Maintenance of Stormwater Control Measures and Implications for Performance

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Abstract

Over recent decades, the adoption of "Stormwater Control Measures" (SCM) to reduce the hydrologic, and water quality impacts of urban development has increased in many parts of the world, and they are now a relatively common feature in urban landscapes. However, anecdotal evidence suggests that SCMs may be neglected when it comes to their operation and maintenance. In order to investigate the validity of these concerns, a literature review was undertaken. This literature review identified only a small number of studies that specifically addressed this issue, all of which identified significant deficiencies in SCM maintenance, though none of them were undertaken in Australia. Because of the apparent limited number of studies and the lack of Australian investigations, a study was undertaken in Melbourne to determine if similar deficiencies in SCM maintenance could be detected within an Australian context. This study involved requesting eight councils to provide recent SCM asset condition reports and / or data (e.g. raingardens, constructed wetlands, swales, porous pavement and gross pollutant traps). Of these eight councils, only three were able to provide SCM asset condition data. For the remaining five councils, one did not respond and the remaining four had never conducted systematic assessments of the SCM assets. For each of three councils able to provide data, each of their assets was collated according to specific categories, i.e., planning, design, construction, and maintenance issues. Because each council used different asset assessment scoring systems, results for each category were converted to a three tiered rating system of "good" (little or no rectification actions being necessary), "fair" (some minor modification and / or maintenance is required) and "poor" (system has requires major maintenance or modification to rectify a systemic problem with the asset). The results of the study found high rates of assets in "poor" condition for the three councils, and that the maintenance category returned the highest number of "poor" ratings for each. These results are consistent with the studies identified in the literature, adding weight to anecdotal evidence suggesting that maintenance rates may be poor regarding SCM assets. The inability of four of the eight councils to provide asset condition data for their SCM assets is also concerning as this suggests these councils do not have an accurate understanding of the condition of the SCM assets and, therefore, are not in a position to maintain them effectively. Given that any human built asset will require some sort of maintenance in order to ensure operational life and performance objectives are met, the results of this study are sufficient to warrant further investigation.

This should include additional, wider reaching investigation into the current condition of SCM assets across Australia and what underlying causes are causing this.
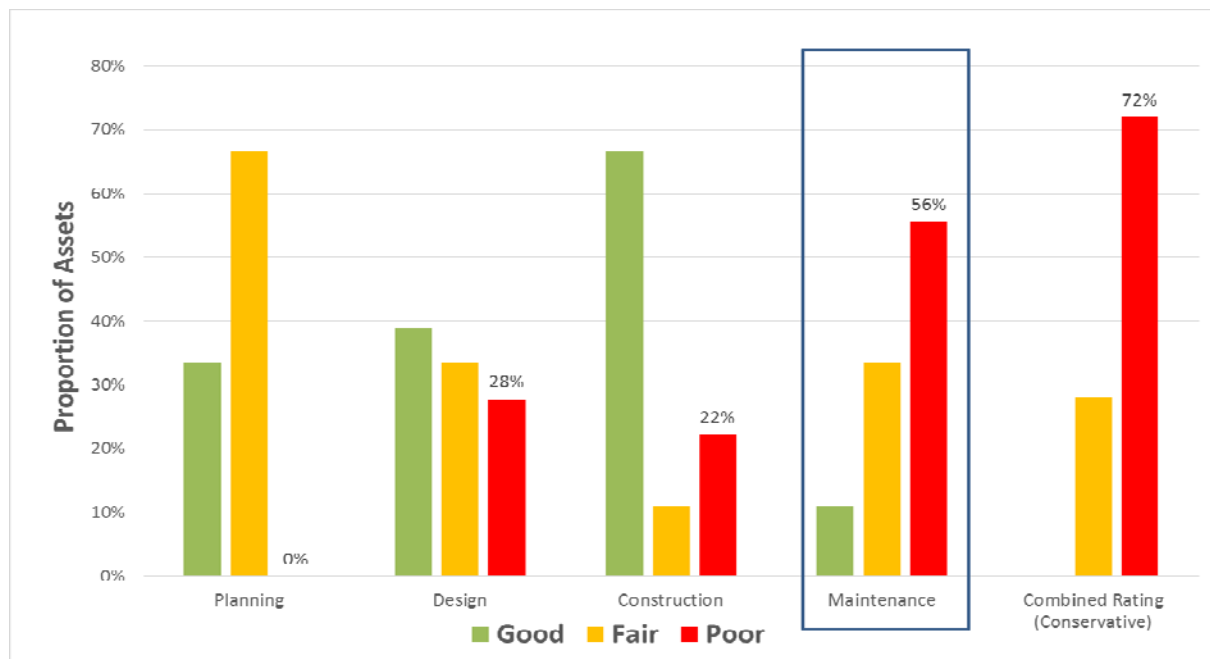

Figure 1: Condition assessment results for Council A (2013)