. It is expected that a comprehensive community and stakeholder engagement program is fully embedded into the study stages, generally as follows:

- Community/stakeholder review and contribution to the initial long list of options
- Understand and feedback/participation in the evaluation and short list of options
- Understand and feedback on draft recommendations
- Understand final recommendations

The recommended engagement program should be tailored to the various geographic communities of interest and culturally and linguistically diverse groups and must be sensitive the trauma these communities have experienced from the October 2022 flood event. The program should be appropriately designed having regard to the principles of the International

Association for Public Participation (IAP2) and must be fully embedded within the overall study methodology.

The consultant will be required to develop all necessary communications collateral required to support the engagement program, and to make use of Melbourne Water's website and engagement platform – LetsTalk. Melbourne Water communications and engagement advisors can be made available to support engagement activities as required.

The key stakeholders to be engaged include:

- Councils: there are five councils in the Maribyrnong catchment, three directly impacted by the new flood modelling
- Community (impacted residents and businesses)
- Community groups
- Any identified critical landowners, including Government

Study Area

Maribyrnong River

The Maribyrnong River is one of Melbourne's largest river systems. The river network, including tributaries of the Maribyrnong, flows for over 160km from Macedon Ranges through to the lower Yarra River before discharging to Port Phillip Bay. Flooding along the Maribyrnong River is a natural and relatively frequent occurrence.

[include map of catchment/map of modelling area – from Solomon's Ford to Yarra River, identifying the various flood risk locations]

Flood risk locations

The new Maribyrnong River modelling extends from Solomons Ford connecting between Braybrook and Avondale Heights, to where the Maribyrnong River joins the Yarra River.

Specific residential, commercial and industrial precincts and other major sites impacted by 1%AEP flood events in a 2024 and/or 2100 scenario include (listed in order, from upstream to downstream):

- Rivervue Retirement Village, Avondale Heights
- Maribyrnong defence site
- The Boulevarde, Aberfeldie
- Woods Street, Ascot Vale
- Ascot Chase, Ascot Vale
- Edgewater, Maribyrnong
- Flemington Racecourse
- Kensington Banks

- Kensington
- West Melbourne
- South Kensington railyards

The study is intended to focus on mitigation options that will reduce or alleviate the flood risks for each of these areas. Both large-scale and a mix of precinct or smaller-scale options should be considered.

Background

Melbourne Water's functions are outlined in the Water Act 1989 and include floodplain and drainage management for the Port Phillip and Westernport region. This involves leading projects to mitigate existing and future flood risks across the region which will help reduce the likelihood and consequences of floods for the community.

As a leader in world-class integrated water, sewerage, waterways and amenity management, Melbourne Water is committed to making sure Melbourne continues to thrive while adapting to flooding, climate change, urbanisation and population growth.

As the Floodplain Manager Melbourne Water leads projects to mitigate existing and future flood risks across the PPWP region to reduce the likelihood and consequences of floods for the community. There are many well established ways to mitigate impacts of flooding including the drainage system, which continues to be extended and optimized, building new infrastructure and multi-functional assets.

In any given year, it is estimated there are over 200,000 properties across the PPWP region that have at least a 1% chance of flooding. Based on the flood modelling data available the annual average damage (AAD) costs of flooding in the PPWP region have been estimated to be \$735.5 million. If climate change projections are factored in the AAD increases to and estimated \$1.6 billion by 2100.

To respond to the challenges of urbanisation and climate change we need to continue to build new assets and it is essential that we innovate and broaden the suite of tools. It is critical to take a strategic approach in identifying the best approach for each location. This will require an understanding of the local community's needs, as well as the broad range of potential structural solutions available.

Potential methodology

Consultants are requested to develop and submit a suitable methodology to address the scope.

Potential staging, may include:

1. Identify preliminary **long list of potential mitigation options**, having regard to all previously identified options, and any new and innovative options the consultants determine may have applicability to the study area.
2. Recommend **evaluation framework/criteria** against which options should be assessed, having regard to Melbourne Water's existing considerations for flood risk management and safety improvement (changes in hazard level), Cost Benefit Analysis (using our economic tools) and reduction in number of properties impacted. The evaluation framework must encompass comprehensive economic, environmental, social and cultural impacts, and must include flood modelling to demonstrate the impact on reduction of flood risk. The economic analysis must include an assessment of impact on Annual Average Damages (AAD) and potential consideration of possible reductions in insurance premiums. The evaluation must consider long-term sustainability: evaluate the sustainability and adaptability of proposed options in the face of future climate change and urban development pressures.
3. **Engagement with community and stakeholders** on the long list of options and the evaluation framework, invite suggestions for any options not identified and feedback on the evaluation framework.
4. Detailed **options evaluation**, recommended **short list**
5. **Engagement on detailed options evaluation and recommended shortlist** (consider opportunity for community and stakeholders to participate in the evaluation in some way)
6. **Draft study** report with recommendations
7. **Engagement on draft**
8. **Final study** report with recommendations

Hold points should be built in to the methodology at each stage to present to Melbourne Water (and potentially Councils and other stakeholders) for review, feedback and endorsement to move to the next stage.

Timelines

The critical first milestone is October 2024. The first engagement stage must have commenced before or at the beginning of October 2024.

The final deliverables are expected to be completed within 12 months from the contract award date.

Project inputs

The recently completed flood model of the Maribyrnong River will be made available.

Any recent investigations or studies will be provided.

Key deliverables

The key deliverables for this work include:

- Presentation of results at each stage: at the conclusion of each phase, a presentation of the findings in a suitable format will be required for Melbourne Water approval to proceed to the subsequent phase.
- Draft technical memo: a comprehensive technical memorandum detailing the methodologies, analyses, and preliminary findings will be provided for review and feedback.
- Communication and Engagement Plan: a staged plan that outlines strategies and methods for effectively engaging wot stakeholders and community, disseminating information, fostering genuine dialogue, and soliciting feedback from community and stakeholders throughout the study. The stages of the engagement plan must be fully embedded within the overall study methodology.
- Engagement summary report: an overview report summarising stakeholder engagement activities, feedback received, and key insights gathered at each engagement stage. The report should also document how feedback and insights influenced the final outcomes.
- Fact Sheets as may be required for shortlisted options: concise fact sheets, in plain English, outlining the features, evaluation, and considerations of the 3-5 shortlisted flood mitigation options will be developed for dissemination to stakeholders and the community.
- Concept sketches / visualisations: development of concept sketches or computer-aided visualisations for the top 3-5 shortlisted options to facilitate clear communication and visualization of proposed solutions to key stakeholders and community.
- Incorporation of relevant evaluation spreadsheets and cost estimates: integration of detailed Multi-Criteria Analysis (MCA) spreadsheets and cost estimates for the options into a draft report based on the technical memo upon completion of all project phases.
- Draft and final report: compilation of a comprehensive study report consolidating the outcomes, recommendations, and summary of each phase. Additionally, a community-focused summary report will be provided to ensure transparency and accessibility of project findings to the wider community.