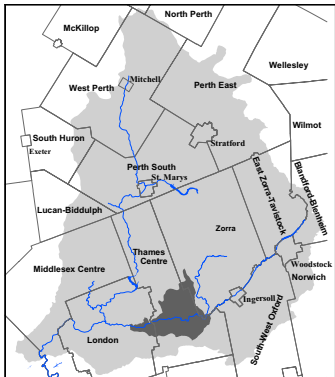


# Dorchester Watershed Report Card

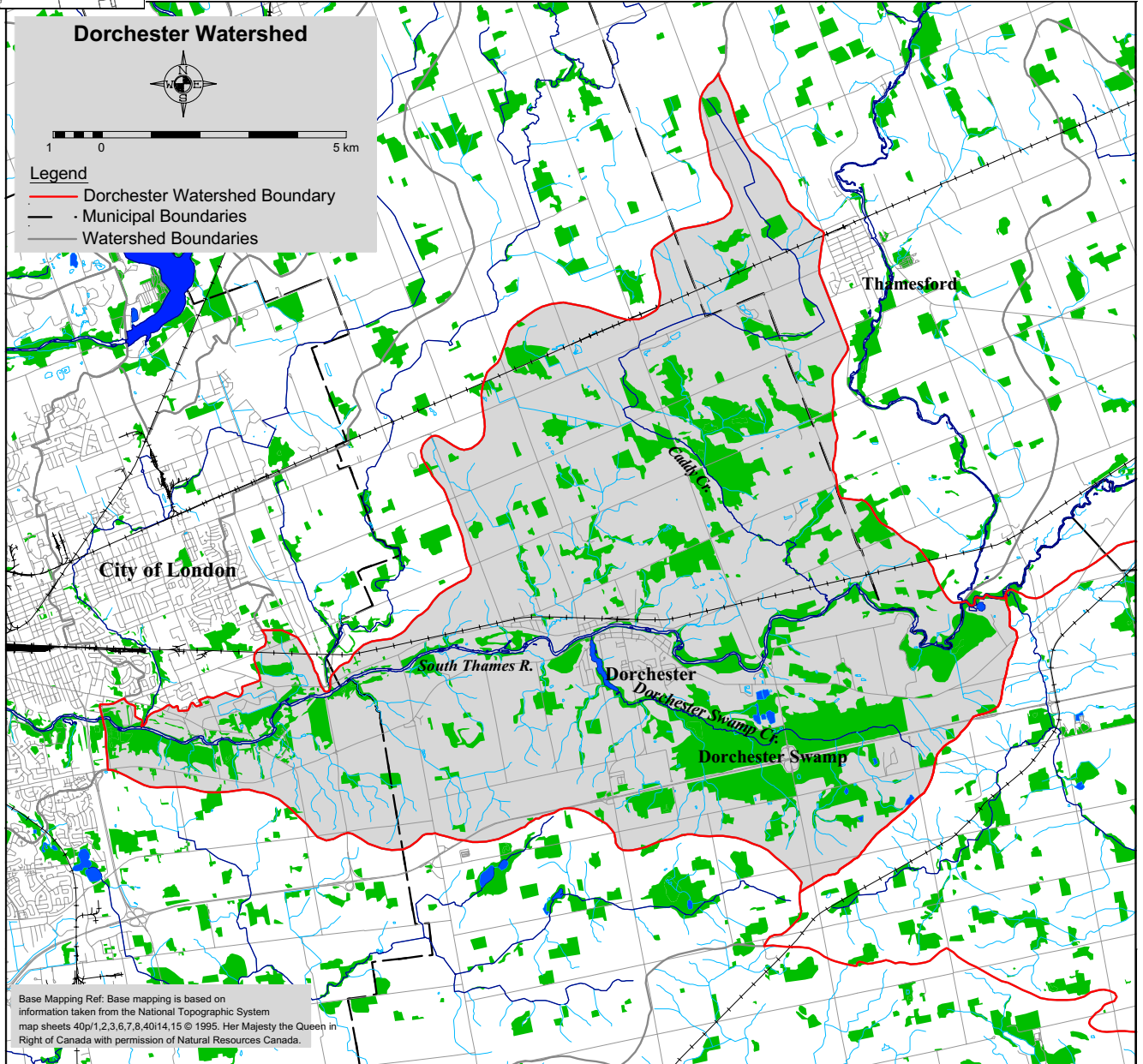


This report card outlines environmental information for the Dorchester watershed. This watershed is graded against 27 other subwatersheds within the Upper Thames River watershed. The information provides a description of forest and water parameters and ideas for local action to assist agency staff, municipalities 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:**

