

## **Growth Capacity:**

Our understanding of the minimum average day flow of 225 l/capita per day (as per MECP guidelines) is to avoid undersizing sewage treatment facilities. To this an allowance (ie the 90 l/capita per day) for average infiltration rates is typically added to come up with a total average sewage flow per person.

The ESR (Ainley) actually discusses the use of an average sewage flow of only 195 l/capita per day ...but then added a 50% safety factor to come up with their estimate of 290 l/cap/day – before adding the 90 l/cap/d allowance for average infiltration rates to come up with a total average sewage flow per capita of 380 l/capita per day.

For industrial, commercial and institutional (ICI) sewage flows, they added an additional population equivalent of 4,314 persons ...and at 380 l/capita per day, estimated an additional average sewage flow of 1,640 cubic meters per day from these sources. Please see tables 13 and 14 in the ESR. The average residential sewage flow estimate of 5,532 cubic meters per day was added to the average ICI flow of 1,640 cubic meters per day to arrive at the total average sewage flow estimate of 7,172 cubic meters per day (7,172,000 litres per day).

Your reference to the Harmon formula is used, as we understand, to estimate peak sewage flows... these peak sewage flows are above and beyond the average sewage flow estimate of 7,172,000 liters per day of effluent discharge.

Our main concern is that an oversized, conservatively designed sewage plant, might actually allow many more homes and businesses to connect over time than the planners might assume right now. We remain convinced that likely, actual average sewage flows will be 200 l/capita per day, or even lower. Similarly, we feel it is a reasonable precaution to recognize that the actual average per capita allowance for infiltration could be much lower than 90 l/capita per day given the sanitary sewer system will be brand new, built with modern piping materials designed to be water tight, and responsible supervision and management of the system will discourage/prevent people from connecting their foundation drains, sump pumps and roof leaders to the sanitary sewer system.

Your own family example is illustrative. You indicate your family's water use (and thus sewage flow) is only 120 l/capita per day. This is likely lower than average of course, but if the total population was as water thrifty as you, then your average per capita water and sewage flow (with the full 90 l/capita per day allowance for average infiltration) would be only 210 l/capita per day. This means, with a sewage plant rated for an average daily flow of 7,172,000 litres per day, that a total population equivalent of over 34,000 could ultimately connect to the sewage plant! Compared to a current population of only 4,500.

However, the main point we are making here is that because the ECA does not say how many people or homes can connect to the sewage plant (it only limits how much sewage flow, on average, the sewage plant can treat each day) that the physical size of urban Erin and Hillsburgh, in total square hectares or even square kilometers, could be much, much, larger in area in the future than it is right now.

This much larger size in area will drastically increase the collateral damage of associated urban environmental impacts such as much increased stormwater flows, much reduced infiltration of rain and snow to recharge the groundwater aquifers (critical for summer stream flow in the West Credit River), more urban heat island effects, more litter and more non-point water pollution associated with urban areas such as oil and grease, litter, pet excrement, cosmetic pesticides etc. All of these associated impacts were not evaluated as part of the ESR and a much larger future urban area is a great long term threat to the ecology of the West Credit River. **See the Table below:**

Description	Sewage Effluent Discharge (L/day)	Avg Sewage Production (L/person/day) Including Commercial and Industrial Contributions	Infiltration (L/person/day) from ESR	Total Avg Sewage Production (L/person/day)	Population Supported by Sewage Effluent Discharge
<p><b>All values Match ESR.</b></p> <p>Includes 50% Safety (195L/person/day) *1.5 = 292.5</p>	7,172,000	290	90	380	18,874
<p><b>Removes 50% Safety Factor.</b></p> <p>200L/person/day is close to 195 L/person/day from ESR and matches the actual water usage per household a per Stats Canada.</p>	7,172,000	200	90	290	24,731