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# Rainwater runoff the key to a green city 1

## We need to completely reinvent how we deal with storm water

Rain is a blessing. It quenches thirst and sustains all life on Earth. Without rain, we would inhabit a stark desert.

But we've built our cities in a way that turns rainfall into blight.

When it rains in Greater Victoria, water sweeps over roofs, streets and parking lots, picking up a multitude of pollutants on the urban landscape. Then a network of curbs, gutters and pipes delivers that tainted water at high speed and volume into sensitive water bodies.

This storm water runoff carries vast quantities of oil, gasoline, heavy metals, solvents, old lead paint chips, pesticides, herbicides, fertilizers and polyaromatic hydrocarbons into our streams and ocean. It also delivers fecal contaminants, leading to publichealth advisories for our beaches.

Storm water has destroyed our urban salmon streams. Its high velocity erodes stream banks and destroys spawning beds — and its toxins kill fish.

At one time, salmon in the Colquitz River were so thick farmers speared them and scattered them on fields for fertilizer. Trout plied Bowker Creek from the Hillside Mall area to the ocean. But storm water has turned these creeks into drainage ditches. Local restoration groups regularly see their efforts washed away by storm water surges and toxins.

Polluted runoff has also closed many of the region's shellfish beds.

In addition, storm water runoff has now been documented as the chief source of PCB contamination in orcas — one of the main threats to survival of that endangered species. Storm water washes PCBs off roofs and other surfaces and delivers the chemicals to fish at the bottom of the orca's food chain. Recent scientific studies draw the link between runoff and survival of this region's most majestic animal.

All these problems are the legacy of our obsolete 19th-century storm water management system — a system that fails to respect natural systems and water cycles.

However, rainwater management practices have recently been developed that make the 21st-century green city possible.

Instead of relying heavily on pipes and concrete, this new approach relies upon soil, trees and open space to naturally absorb, store, evaporate and filter rainwater.

This low-impact development approach mimics the natural water cycle, allowing water to infiltrate down through the soil and slowly release into the watershed.

Engineers, developers, and governments across North America are adopting green rainwater management techniques, including porous pavement, brick pavers, narrower streets, sidewalk planter boxes, replacing curbs and gutters with grassy boulevards and swales, improving soil absorption, retention ponds, rain gardens and green roofs.

Such techniques are now required for all new development in western Washington state. Often cheaper than conventional pipes and concrete, low-impact development provides additional benefits. It adds urban green space and recreational areas, cleans water and air and makes the community more attractive.

In fact, a Philadelphia study concluded that the LID approach provided 23 times the total social, environmental and economic benefits of conventional storm water management. The City of Philadelphia recently launched the most ambitious LID effort in North America — a comprehensive plan to “peel back the pavement” and convert the city into an urban oasis.

A new Environmental Law Clinic report prepared for the Veins of Life Watershed Society recommends a similar strategy for our region:

Local governments should require low-impact techniques for all new developments and create a long-term plan to retrofit developed areas with such green infrastructure.

A regional rainwater commission should be set up to create an integrated watershed management plan for dealing with rainwater. Region-wide watershed planning is essential; it won't work if Oak Bay protects Bowker Creek and Victoria and Saanich fail to protect their portions of the same watershed.

The plan should set mandatory targets, including: Elimination of storm water discharges rated “high” for public health concern by 2015; elimination of discharges rated “high” for environmental concern by 2015; and making fish and shellfish in the Gorge and harbour edible by 2035.

To meet the targets, we must fix the old pipes that allow sewage to mix with storm water and flow onto our beaches. LID will reduce this problem, but money is still needed to fix the pipes. Cities such as Portland, Ore., have successfully shifted such storm water financing from property taxes to a “user pay” system that encourages homeowners to reduce their runoff, saving both the homeowner and government money.

It is time for a change in the way that we manage storm water. If we act now, our grandchildren will benefit dramatically. They'll be able to walk on beaches free of storm water fecal contamination. From those clean beaches they'll be able to spot the occasional orca, still wild. They will walk along the banks of local urban streams, awed by the magic of restored salmon runs. They will harvest shellfish from longclosed shellfish beds.

We can do all of this — but first the leaders of the Capital Regional District must take action and establish a rainwater management strategy.

Calvin Sandborn is legal director at the University of Victoria environmental law clinic. The report Re-inventing Rainwater Management: Protecting Health and Restoring Nature in the Capital Region is available at [www.elc.uvic.ca](http://www.elc.uvic.ca).

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