

Opinion / Commentary

How to get ahead of the storm with green infrastructure

As Toronto mops up from its stormy wake-up call, it's time to have a discussion about how to respond to the dark, costly clouds on the horizon.



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A woman gets gets back in her car in flood water on Lakeshore West during a storm in Toronto on Monday, July 8, 2013.

By: David Suzuki Faisal Moola Published on Sat Jul 13 2013

Getting a bucket of water dumped on your head is quite the wake-up call. This is something countless Toronto commuters can attest to after getting drenched on Monday with over 90 millimetres of rainfall — more than a month's worth — in just two hours.

Sensational images of the city's wettest day in recorded history flooded social networks. Manhole covers were propelled skyward by geysers of sewage and storm water. Cars, buses and trains were submerged and abandoned. And there was the sudden arrival of "Lake Bellwoods" in the low-lying dog area of the city's popular West End park.

Coming mere weeks after historic flooding in Calgary, these wild, wet events are unsettling reminders that our cities are vulnerable to the whims of freaky weather. Once referred to as "once in a century" events, extreme storms are becoming **disturbingly common**. This is a trend that has been predicted as a result of the changing climate, and noted by a growing chorus of scientists, politicians, economists and insurance companies. And it certainly isn't a surprise to the bureaucrats at city hall. A city-commissioned report released earlier this year predicts **a sharp increase in extreme storm events** over the next few decades, in addition to increased summer heat and humidity.

As Toronto Star columnist Christopher Hume noted this week, insurance claims for water damage caused by the one-two punch of extreme weather and aging infrastructure are now the leading

cause of home insurance losses in many parts of the country. In 2011 the [National Roundtable on the Environment and the Economy](#) concluded that annual costs of flooding in Canada due to climate change could total \$17 billion a year by 2050.

It's not just the City of Toronto that faces challenges dealing with storms and floods. According to Toronto Region Conservation, 42 areas in the Greater Toronto Area are vulnerable to serious flooding in times of extreme rainfall, including many historic village cores that were originally established along rivers. And most of Canada's urban areas face similar challenges.

So, knowing there will be dark, costly clouds on the horizon, how can we get ahead of the storm? One of the best strategies for dealing with severe weather events is to steal a page from Mother Nature's playbook: bring nature home to the city through green, living infrastructure.

Like most modern urban areas, the GTA is almost entirely covered with concrete and asphalt. When a big storm surge hits, the impermeable landscape dramatically accelerates the volume of water as it speeds toward waterways and low-lying areas, and ultimately into Lake Ontario.

Nature doesn't play this way. Natural ecosystems — like forests, fields, marshes and wetlands — are built to absorb rainfall and slow the flow of water as it passes through vegetation and soils and into waterways. Thus, incorporating natural systems into the built urban environment can effectively mitigate the intensity of storm surges. Interventions that bring together natural and built environments can range from large networks of interconnected green spaces to small-scale engineered systems, like green roofs, permeable pavement and green walls.

The good news is that interest and investment in green infrastructure is growing rapidly. Last year about 1 million square metres of plant-covered roofing were built in both France and the United States. [Philadelphia's multibillion-dollar plan](#) to turn a third of the city's impervious asphalt surface into absorptive green spaces has set a lofty standard for others with green aspirations.

And Toronto is already on its way. Efforts to restore and enhance the Don Valley over the past couple of decades have included more than a half dozen new wetlands and tens of thousands of trees planted. Heroic efforts to protect the Rouge River watershed has resulted in [Canada's first urban National Park](#) — a 60-square-kilometre natural area that is estimated to provide more than \$400,000 in flood-control services each year, according to a David Suzuki Foundation report. Toronto has also been at the forefront of the move to add green roofs to our urban landscape.

Most recently, Toronto's new Corktown Common is a great example that combines recreational uses with flood-control features. The multi-use park is perched on a berm at the mouth of the Don River that was built high enough to protect nearby low-lying areas, like the Distillery and Financial Districts, from a 300-year flood of the Don. The park also includes a system of engineered ecosystems designed to help manage storm water on-site.

It is not just architects, engineers and city planners who can help bring green to the city. Homeowners can green their yards by planting trees and replacing paved areas with permeable landscaping. In Vancouver, resident-initiated programs have helped turn grey alleyways into engineered green "country lanes." Here in Toronto, the David Suzuki Foundation's new [Homegrown National Park Project](#) is aiming to crowd-source a green corridor along the old

Garrison Creek — catalyzing a range of green activities at the household, block and neighbourhood scale.

When will the next storm hit the city? Only nature knows. But as Toronto mops up from its stormy wake-up call, it's time to have a discussion about bringing nature into the equation.

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