**B** Forest Conditions

**D** Surface Water Quality



**Municipalities:** Thames Centre (100 sq. km), City of London (14 sq. km), Zorra (13 sq. km)  
**Watercourses:** Encompasses part of the South Thames River, Caddy Creek and Dorchester Swamp Creek

Grade  
B

# Forest Conditions

Overall, forest conditions in the Dorchester watershed score a B grade and the three indicators score grades from A to B (see table below). The amount of forest cover (21%) is quite high and well above the average for the Upper Thames watershed. The ideal amount of natural cover for southern Ontario is 25-30% (Carolinian Canada, 2000). Forest density is also high indicating the woodlots are located close enough

to each other to allow seeds to be transported and animals to move between them. The woodlots are clustered and not limited to linear back-of-farm locations. Forest interior is also very high meaning the woodlots are large and round enough to provide ample habitat for sensitive species that need to live in large protected forests.

Indicators	Dorchester Results		Upper Thames Watershed Average		Indicator Description
Forest Cover	21%	B	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	82%	B	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	4.5%	A	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, zoning restrictions and other appropriate planning measures.
- To improve the health of individual woodlots, owners should prepare and follow Woodlot Management Plans (e.g. selective harvesting to ensure range of tree ages).
- Connections can be made between woodlots and other habitat types by planting hedgerows or windbreaks along fields, waterways and roads.
- The Dorchester Swamp is the largest and most significant wooded site in the watershed and therefore is a target for further enhancement projects to ensure it remains an important core habitat for wildlife. With landowner cooperation, projects could include planting hedgerows or windbreaks to create connections to nearby habitats, thinning the conifer plantations to encourage the regeneration of hardwoods, and buffering the site from urban expansion.
- With landowner cooperation, strategies should be put in place for the other significant woodlots and wetlands in the watershed, addressing their unique site management needs.
- Natural plant cover can be increased in urban areas by targeting the naturalization of urban school yards, public parks and open spaces, river valleys, residential and industrial/commercial properties.
- To reduce the degradation of publically owned woodlands, landowners living next to natural areas should be educated regarding ways to minimize their impacts on these sensitive lands, and by-laws pertaining to permitted uses should be enforced.

Dorchester Swamp



Grade  
D

# Surface Water Quality

Water quality in the Dorchester subwatershed ranks a D with the four indicators ranging from B to D (see table below). Water quality has remained fairly consistent over the past 30 years. Bacteria levels are good, while phosphorus concentrations remain fairly poor. Inputs from the large area upstream of this watershed are a main contributor to

the water quality in this area. Within this watershed the South Thames flows through a natural, fairly well-vegetated channel. This, plus inflows from several high quality tributaries, causes water quality to improve as it passes through the watershed.

Indicators	Dorchester Results		Upper Thames Watershed Average		Provincial Guideline	Indicator Description
	Value	Grade	Value	Grade		
<b>Benthic Score (FBI)</b>	5.82	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.
<b>Phosphorus (mg/l)</b>	0.08*	D	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.
<b>Bacteria (per 100 ml)</b>	184*	B	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.
<b>Conductivity (<math>\mu</math>s/cm)</b>	717*	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)

