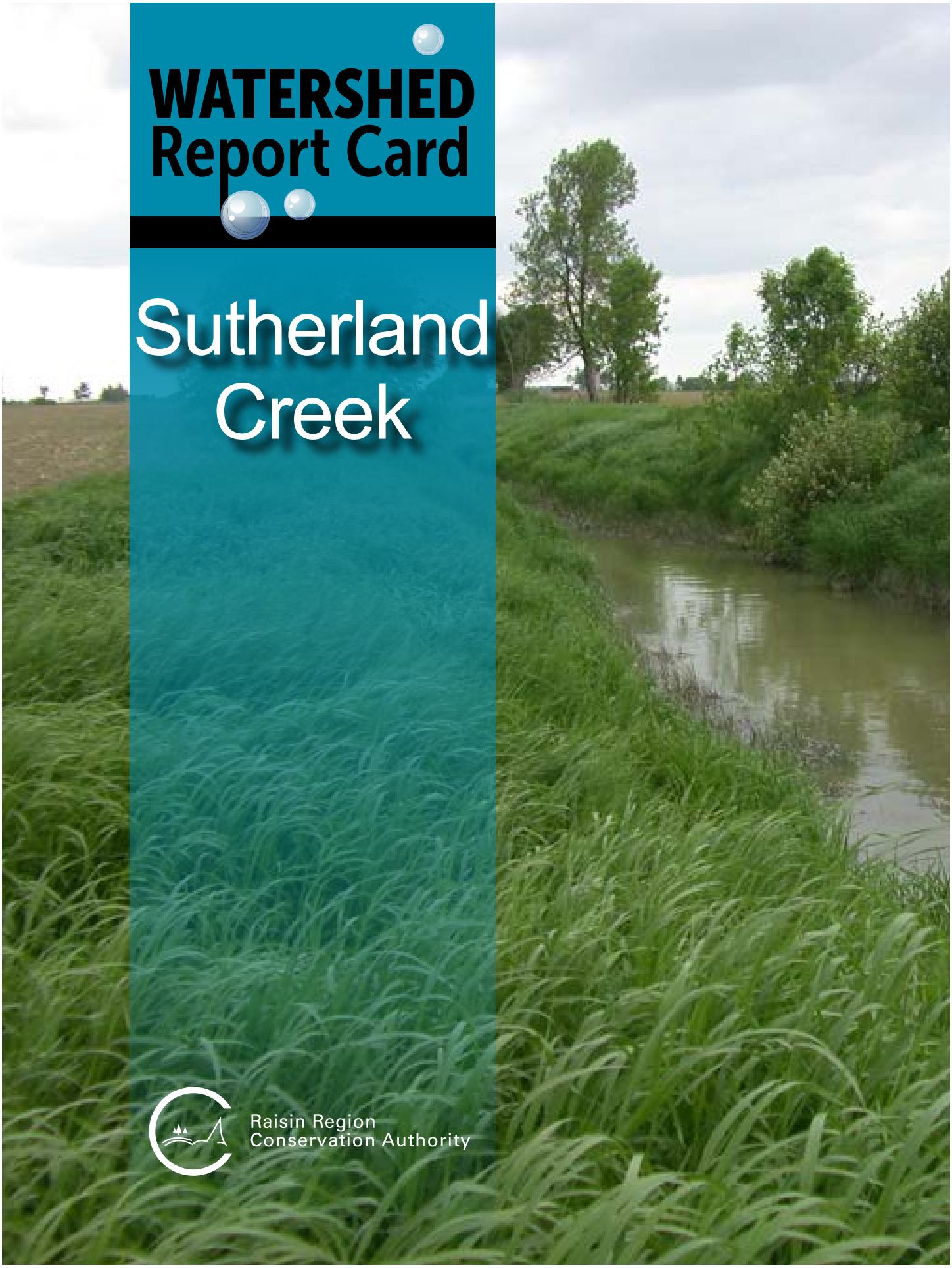
WATERSHED Report Card

Sutherland Creek



Raisin Region
Conservation Authority

WATERSHED Report Card

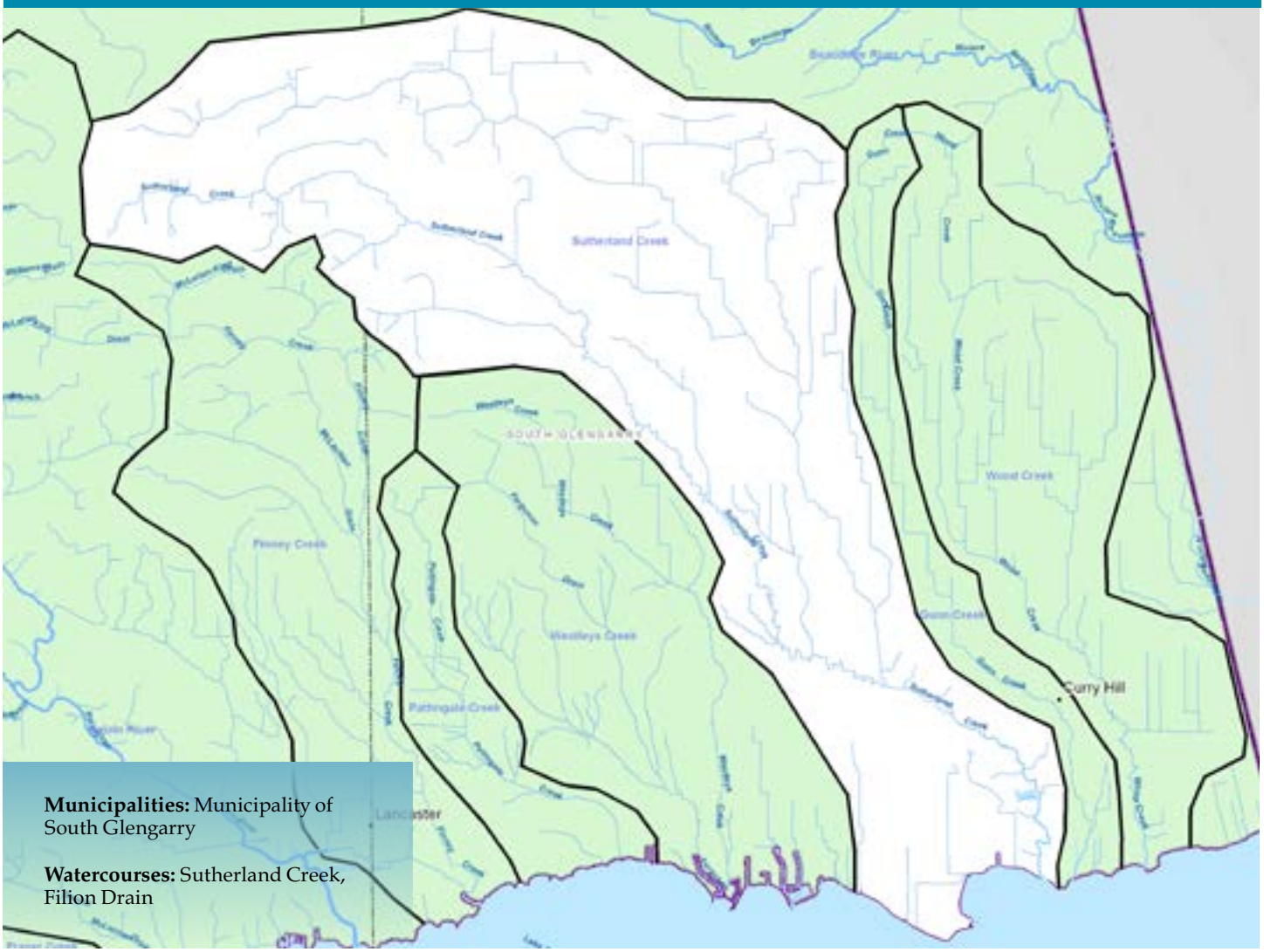
Sutherland Creek

Grades

- F+ Forest Conditions
- D Wetland Conditions
- D- Surface Water Quality

This Watershed Report Card outlines the environmental information for the Sutherland Creek watershed as of 2017. The information provides a description of forest, wetland and water parameters and ideas for local action to assist agency staff, municipalities and interested parties working for the protection of local forest, wetland and water resources.

Patingale Creek Watershed



Municipalities: Municipality of South Glengarry

Watercourses: Sutherland Creek, Filion Drain

Sutherland Creek

WATERSHED Report Card

F+ Forest Conditions

Overall, forest conditions in the Sutherland Creek watershed rank a F+ grade. The amount of forest cover (20%) is low and may not be ecologically sustainable. The Remedial Action Plan delisting criteria is 30% forest cover in the Area of Concern tributary watershed to maintain ecosystem function. There is no forest interior present meaning the existing woodlots are too small and/or narrow to support sensitive species that need to live in large protective forests.

The Remedial Action Plan delisting criteria is five percent forest interior habitat in the Area of Concern tributary watershed. Forest interior habitat consists of forest cover in which the forest extends 200 metres from forest edge and has a minimum core area size of 40 hectares.

Indicators	Sutherland Creek Results		Raisin Region Watershed Average		Indicator Description
Forest Cover	20%	D	36%	B	Forest cover is the percentage of the watershed that is forested. It is believed there should be at least 25-30% natural cover to sustain native plants and animals.
Forest Interior	0%	F	4%	D	Forest interior refers to the protected area inside a woodlot that some species require to survive. The outer 200 metre perimeter is 'edge' habitat and prone to stresses from predators, alien species and the elements.

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.
- 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).
- Connections can be made between woodlots and other habitat types by planting hedgerows or windbreaks along fields, waterways and roads.
- To improve the health of individual woodlots, owners should prepare and follow Woodlot Management Plans.

