



ARDEN MACAULAY PRECINCT FLOOD MANAGEMENT STRATEGY

Melbourne Water

CATEGORY: D.1.f
Flood and Drainage
Planning

PROJECT SCOPE

The Arden Macaulay Precinct is to be transformed from a primarily industrial area into a high density mixed use zone, with Rail Projects Victoria planning to locate an underground station within the precinct as part of the Metro Tunnel project.

Some sections of the precinct near Moonee Ponds Creek are low lying and have a well recognised history of flooding. Due to this, flooding and drainage is well recognised as a significant factor in development planning of the precinct.

The objectives of Engeny's study were to ensure that:

- Intensive development of the Arden Macaulay Precinct can occur with appropriate flood protection standards.
- The potential to improve the amenity and public use of Moonee Ponds Creek is seized.
- The objectives of various stakeholders are met.

Engeny's study included the following tasks to meet these objectives:

- Development of an understanding of the existing conditions and year 2100 (including climate change) scenario flooding within the precinct through two-dimensional hydraulic modelling (TUFLOW).
- Communicating the existing conditions and year 2100 scenario flooding outputs with key stakeholders, including preparation of video simulations and easy to understand flood maps.
- Identification of a range of potential flood mitigation works in collaboration with key stakeholders.
- Undertaking detailed investigations (including hydraulic modelling) for a selection of the flood mitigation works and refining the works in order to achieve appropriate flood protection standards.
- Provision of advice on infrastructure required for the flood mitigation works, including high-level cost estimates.
- Clear and concise reporting, including flood maps.

START DATE

January 2016

COMPLETION DATE

Ongoing

CLIENT CONTACT

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RELEVANCE TO CATEGORY

The preparation of the Arden Macaulay Precinct Flood Management Strategy demonstrates Engeny's capability to undertake flood mitigation studies, including:

- Definition of flood behaviour of the catchment, using RORB and TUFLOW modelling tools (Melbourne Water's preferred software). Engeny has used these tools to effectively communicate flood behaviour and drainage constraints and opportunities to relevant stakeholders.
- Options analysis of a wide range of flood mitigation measures to identify a preferred servicing solution.
- Consideration of annual average damages and the potential of works to reduce the financial impact of flooding.
- Consideration of flood risk and flood risk reduction measures. A key issue for the precinct is the dependence on stormwater pump stations, which pose a risk of increased flood consequences if a pump fails.
- Drainage layouts, design and costing.

PROJECT INNOVATION

- Consideration of non-traditional flood mitigation measures. Engeny collaborated with international consultant Ramboll to investigate alternative flood mitigation measures, drawing on European experience.
- Consideration of the potential to achieve multiple benefits with flood mitigation works, such as stormwater harvesting and blue-green infrastructure.
- As part of this project, Engeny has been invited to give specialist guest presentations at the University of Melbourne and the City Solutions Platform. The City Solutions Platform is a global collaboration to effectively share knowledge and drive meaningful, measurable and sustainable action on climate change.



PROJECT OUTCOME

The key outcome of the flood management strategy is the identification of a series of flood mitigation works that can enable intensive development within the precinct to occur while achieving appropriate flood protection standards. The flood management strategy is to be used to inform a Melbourne Water redevelopment services scheme for the precinct and will be a key document in Melbourne Water's stakeholder engagement process.

The project highlighted the importance of bringing relevant stakeholders (City of Melbourne and Victoria Planning Authority) together early in the planning process so that the project outcomes are aligned with expectations and ultimately the findings of the study can be implemented.