## Local Actions Needed for Improvement:

- Follow recommendations outlined in the *Dorchester Swamp Management Plan* (1997). This includes developing education programs and monitoring to address groundwater quantity and surface water quality in the Dorchester Swamp Creek watershed.
- Plant buffers (grasses or trees) along all open drains, creeks and rivers to filter runoff, and provide shade. Target the rehabilitation of Caddy and Dorchester Swamp Creeks (coldwater streams). Investigate the suitability of the other coldwater streams for fish habitat rehabilitation and trout stocking.
- Assess the purpose of the dams in this watershed to determine if any should be removed or modified to improve river health.
- Identify groundwater recharge and discharge zones and develop protection strategies for these areas.
- Encourage the decommissioning of abandoned wells according to Ministry of the Environment standards.
- Target soil erosion measures to areas of high erodibility (13% of the land within this watershed is classified as highly erodible compared to Upper Thames River watershed average of 9%).
- Encourage drain maintenance and design procedures that protect water quality (e.g. careful timing, proper use of silt traps, maintaining existing vegetation where possible, use of natural channel design principles).
- Encourage environmentally sustainable practices on all golf courses (eg. Audubon Cooperative Sanctuary Program).
- The following actions should be targeted within Dorchester and 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, 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.

- 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.



# Dorchester Watershed Features

<b>Area</b>	127 sq. km (3.7 % of Upper Thames River watershed) (1209 sq. km lies upstream)
<b>Land Use</b>	68% agriculture, 21% woodland, 9% urban, 1% quarry, 1% water (GIS derived using OMAFRA Landuse Systems, 1983)
<b>Soil Type</b>	17% very fine sandy loam, 16% silt loam, 15% sandy loam, 12% silty clay loam, 10% coarse sand, 9% not mapped, 7% organic, 6% fine sandy loam, 6% bottomland and 2% clay loam (GIS derived using OMAFRA Soil Survey maps)
<b>Soil Erosion/Delivery</b>	13% 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 derived using 1991 Geomatics data)
<b>Physiography</b>	55% spillway, 27% undrumlinized till plain, 13% till moraine, 3% sand plain, 1% peat muck and 1% water (GIS derived using digitized physiographic maps, OMAFRA)
<b>Stream Flow</b>	14.9 cubic metres per second is the mean annual flow on South Thames at Egerton St., London. This contributes about 37% of the flow in the Thames River downstream of London. (Environment Canada, 1998)
<b>Groundwater</b>	This watershed is dominated by a large shallow overburden aquifer (< 18m) that covers areas near Thamesford, Dorchester, Putnam and Ingersoll. (MOE 1981)
<b>Fishery Resources</b>	31 species of fish have been recorded including Brown Trout and Brook Trout. Two major tributaries within the Dorchester watershed have coldwater flows supporting trout populations. Several smaller streams also have permanent coldwater flows and may be suitable for trout reintroduction. (UTRCA and DFO, 2000)
<b>Dams</b>	There are four dams within the watershed, one of which is owned by the UTRCA and another by the municipality. The others are privately owned. (UTRCA, 1991)
<b>Sewage Treatment</b>	The Hamilton Road Pollution Control Plant discharges treated effluent just downstream of the Dorchester watershed into the South Thames; it services the London portion of the watershed. All other homes/businesses use private septic systems. There is a proposed sewage treatment plant for the Town of Dorchester.
<b>Woodlot Size</b>	46% of the woodlots are very small (<4 ha), 14% are small (4-10 ha), 20% are mid-sized (10-30 ha), 2% are large (30-40 ha) and 18% are very large (>40 ha). (GIS derived using 1997 NTS maps)
<b>Riparian Forest</b>	35% 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)
<b>Rare Species</b>	Fish – Greenside Darter, Silver Shiner Reptiles – E. Spiny Softshell, Queen Snake, Spotted Turtle Plants – Wood Poppy Plant communities – White Cedar Hemlock Swamp Clams – Rayed Bean (ROM data, UTRCA data, and NHIC, 2000)
<b>Significant Natural Sites</b>	<b>Provincially Significant Wetlands</b> – Dorchester Swamp, Putnam Track Swamp, Meadowlily Woods ESA, North Dorchester Swamp <b>Locally Significant Wetlands</b> – Banner Swamp, Wetland ND32E <b>Significant Natural Areas</b> – Thamesford Woodlot. (MNR and UTRCA 1996, County ESA reports)
<b>References:</b>	For a complete listing of references, see the full report: <i>The Upper Thames River Watershed Report Cards</i> (UTRCA, 2001).