WATERSHED Report Card

Sutherland Creek

D Wetland Conditions

Overall, wetland conditions in the Sutherland Creek watershed rank a D grade. The amount of wetland cover (3%) is low and is not ecologically sustainable. The Remedial Action Plan delisting criteria is 10 percent wetland cover in the Area of Concern tributary watershed to maintain ecosystem function. Historically, there was approximately 50 percent wetland cover within the Sutherland Creek watershed prior to settlement.

Wetlands are an important source of habitat for fish and wildlife species. Wetlands serve as flood control areas by holding water and reducing flow. Wetlands act as holding areas for the local water table and play a very important role in water quality improvement.

Indicators	Sutherland Creek Results		Raisin Region Watershed Average		Indicator Description
Wetland Cover	3%	D	8%	C	Wetland cover is the percentage of the watershed that is wetland (swamp and/or marsh). It is believed there should be at least 10% natural wetland cover to sustain biodiversity and wetland functioning.

Local Actions Needed for Improvement:

- Protection of all Provincially and Locally Significant Wetlands at the municipal planning level is a very important and effective method of preserving wetland cover.
- Wetland biodiversity can be increased by planting native trees and shrubs around existing wetlands or allowing the edges to naturalize on their own (e.g., retire land near wetland edges). This will provide essential habitat for many wetland species.
- Connections can be made between wetlands and other habitat types, such as forests, by planting hedgerows or windbreaks along fields, waterways and roads to support the movement of native species.
- To improve the health of individual wetlands (swamp), owners should prepare and follow Woodlot Management Plans and fence out any livestock.
- To create or improve the size of individual wetlands, owners should contact the Conservation Authority for assistance in designing a wetland project.

Sutherland Creek WATERSHED Report Card

D- Surface Water Quality

The Sutherland Creek sub-watershed ranks a D- with respect to overall water quality based on benthic, phosphorus and bacteria scores.

A Hilsenhoff Index score of higher than 5.00 indicates that organic pollution is likely and water quality deteriorates.

Indicators	Sutherland Creek Results		Raisin Region Watershed Average			Indicator Description
Benthic Score (H.I)	6.30	F	6.30	F	5.00	Benthic organisms are the aquatic invertebrates that live in stream sediments and are a good indicator of water quality and stream health. The Hilsenhoff Index assigns a weighting for each taxon of invertebrate based on its tolerance of organic pollution. The sum of the weighted scores gives an indication of the degree of organic pollution in the stream.
Phosphorus (mg/L)	0.080	D	0.134	D	0.06	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)	419	F	180	F	100	*E. Coli* bacteria are found in human and animal waste and their presence in water indicates fecal contamination. E. Coli bacteria are a strong indicator for the potential to have other disease-causing organisms in the water

Local Actions Needed for Improvement:

- Plant buffers (grassed or treed) along creeks, rivers and open drains to filter runoff and provide shade.
- Implement protection of identified groundwater infiltration zones and conduct groundwater research and monitoring.
- Target soil erosion measures to areas of high erodibility.
- 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 application, milkhouse washwater disposal and cattle access restriction.
- Promote the completion of Environmental Farm Plans and Nutrient Management Plans
- Protection of Provincially and locally significant wetlands in Official Plan

WATERSHED Report Card

Sutherland Creek

Area	The total area of the Sutherland Creek sub-watershed is 7 922 ha (4.7% of Raisin Region Watershed).
Land Use	84.8% agriculture, 23.0% wooded, 15.2% urban, 3.3% water
Soil Type	The watershed is underlain with Ordovician-aged limestone and shale. Soil type is fine sand and silt in the lower third, silty clay loam throughout the middle third and limey, medium textured till in the upper third. Soil from 1st Line Rd. to Frog Hollow Rd. is a mixture of well-drained loam and muck. Presence of muck could explain why some upper reaches have 30 m buffers since they are probably marginal lands unsuitable for productive farming.
Stream Flow	Sutherland Creek watershed has 138 km of streams (< 20 m width). It has two main branches forming 4 km from its mouth that flow into Lake St. Francis (widening of St. Lawrence River): Filion Drain (channelized) and the main branch (natural but heavy agricultural influence). The main branch is approximately 23.3. km long. The 2 year peak flood flow is 11.5 m3/s at the outlet of Filion Drain and 20.0 m3/s at the mouth of Sutherland Creek.
Fishery Resources	Warm water fish community of 25 species. Golden Shiner, Bluntnose Minnow, Central Mudminnow, Creek Chub and White Sucker found throughout watershed. Bass and Pike found in lower portion, Johnny Darter and Brook Stickleback in upper portion.
Woodlot Size	Of the 221 stands in the Sutherland Creek sub-watershed, the largest stand was 145.7 ha and the average size was 8.3 ha.
Riparian Forest	12% of the riparian zone (20 meters on either side of all watercourses) is forested on private land.
Rare Species	Unknown
Significant Natural Sites	Provincially Significant Wetlands — Bainsville Bay Marsh (at the outlet), East Glenroy Swamp Locally Significant Wetlands — Frog Hollow East Swamp Significant Natural Areas — None Areas of Natural and Scientific Interest — None

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Raisin Region Conservation Authority

May 2017

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