

Statement

The low-lying areas of Melbourne once had extended swamplands, but now what remains are disturbed catchments lying invisibly underneath the urban sprawl. Urbanization either abolished these diverse water landscapes or modified them to become unrecognizable. Newly designated activity centers in Plan Melbourne do not consider the underlying natural layers, such as topography or flow paths.

Consequently, these areas face increasing flood risk, not only because of the spatial and environmental changes but due to society's lack of awareness of the former landscape.

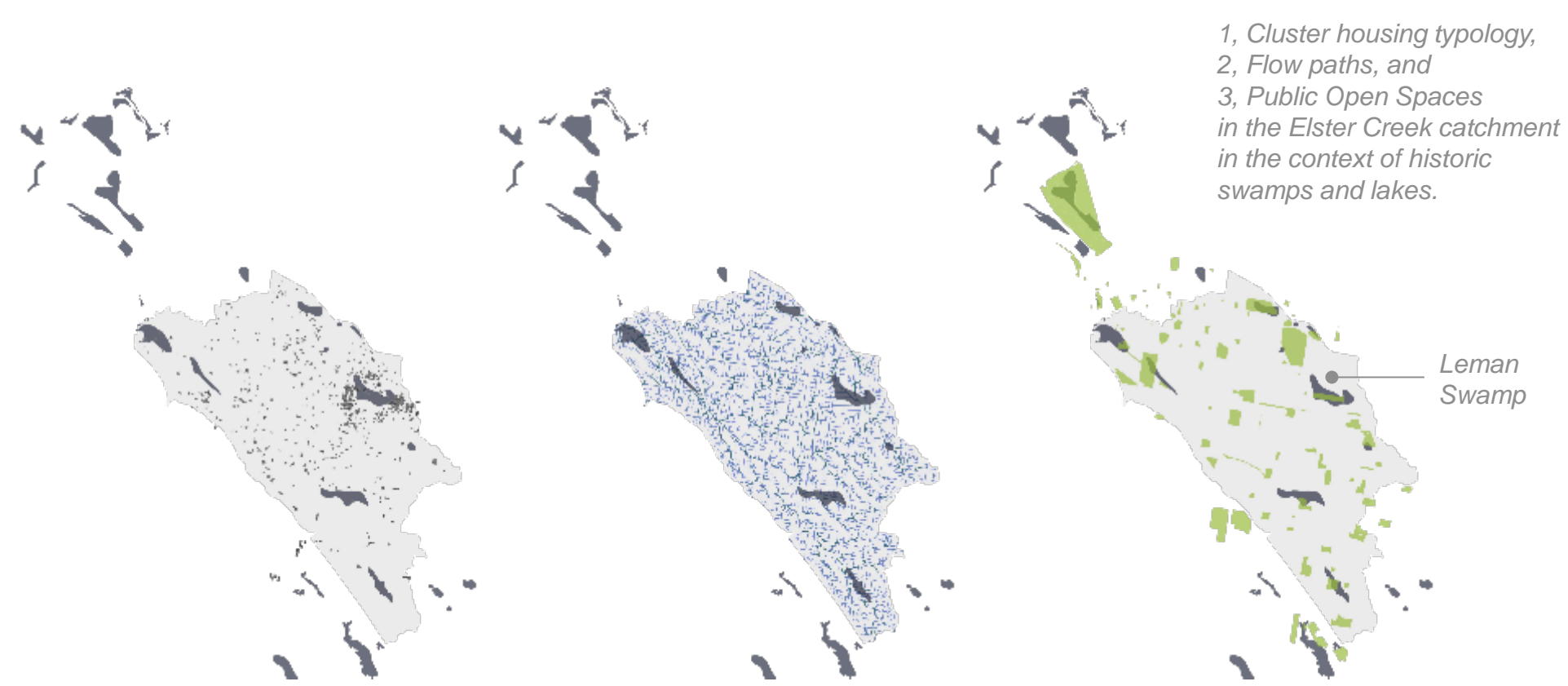
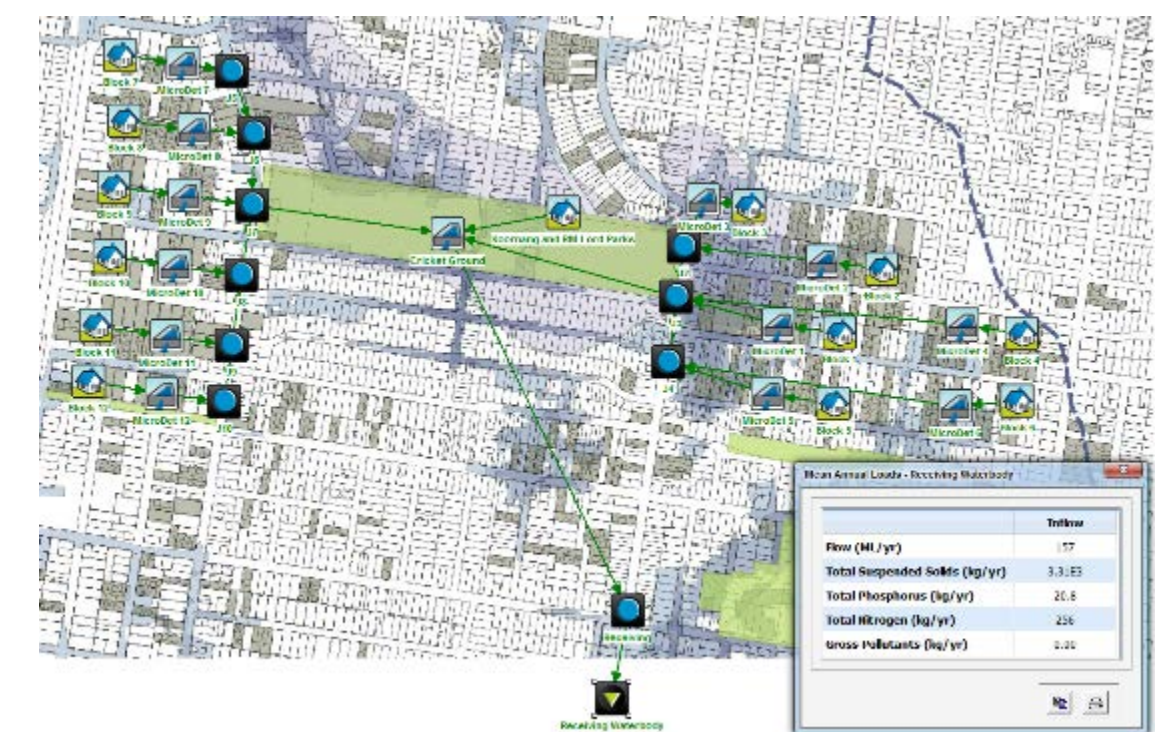
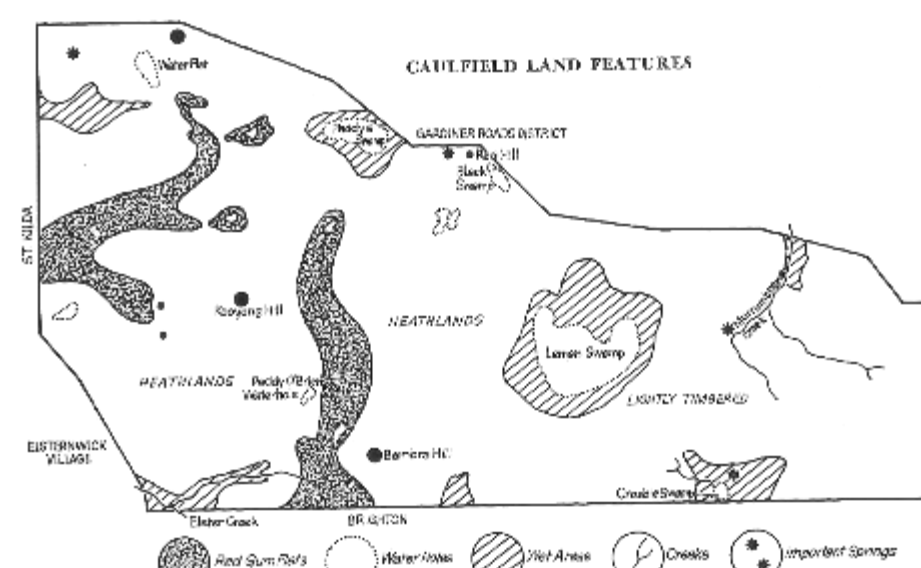
In order to create urban water spaces that are an integrated part of our cities, work as urban amenities and cope with climate change, it becomes increasingly important to design, manage and think about water landscapes at catchment-scale.

