



## WESTERN PORT GREEN WEDGE INTEGRATED WATER MANAGEMENT STRATEGY

City of Casey

**CATEGORY: D.1.c**  
**Integrated Water Modelling,  
Assessment and  
Management**

### PROJECT SCOPE

The desire to reduce allowable minimum lot sizes to accommodate additional land subdivision emerged as a major concern for many Western Port Green Wedge residents. The City of Casey initiated a planning review to determine if further development and subdivision should be allowed or encouraged within the Western Port Green Wedge. In order to inform Council's decision a number of specialist studies were commissioned, including an integrated water management strategy for the area. The integrated water management strategy examined a number of potential subdivision and development scenarios. Each scenario was assessed against its impact in the following criteria:

- Western Port as a Ramsar listed wetland
- Surface water quality and flow regimes
- Peak flood levels
- Coastal inundation
- Groundwater use
- Potable water use and wastewater disposal
- Acid sulphate soils

The integrated water management strategy quantified the impact of proposed development on each of the above criterion. To quantify the impacts a detailed whole of water cycle model and flood model were created. With the information provided in the report prepared by Engeny and the other expert studies, Council concluded that widespread increased levels of subdivision cannot be supported. The investigation also allowed Council to explain and justify its decision to the community.

This project is current nominated for a Stormwater Victoria award for excellence in strategy or master planning.

#### START DATE

December 2017

#### COMPLETION DATE

August 2018

#### CLIENT CONTACT

Daniel Fokkens – Project Manager

Team Leader Subdivisions and  
Development Engineering Growth  
and Investment

03 9792 7355

#### RELEVANCE TO CATEGORY

- Assessment of future water supply demands and the impacts on potential water supply options.
- Assessment of future water sensitive urban design treatment requirements associated with urban and rural subdivision.
- Whole of water cycle modelling to assess existing conditions and also a range of proposed increases in development density.
- Development of integrated water management servicing options for water supply, sewerage and stormwater treatment, determining fit for purpose water usages through the study area and aiming to minimise imported water in the form of potable water and runoff from upstream development.

#### PROJECT INNOVATION

- Assessment of the impacts of subdivision on a rural living context and determination of what threshold of subdivision is acceptable prior to impacts on existing waterways (this is a poorly researched field).
- Flood mapping a 130 square kilometre area with Australian Rainfall and Runoff 2016 compliant methodologies shortly after the release of the new guideline and utilising newly released versions of flood modelling software (TUFLOW HPC).
- Consideration of whole of water cycle impacts when assessing if development and subdivision should be allowed to occur in the green wedge area. This assessment also included coastal inundation, acid sulphate soils and groundwater use which are not often included in integrated water assessments despite their links to the water cycle.



#### PROJECT OUTCOME

Council was able to make an evidence based decision on whether or not to support further development and subdivision within the Western Port green wedge zone. The impacts on the overall water cycle, including flooding, potable, sewerage and groundwater were deemed to be too significant to allow further subdivision and development to occur.