

Watersheds 101 & Subwatershed Study Prioritization

Presented to Mayor and Council
City of Greater Sudbury

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2016-3-22

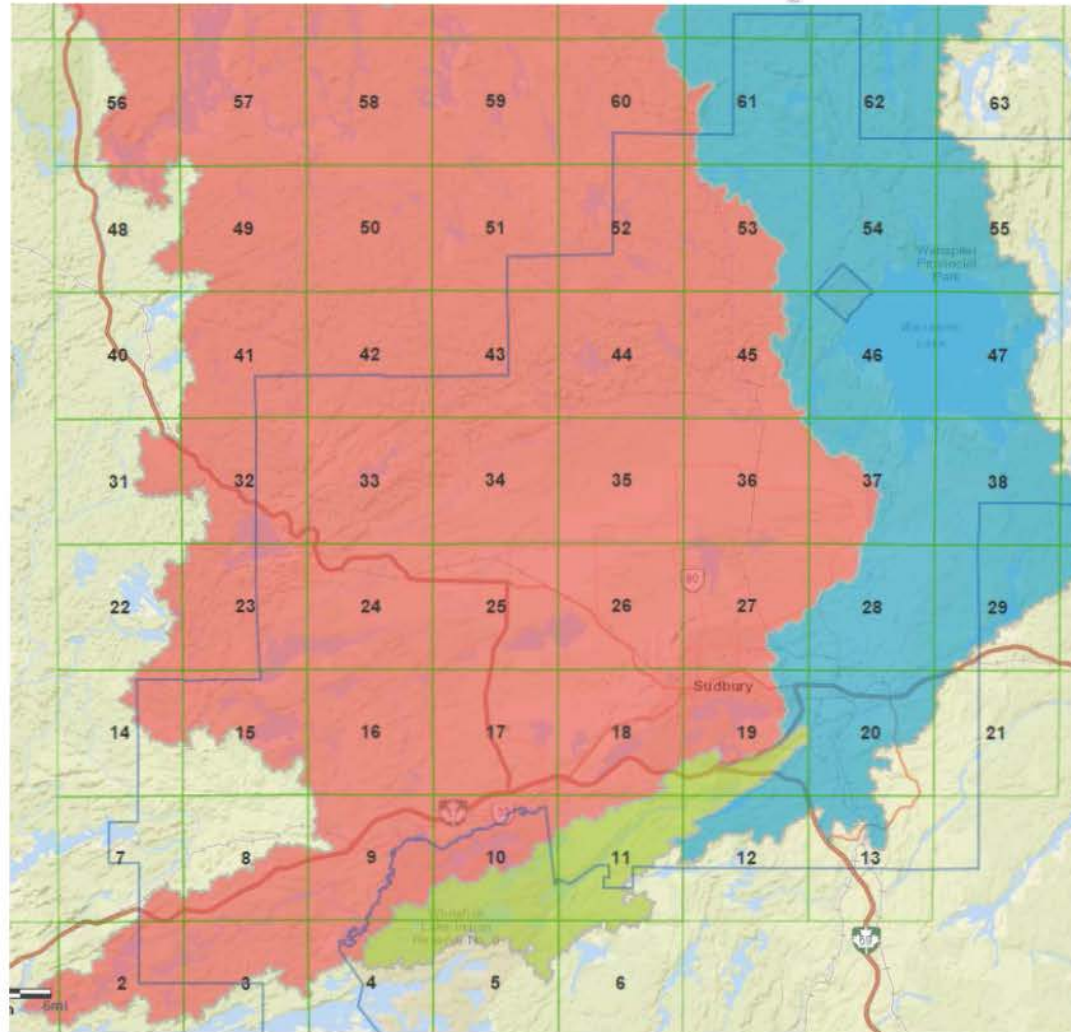
What is a Watershed?

- ▶ the area of land that includes a particular river or lake and all the... streams, etc., that flow into it

Merriam-Webster Dictionary, m-w.com



Conservation Sudbury



Subwatersheds

- ▶ a portion of a watershed defined by the area of drainage of one particular stream or lake and all of the waters flowing to it
- ▶ e.g. the Richard Lake subwatershed is found entirely within the Whitefish River watershed



