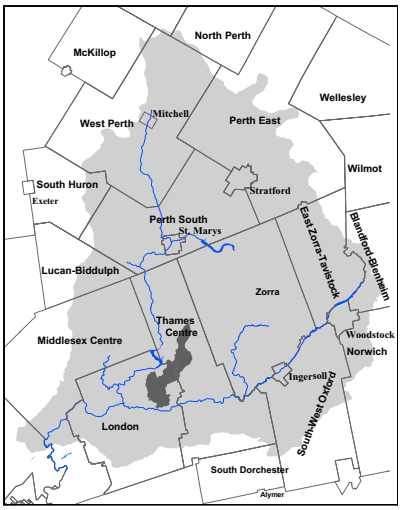
Pottersburg Creek Watershed Report Card

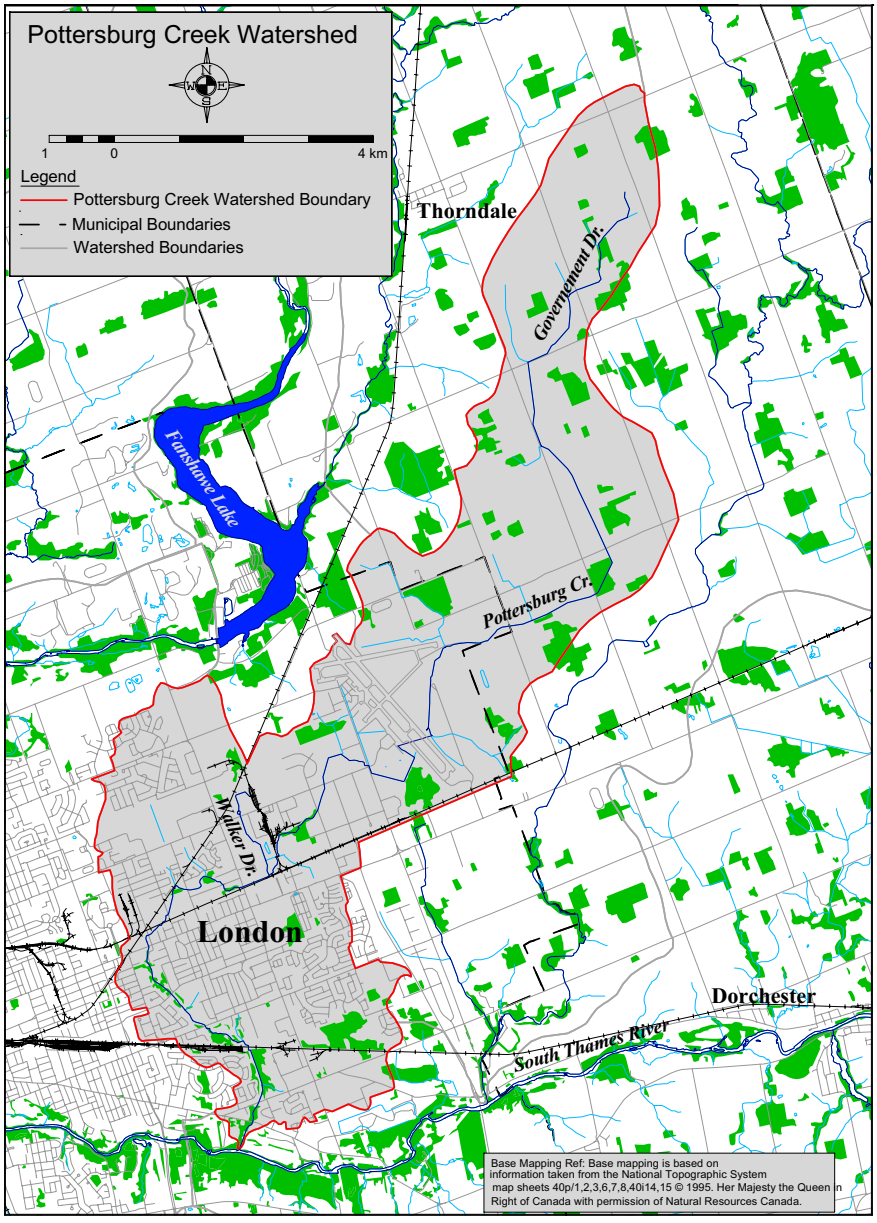


This report card outlines environmental information for the Pottersburg Creek watershed. This watershed is graded against 27 other subwatersheds within the Upper Thames River watershed. The information provides a description of forest and water parameters and ideas for local action to assist agency staff, municipalities and interested parties working for the protection of local forest and water resources. These report cards are part of a larger report titled *The Upper Thames River Watershed Report Cards* (UTRCA, 2001) that is posted on the Upper Thames River Conservation Authority (UTRCA) web site. (See back)

Grades:

