

Projects

Catherine Avenue Catchment Investigation



Client: City of Kingston, Victoria

Prior to European settlement, the area between Mordialloc and Frankston along Port Phillip Bay consisted of a sand dune backed by low-lying areas of coastal scrub and swamp. Subsequently many of these areas were drained and developed, without planning and engineering design to current standards. This has resulted in significant drainage issues due to low property levels, small grades and a generally poor standard of infrastructure. Some street levels within these areas are less than 1 m AHD and require flood gates to prevent inundation due to backflow from Port Phillip Bay during periods of high sea level. The main Melbourne Water drain servicing the area has pump stations at both Paterson River and Mordialloc Creek.

The City of Kingston is responsible for many of these areas where significant nuisance flooding occurs within street reserves. Performance is well below the desired council standard for the minor drainage (1 in 5 year capacity) with many areas having only 1 in 1 year capacity.

Water Technology was commissioned to investigate the Catherine Avenue catchment, testing both conventional and non-conventional mitigation options. This included pipe upgrades, under-road storage tanks, lot-based water tanks and low-head pump options. Accurate numerical modelling of the drainage network and interlinking street overland flow system enabled the selection of an optimum hydraulic solution. Importantly, a fully hydrodynamic, unsteady flow model was developed to ensure that critical storage effects were accurately



simulated within the catchment. The economic merit of various options was also assessed through a preliminary comparison of capital expenditure.

For more information contact Warwick Bishop (warwick.bishop@watech.com.au).

Services Provided

- Detailed urban hydrology
- Hydrodynamic pipe system modelling
- Hydrodynamic surface system modelling
- Flood mitigation option analysis
- Mitigation scheme costing and feasibility