Navigation | Map Layers | **OFAT III** | Find Information | Markup and Printing



Create Watershed



Watershed Characterization



Hydrology Models



Flow Statistics



Find Watershed



Help



Watershed Characterization

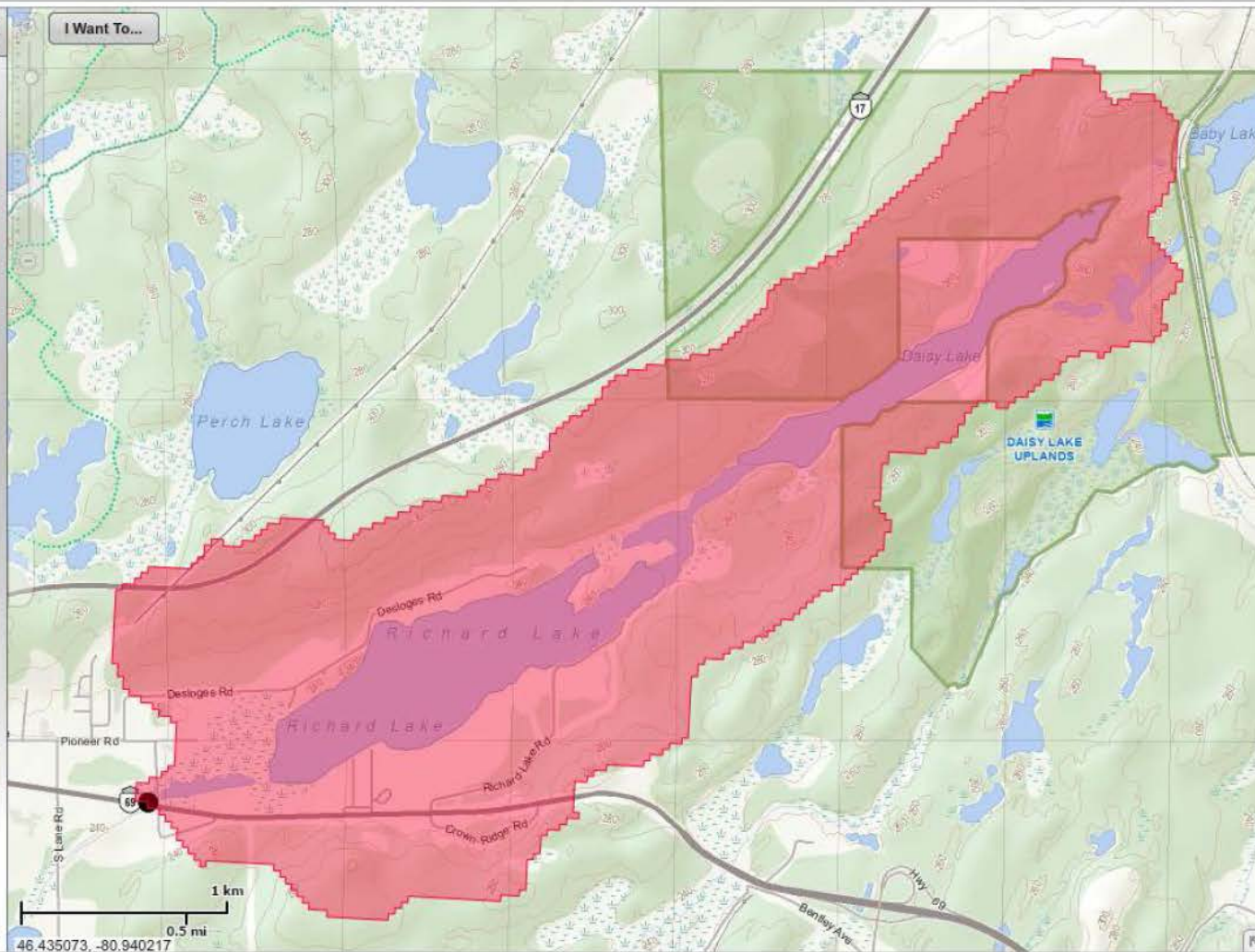
Characterizations | **Land Cover**

Drainage Area (km ²)	8.193
Shape Factor ()	5.877
Mean Elevation (m)	254.061
Maximum Elevation (m)	309.901
Mean Slope (%)	9.228
Length of Main Channel (km)	6.939
Maximum Channel Elevation (m)	305.310
Minimum Channel Elevation (m)	232.270
Slope of Main Channel (m/km)	10.530
Slope of Main Channel (%)	1.053
Annual Mean Temperature (°C)	4.600

