

## Using Green Infrastructure to Meet Environmental Flow Needs

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Preserving a dynamic flow regime, in other words the environmental flow needs of a river, is important as it maintains the river's ability to function optimally (Acreman and Ferguson, 2010). This is becoming increasingly important to consider in water resource management as rivers are functioning components of our built areas and the limits of hydrologic alteration that a river can sustain are often being exceeded.

In North America, the science of environmental flow needs has focused primarily on water takings. In Southern Ontario, however, many streams are facing significant challenges with excess water as a direct result of increased runoff. Overcoming this challenge requires the consideration of environmental flow needs in stormwater management practice.

In an effort to build infrastructure that considers stream needs, Credit Valley Conservation, Peel District School Board and Ecosystem Recovery Inc. worked in partnership to design and construct a bioretention facility at Kenollie Public School, located in south Mississauga in close proximity to Kenollie Creek. In order to build a bioretention facility that considered the needs of Kenollie Creek a number of design features were added to a typical bioretention facility to make it adaptable to variable runoff scenarios.

This project begins to connect environmental flow targets with green infrastructure practices, taking the next step in managing our landscape to improve or protect the form and function of rivers. As well, this project serves as a tool to help with overcoming challenges often associated with green infrastructure retrofit projects, providing guidance on barriers and solutions to site constraints that will be faced in the process of achieving environmental flow needs in our existing built areas.