Project Aim

The aim of this PhD is to look at the challenges of urban renewal and densification through the lens of water. The potential for catchment scale thinking is investigated as a new, emerging approach for the spatial integration of water landscapes in urban infill situations.

The PhD is made up of several design projects, each focusing on different urban and water conditions. Through these design investigations, new strategies are developed to transform existing suburbs into more liveable and sustainable neighbourhoods.

In addition, the projects challenge the current practice of urban redevelopment, and critique the existing policies and regulations. One of the main goals is to provide alternative solutions as counter-examples to contemporary revitalization trends that fail to address the need of local communities.



Catchment within catchment - The 'Local Minimum' Project

An initial project of this PhD is the water sensitive reinterpretation of the neighbourhood around the former Leman Swamp in the upper catchment of Elster Creek. This area is characterized by a high percentage of impervious coverage and a large number of cluster housing typology. Design investigations on the selected block tested the potentials of a community centered, low-rise, medium-density living environment.

The project revealed that small scale interventions and gradual urban transformation can deliver densified yet water sensitive neighbourhoods. To verify the design outcomes a MUSIC simulation was undertaken. The simulation proved that the large scale implication of the scheme (multiple blocks) can reduce the mean annual load of stormwater runoff.

Consequently, deliberate urban design in the upper catchment not only improves the local urban amenity but also can contribute to flood risk mitigation in the lower reaches.

