



Permeable Pavement – What’s the Concrete Evidence?

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In a constrained urban setting, permeable pavement appears to be the ultimate solution for sites where there are few alternatives - allowing for infiltration, pollutant reduction, flood mitigation and potential for passive irrigation of trees when combined with structural soils whilst performing the functions of traditional concrete or asphalt. What more could we ask?

City of Melbourne has constructed several trial permeable pavement assets at different locations across the City. In the future Council intends to construct larger areas of similar permeable pavements but needs to be confident that they are effective and have the necessary knowledge to maintain them effectively.

However, there was concern that some of the trial assets were not infiltrating effectively. The failure of infiltration systems such as permeable pavements most commonly occurs due to clogging or to design and construction issues.

City of Melbourne tested the effectiveness of permeable pavements and how maintenance influences this. The project scope was to:

- assess four existing permeable pavement installations to determine whether they are functioning effectively and whether maintenance is required.
- confirm whether certain maintenance activities are effective in restoring functional performance.

The results for infiltration testing prior to cleaning showed that all 14 test sites at the four locations were compromised by surface clogging. While infiltration rates at some sites were still sufficient to achieve significant infiltration volumes, other sites had failed and demonstrated minimal, if any, functional effectiveness and infiltration capacity.

Test areas were cleaned and the results for post-cleaning infiltration testing indicated much higher infiltration rates could be achieved. This conclusively demonstrated that the water jetting cleaning undertaken was effective in improving functional performance.

Given these outcomes, it is apparent that there is potential for wider implementation of permeable pavements within the City to be undertaken with confidence and that these systems can work effectively. However, it is essential that an effective asset audit and maintenance regime is put in place to ensure the assets are maintained in a timely manner to provide the expected levels of service and performance.