

IMPLEMENTING AN INTEGRATED TECHNOLOGIES APPROACH TO LOW IMPACT DEVELOPMENT DESIGNS

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Abstract. Selecting the proper stormwater treatment technology presents a number of challenges to site designers, regulatory agencies and other stakeholders alike. It is paramount for stormwater Best Management Practice (BMP) technologies to be specified in accordance with the intended land use as well as conditions for which those technologies are designed to operate. Furthermore, the ever increasing demand to implement green infrastructure designs that rely on Low Impact Development (LID) practices presents a wide variety of challenges to the stormwater community. An LID technology selection pyramid illustrates a process to identify proper stormwater technologies including both land based and manufactured devices. An integrated technologies approach to LID practices offers the opportunity to uniquely utilize a number of treatment train options to enhance BMP performance and sustainability. The LID technology selection process also often fails to adequately address site characteristics in context with the performance capabilities of the treatment approach. For example, the performance of hydrodynamic separators decreases as particle size decreases. If fine silt is the dominant particulate in the stormwater runoff, then filtration would be more effective in that case. Improper use of a treatment technology can lead to poor performance and inaccurate conclusions regarding the performance capabilities of the device and technology as a whole. Several factors to consider for selecting treatment technologies include future land use, type and pollutant concentrations, particle size, design storm, footprint, installation cost, maintenance costs, practicality, and long term functionality.