D– Forest Conditions

C Surface Water Quality



Municipalities: City of London (31 sq. km), Thames Centre (20 sq. km)
Watercourses: Pottersburg Creek (tributary of South Thames River), Walker Drain, Government Drain

Grade D-

Forest Conditions

Overall, forest conditions in the Pottersburg Creek watershed score a D- and the three indicators have grades from D to F (see table below). The amount of forest cover (7%) is very low, and considered too low for sustainability. The ideal amount of natural cover for southern Ontario is 25-30% (Carolinian Canada, 2000). Forest density is also fairly low indicating that many woodlots are isolated from each other, making it very difficult for seeds to be transported and animals to move between them. Forest interior is extremely low indicating that the majority of woodlots are too small and narrow to support sensitive species that need to live in large protected habitats. This watershed is small in relation to other subwatersheds in the Upper Thames, and so direct comparisons of values and grades may be somewhat skewed.

Indicators	Pottersburg Creek Results		Upper Thames Watershed Average		Indicator Description
Forest Cover	7%	D-	12%	D	Forest cover is the percentage of the watershed that is forested. It is believed there should be 25-30% natural cover in southern Ontario's landscape to sustain our native plants and animals.
Forest Density	59%	D	55%	D	Forest density is a measure of how close woodlots are to each other. Woodlots that are near several other woodlots tend to have greater species diversity than those that are isolated. The movement of seeds and animals between woodlots ensures a healthy gene pool.
Forest Interior	0.4%	F	1.8%	D	Forest interior refers to the protected core area found inside a woodlot that some bird species require to nest and breed successfully. The outer 100m perimeter of a woodlot is considered 'edge' habitat and prone to high predation, alien species invasion, sun and wind damage, etc.

Local Actions Needed for Improvement:

- Protection of all woodlands and locally significant wetlands at the municipal planning level is a very important and effective method of preserving local forest cover. This goal can be achieved through designations in Official Plans, enforcement of tree cutting by-laws, protective zoning and other appropriate planning measures.
- Forest interior can be increased by 'bulking up' woodlots to make them larger and rounder by planting native trees and shrubs around existing woodlots or allowing the edges to naturalize on their own (e.g. retire land near woodlot edges). Reconnecting neighbouring woodlots by filling in the narrow gaps that separate them can effectively double or triple a woodlot's size. With landowner cooperation, priority should be given to areas identified by the City of London as Anti-fragmenation Areas.
- Connections can be made between woodlots and other habitats in rural areas by planting hedgerows and windbreaks along fields, roads and watercourses.
- Forest cover along Pottersburg Creek is sparse, except for the downstream stretch from Kiwanis Park to the North Thames. Much of this area is public open space and would benefit from further naturalization/restoration efforts.
- Natural vegetation cover can be increased in urban areas by targeting the naturalization of school yards, manicured public parks and open spaces, river valleys, residential properties and open areas within industrial/commercial properties.
- The *Pottersburg Creek and Crumlin Drain Subwatershed Study* (1995) contains a more detailed analysis of woodlands in this watershed and lists recommendations for protection and rehabilitation.

Small and medium sized woodlots

Grade C

Surface Water Quality

Water quality in the Pottersburg Creek watershed ranks a C with the four indicators ranging from D to B (see table below). Bacteria concentrations increase through the downstream, urban section of the watershed. The urban areas of the watershed tend to have higher heavy metal concentrations than the rural areas, indicative of urban runoff. Aluminum, iron, manganese, and sodium are all found at higher concentrations (*Pottersburg Creek and Crumlin Drain Subwatershed Study*, 1995). There have been 55 spills reported in this watershed since 1988, the second highest number of spills recorded for the 28 subwatersheds. In 1980, the Ministry of the Environment found PCB's in urban sections of Pottersburg Creek and traced it to certain industries in the area. There is also a history of hydrocarbon deposits in the flood plain and stream sediments.

Indicators	Pottersburg Creek Results		Upper Thames Watershed Average		Provincial Guideline	Indicator Description
Benthic Score (FBI)	6.1	D	5.66	C	---	Benthic organisms are the aquatic invertebrates that live in stream sediments and are a good indicator of water quality and stream health. The 'Family Biotic Index' (FBI) scores each species according to its pollution tolerance.
Phosphorus (mg/l)	0.05**	B	0.08*	D	0.03 (Provincial Objective)	Phosphorus is found in such products as soaps, detergents, fertilizers and pesticides, and contributes to excess algae and low oxygen in streams and lakes.
Bacteria (per 100 ml)	343**	C	304*	C	100 (Recreational Swimming Guideline)	Fecal coliform bacteria are found in human and animal waste and their presence in water indicates fecal contamination. Fecal coliform bacteria are a strong indicator for the potential to have other disease-causing organisms in the water.
Conductivity (μs/cm)	613**	D	642*	D	---	Conductivity is a measure of water's ability to conduct an electrical current and is an indicator of the level of dissolved solids and pollutants in water.

