



Sponges Versus Sewers

I write about the value of urban trees a lot, focusing not so much on their aesthetic value as on their infrastructure benefits - their ability to offset heat island effect, reduce air pollution and absorb carbon.

But trees and their associated greenspaces play another critical role, especially in a city like ours with combined sewers that dump, on average, 900 million litres of raw sewage into our rivers every year. A problem which, according to recent city estimates, won't be fixed until 2095.

Just to clarify, prior to the 1960s, engineers touted combined sewers as an effective and cheaper solution for handling both raw sewage and stormwater in one pipe. What the engineers didn't factor in were population growth, the growth of impervious urban surfaces that create huge amounts of runoff and the increased frequency of superstorms

As a result, when there's too much storm water runoff, the system gets overloaded and overflows. Thus the regular belches of sewage into our waterways.

So how do we solve the problem? Well, we can support Council. Brian Maye's demand that all levels of government help finance the improvements needed to fix our sewage problem *before* 2095. But we can also start looking at nature-based solutions that are less costly and benefit the city in multiple ways.

Which brings me to the concept of "the sponge city."

Sponge cities – and the list worldwide is growing - aim to work with nature, not against it, by capturing runoff and keeping it out of sewer systems, using everything from permeable asphalt, run off swales and holding ponds, to green roofs and rain gardens.

Another tactic is increasing the number of parks, ponds and trees that can absorb vast amounts stormwater runoff, keeping it out of combined sewers and putting it to work where it belongs – in the ground.

And with the increased frequency of superstorms, we need to work fast to make our city spongier. Otherwise, we'll wind up facing what Toronto and other cities have already faced. Sudden, massive downpours that not only overwhelm sewers but leave city centers underwater.



Toronto extreme storm flood

All it takes are better provincial building codes, a bigger city investment in trees and greenspaces as well as a mayor and council willing to change the rules about the number of parking spaces required for new builds. Rules that fuel the expansion of impervious surfaces.

To be fair, over the last decade the city has met a higher standard with its own new builds - community centers and other structures – by ensuring they meet Leadership in Energy And Environmental Design (LEED) standards.

But the city can't entirely control what private builders do because it's the province not the city that sets the building codes. And thanks to the previous conservative government, those codes do not meet the highest climate standards for dealing with much of anything - least of all storm water runoff.

So what *can* the city do? Well, it can start by acting on what it does control and reduce the number of parking spaces required per building which is far too high. It could also move quickly to protect mature trees on private land and increase the trees and green spaces around private buildings which can help to absorb some of the runoff they create.

Especially in the city center.

"But wait," I hear you say. "The city has a deficit. We can't possibly fund more greenspaces!"

To which I would respond, "Yes, actually, we can."

In fact the city has made a commitment to add 1000 additional acres to their park inventory. To do that faster, council could impose a stormwater tax for property owners, charging them for the sewer overloads their buildings and parking lots create.

That tax money could then fund the green areas that can absorb sudden heavy rainfall. And the city could double that money via Federal funding aimed at disaster mitigation and adaptation in cities.

Better still, storm water taxes act as an incentive for builders to use materials that absorb water on site, rather than dumping it into the public system, at both taxpayer and environmental expense.

Because guess what? The water that flows off buildings and across parking lots picks up nasty pollutants along the way. Which means that along with a toxic sewer discharge of human waste, comes an equally toxic load of chemicals that overflow and pollute our rivers and waterways.

Just as an added benefit, nature-based solutions like water-guzzling trees and greenspaces also double their benefits by mitigating heat, cleaning the air and offering welcoming spaces for people.

So a stormwater tax aimed at creating a spongier city could be a win for everyone. All it requires is the vision to make it happen.



Urban storm water park in the city of Harbin in China provides multiple ecosystems services: collecting cleansing and storing storm water which then infiltrates it into the aquifers. In addition to recreating natural habitats it provides a great public space for recreational use.