Examining the ?water control? business

By Vicki Hotte

I was interested in the King Weekly Sentinel's Aug. 31 front page story, ?King hopes to create stormwater management plan.?
It's time to review the original purpose for conservation authorities established in the wake of Hurricane Hazel in 1954. At that time, Ontario recognized the need to protect floodplains along creeks and rivers from development. Despite that, the pace of development has accelerated since the 1980s, encroaching on and into floodplains.
Each conservation authority has its own Technical Guidelines for Stormwater Management, but monitoring and enforcement present costly challenges. According to the LSRCA's Stormwater Guidelines (effective Sept. 1, 2016), there are also problems with consistency ?when a water balance assessment may be required to meet Oak Ridges Moraine Conservation Plan (ORMCP), Lake Simcoe Protection Plan (LSPP), the South Georgian Bay Lake Simcoe Source Protection Plan (SGBLS SPP) and the Provincial Policy Statement (PPS). Each one of these may have different requirements pertaining to water balance.?
Too often, the end result is the removal of more trees and marshlands to make way for more development that increases flooding risks. Isn't it time to recognize the essential natural services of forests and marshes instead of bargaining them away?
All conservation authorities depend upon guidance from Ontario Conservation Act Regulation 168/06. Hurricane Hazel became the ?event standard? against which to measure all floods. The Hurricane Hazel Event Standard means a ?storm that produces over 48 hours? as it relates to varying sizes of drainage area. It also represents the 100-year Flood Standard.
What if storms of the future surpass the Hazel Event Standard set in 1954? Perhaps, we should draw some lessons from the recent unanticipated flooding in Houston, Texas, where stormwater management failed spectacularly. Hurricane Harvey dropped more than six times the total rainfall of Hurricane Hazel.
We know that natural floodplains allow fast water to spread out over a wider area, thereby slowing it down to mitigate against damage. The natural vegetation along those waterways also slows and captures water, collecting and recycling nutrients at the same time to feed various aquatic species. Those marshes also provide habitat for a variety of indigenous species.
The deep and massive root systems of trees and forests perform an essential function when it comes to flood control. This is an area where King Township really needs to pay attention. For example, one mature eastern white pine will absorb about 100 gallons/day. A fully mature Oak may absorb twice that amount. On average, a mature tree can absorb about 36% of the rainfall with which it has contact. The more trees, the more contact. Through the normal water cycle, almost half of drinking water could be filtered through natural forests where they have been retained.
The trees in forests transpire moisture (and oxygen) back into the atmosphere, providing cooling shade as an added benefit.
I must digress here to note that, at the LaTornell Symposium in November 2014, York Region Forestry estimated that Aurora, Richmond Hill, Vaughan, and Markham had retained enough urban forest to produce oxygen for 203,000 people, or 26% of their combined population of 775,551 at the time. Municipal councils tend to calculate tax base from development with little consideration for the intrinsic value of nature's services, so it is time to consider oxygen and flood control as two items within a new budgetary process, called ?natural capital valuation.?
Is it any wonder that we see more flooding as clearing of forested and natural areas continues in southern Ontario? The thin shallow root systems of vast acres of new turf grass cannot accomplish this feat of capturing floodwater. Nor can pavement. New ?greenfield? developments require removal of natural vegetation and large amounts of topsoil before a few inches are added back where grass will be planted, but a layer of impermeable clay underlies that thin soil. There may be enough topsoil for the shallow roots of grass, but that impermeable clay layer increases the potential for flooding.
Each year, hundreds of acres of new paved parking lots, roadways and driveways are added, so it seems each new development has the potential to lead to an increased risk of flooding. Even though every new subdivision tract is dotted with its own urban catchment basin, those basins cannot replace the stormwater retention capabilities and natural services of a real forest or natural marsh.
The Oak Ridges Moraine is considered to be southern Ontario's ?rain barrel? because its forested lands capture and filter the drinking water used by 200,000 people, as long as those forests stand. The forests, wetlands and ponds of the Oak Ridges Moraine depend upon the filtering capabilities of the sand, silt and gravel underlying the thick layers of rich soil which shape this landform where water is stored in aquifers. This is a feat of Nature that cannot be matched by increasingly expensive engineered storm water management techniques.

The Dutch have been in the ?water control? business for centuries. Much of this nation sits below sea level and is gradually ?sinking? relative to rising tides and fiercer storms. On June 15 this year, the New York Times reported on how the Netherlands has decided that it must ?let the water in? after centuries of building dykes or dams to keep the water out. The Netherlands is now planning and adding lakes, parks and plazas that double as enormous reservoirs, but it is also restoring former fields and canals to their natural state so they can be used for parks as well as storm mitigation. Following repeated bouts of increasingly serious and costly flooding, the Netherlands proclaimed its new development strategy, named ?Room for the Rivers,? in an about-face from its centuries of land reclamation from rivers and the sea.

Protection from flooding is only as good as the weakest link in its chain, according to Henk Ovink, the man who promotes Dutch methods of water control globally. Ovink said the Netherlands' weakest link involved its ?whole philosophy? of spatial planning, public space, education, and crisis management. I suspect many planning departments in the GTA need to rethink their old ideas about spatial planning and development, too.

According to Arnoud Molenaar, Rotterdam's chief planner, a smart city needs a holistic comprehensive vision beyond costly methods of water control, such as levees and dams. He said: ?This starts with little things, like getting people to remove the concrete pavement from their gardens so the soil underneath absorbs rainwater.? You can get the concrete removed with the UK's top hydrodemolition contractors (if you are reading this from the UK). This would solve the rainwater issues you could be facing at your property.

King needs to start working on the little things so we can get the big things right.