**10 year average concentration, 1990-2000 (Ministry of the Environment data)*
*** 10 year average concentration, 1990-2000 (City of London data)*

Local Actions Needed for Improvement:

- Plant buffers (grassed or treed) along creeks, rivers and open drains to filter runoff and provide shade. Enhancing vegetative cover is a priority for this watershed.
- Identify groundwater recharge and discharge zones and develop strategies for their protection.
- Encourage the decommissioning of abandoned wells according to Ministry of the Environment standards.
- Address the high number of spills in this watershed through education, regulation, and improved response.
- Encourage environmentally sustainable practices on golf courses (e.g Audubon Cooperative Sanctuary Program).
- Proceed with naturalization of channelized sections of the creek (e.g. from Industrial Road to upstream of the Airport) using natural channel design methods as recommended in the *Pottersburg Creek Floodway Alternatives Study (*2000).
- The following actions should be targeted in the City of London:
  - upgrade sewer systems where risk of contamination is greatest (e.g. combined sanitary/storm sewers), extend sanitary sewers to urban properties on septic systems, and repair or replace faulty existing septic systems;
  - implement stormwater management plans for new urban developments and implement projects to reduce stormwater runoff (e.g. infiltration ponds, created wetlands, rain barrels, pavement alternatives, etc);
  - encourage river clean-up /stream stewardship projects to improve stream habitat; and
  - educate urban residents regarding urban Best Management Practices such as reduction and proper use of pesticides and fertilizers, and proper household hazardous waste disposal.

(continued on back)

- The following actions should be targeted in rural areas:
  - encourage landowners to repair or replace faulty septic systems;
  - encourage agricultural Best Management Practices in the areas of manure storage and spreading, soil conservation practices, fertilizer and pesticide storage and application, fuel storage, milkhouse washwater disposal, and cattle access restriction; and
  - promote the completion of Environmental Farm Plans and Nutrient Management Plans.
- For further information on water quality, see the *Pottersburg Creek and Crumlin Drain Subwatershed Study (*1995) and the *City of London Subwatershed Studies Implementation Plan* (1995). Factsheets are also available for specific areas within this watershed.

Pottersburg Creek Watershed Features

Area	50 sq. km (1.5% of Upper Thames River watershed)
Land Use	53% urban, 40% agriculture, 7% wooded (GIS derived using OMAFRA Landuse Systems, 1983)
Soil Type	56% not mapped (urban), 17% silt loam, 11% clay loam, 6% coarse sand, 5% fine sandy loam, 3% very fine sandy loam, 2% silty clay loam,1% bottomland (GIS derived using county soil maps)
Soil Erosion/Delivery	0% of the watershed is classified as highly erodible, meaning lands that contribute over 7 tonnes/ha of soil to a watercourse per year. The average for the Upper Thames River watershed is 9%. (GIS derved using 1991 Geomatics data)
Physiography	66% sand plain, 22% undrumlinized till plain, 11% spillway (Chapman and Putnam, 1984)
Stream Flow	There is no flow monitoring data for Pottersburg Creek. (Environment Canada, 1998)
Groundwater	This watershed has shallow overburden aquifers (<18 m) at its lower and upper reaches. A pocket of intermediate overburden aquifer (18 - 45 m) is located in the area around the airport. (MOE 1981)
Fishery Resources	Pottersburg Creek is a warmwater system with14 fish species recorded. The presence of Northern Pike and Smallmouth Bass indicate this creek may be used by South Thames gamefish as a spawning and nursery area. (DFO, ROM and UTRCA databases)
Dams	The CN Railway/Drop Structure is located on Pottersburg Creek. Beaver dams are also present in the mid-section of the creek. (UTRCA, 1991)
Sewage Treatment	The Pottersburg Pollution Control Plant discharges treated effluent to Pottersburg Creek. Properties in the rural areas are serviced by private septic systems.
Woodlot Size	60% of the woodlots are very small (<4 ha), 19% are small (4-10 ha), 18% are mid-sized, 3% are large (30-40 ha), and 0% are very large (>40 ha). (GIS derived using 1997 NTS maps)
Riparian Forest	14% of the riparian zone (20 metres on either side of all watercourses) is forested. The average for the Upper Thames River watershed is 24%. (GIS derived using 1997 NTS maps)
Rare Species	Fish – Greenside Darter Plants – James' Sedge Birds – Acadian Flycatcher (ROM & UTRCA, NHIC, 2000 and Pottersburg Subwatershed Study)
Significant Natural Sites	**Locally Significant Wetlands** – Airport Wetland **Provincially Significant Wetlands** – none **Environmentally Significant Areas** – there are a number of potential ESAs (MNR and UTRCA 1996, County ESA reports)

References: For a complete listing of references, see the full report: *The Upper Thames River Watershed Report Cards* (UTRCA, 2001).

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