Flood storages and peak flows in Moonee Ponds Creek – Is more storage always better?

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Biography:
Paul Clemson is a principal water resources engineer with twelve years of experience in the water industry. Paul has extensive experience on a diverse range of projects including flood mapping, stormwater drainage and quality studies, potable water supply network planning, recycled water design and sewer network planning and design. Over the last couple of years, Paul has had a significant involvement in the flooding and drainage planning for key development areas along the Moonee Ponds Creek corridor.

Vanessa Wong is an Environmental Engineer who loves the challenge of finding innovative solutions to today's current issues. A graduate of Monash University's Bachelor of Environmental Engineering, she has dabbled in past in the environmental science and ecology sectors and currently works at Engeny Water Management, completing flood mapping and modelling projects for local councils and Melbourne Water across both metropolitan Melbourne and the wider rural Victoria.

Intensive development is planned along the Moonee Ponds Creek corridor within the City of Melbourne. The City of Melbourne and Engeny Water Management have been working together to minimise flood risk within the downstream reach of Moonee Ponds Creek. A key factor impacting flood risk in this section of Moonee Ponds Creek is the highly urbanised upstream catchment that has been developed with minimal provision for flood storage.

As flood modellers and managers of the developed environment, we note that reserves, sports ovals and other large areas of undeveloped open space may provide opportunities for flow retarding throughout urban catchments. Engeny's investigation of the Moonee Ponds Creek catchment has assessed the benefit of using existing reserves and other open spaces within urban environments for large scale flood storage that can help to minimise downstream flood risk.

In our assessment, completed with the City of Melbourne, Engeny has investigated:

- Where are opportunities for flood storage located throughout an urban catchment?
- Are they in locations that can interact with the existing local drainage networks?
- How much storage volume should be provided at each potential location to facilitate reductions in peak flows?
- How many storages should be present throughout a catchment and do more storages always equate to additional reductions in peak flows along receiving waterways?
- Can providing flood storage actually make downstream flooding issues worse?
- Should the locations of storages be distributed throughout the catchment or grouped at the downstream end of a catchment to provide the most benefit?

This presentation will explore the complexities of providing a solution for peak flow reductions within an urbanised creek system, with consideration of the whole of catchment outcomes.