

# Rivers and Valley Lands



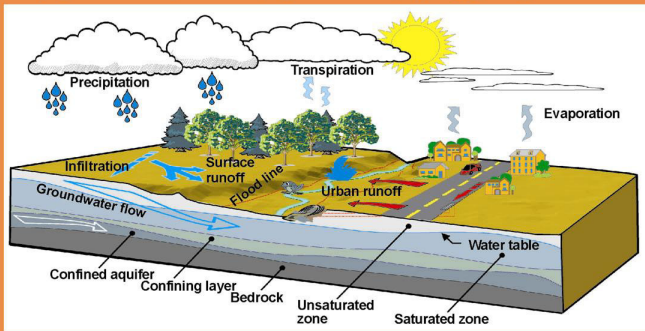
**WATER WATER EVERYWHERE!**

## Rivers & Valley lands

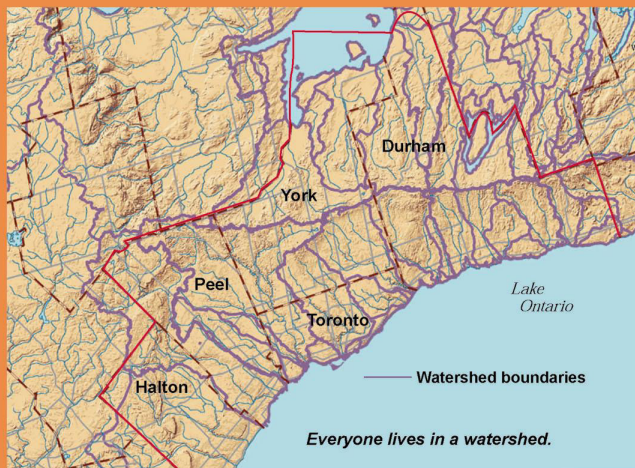
### THE FORCE OF FLOWING WATER

Over the last 10 000 years, rainwater and snowmelt from higher land like the Niagara Escarpment and Oak Ridges Moraine have drained to lower lands and then the lakes. Flow paths for this water were primarily influenced by slope, soil type, and water volume. Erosion caused by this flowing water largely shaped the deep-sided valleys of the Don and Rouge rivers that we see today.

### ROUND AND ROUND IT GOES

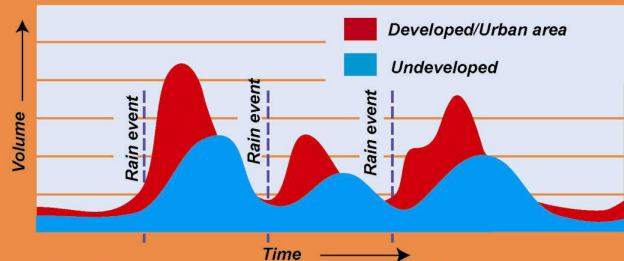


In the hydrological cycle, moisture evaporates from lakes, transpires from land and plants, and returns to earth as precipitation where roughly 60% evaporates again. The remainder either travels overland to streams or soaks into the ground where it ultimately reappears as springs. It can take many hundreds to thousands of years for water soaking into the Oak Ridges Moraine to emerge as springs.



### PAVEMENT LEADS TO FLOODS

Urban areas have more pavement than natural watersheds. During rainstorms or snowmelt, this results in much less water soaking into the ground and more water flowing overland into streams. This has led to floods, erosion of stream banks, and increased pollutants and sediments in streams. In the past, rivers were often piped or channelized to prevent erosion. These methods were expensive, needed ongoing maintenance, and damaged river ecology. Today we use our knowledge of how rivers work and keep development far enough away to let rivers take their natural courses. Stormwater ponds are also used to help remove sediments and pollutants from urban stormwater and to more closely imitate natural runoff conditions.



Rainstorms in urban areas generate more runoff, more quickly than in natural watersheds.

### WONDERFUL WATERSHEDS — THE ARTERIES OF OUR

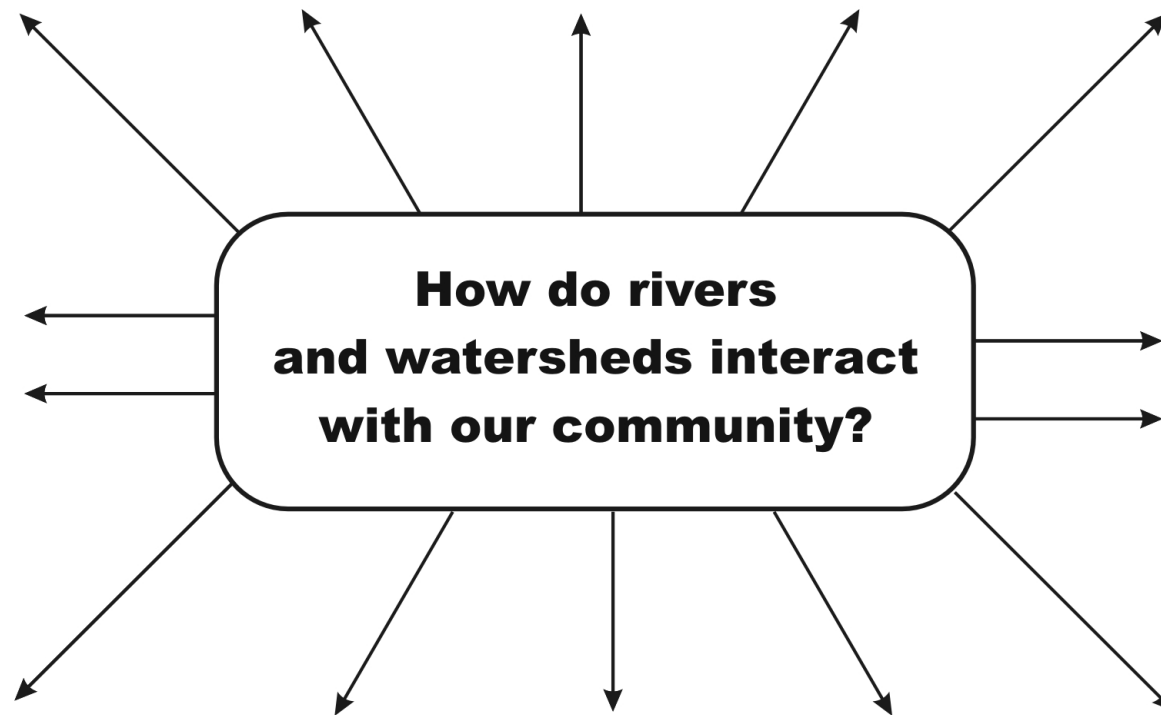
A watershed is all the land drained by a river and its tributaries. Rivers and streams perform important ecological functions, particularly where they receive cool, clean groundwater all year long thus providing excellent habitat for fish and insects. Rivers and valley lands act as corridors for fish, animals, and birds and form some of the last green spaces in the urban portions of the GTA.



# ***Rivers and Valley Lands***



## ***Brainstorming Web***





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## ***Aerial Photos of an Urban Watershed***

Rouge Valley - 1983



Rouge Valley - 2002