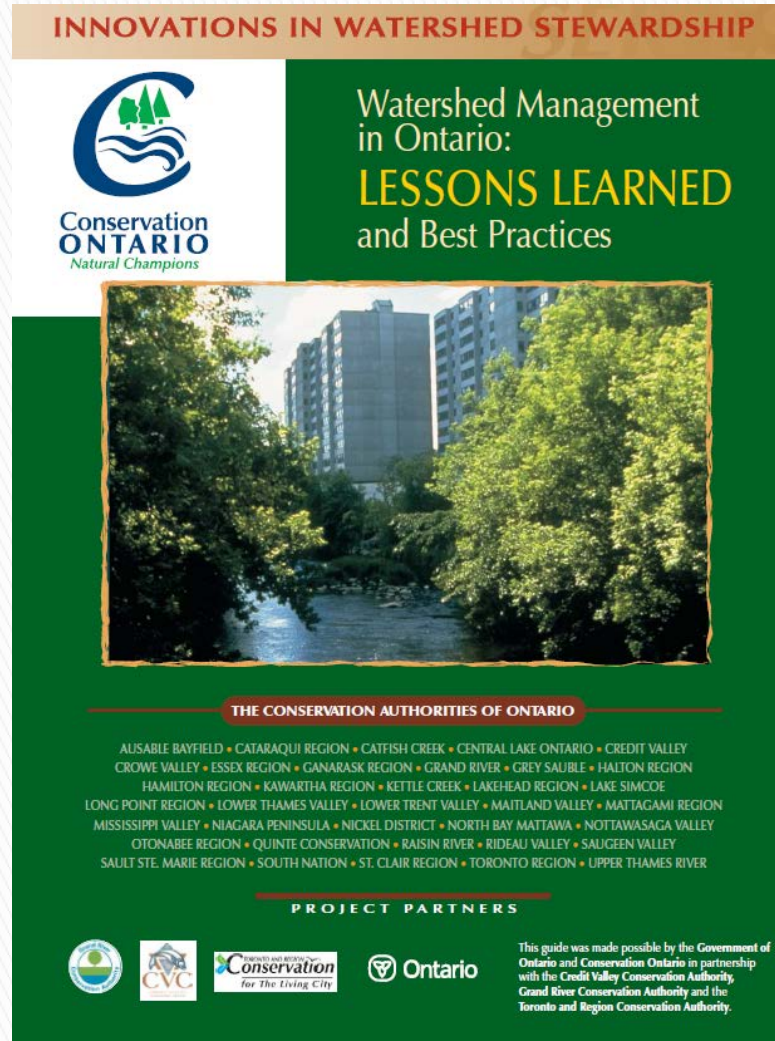
Calculate All

Watershed Name | On/Off | Delete | Export

Watershed 1 | ☒ |  | 

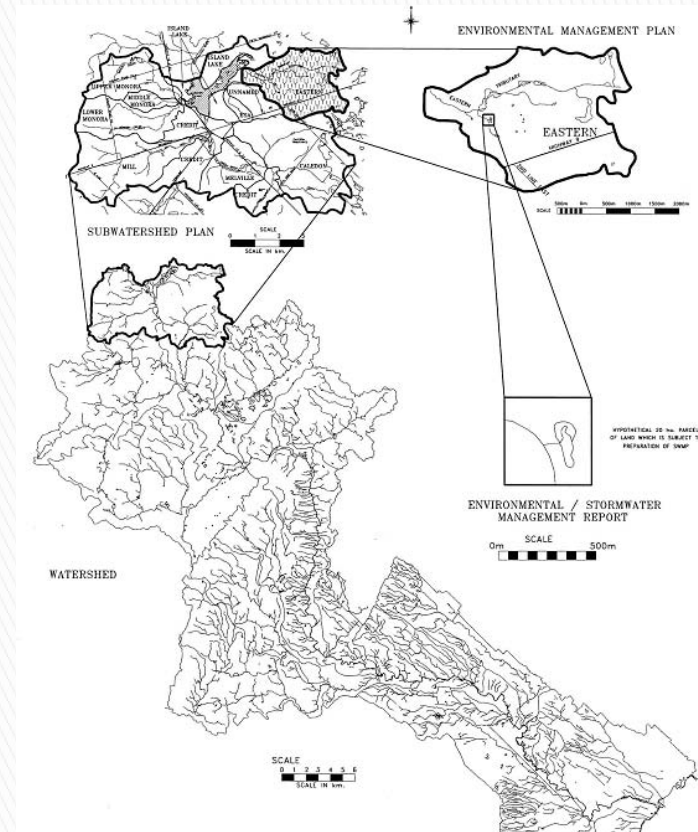
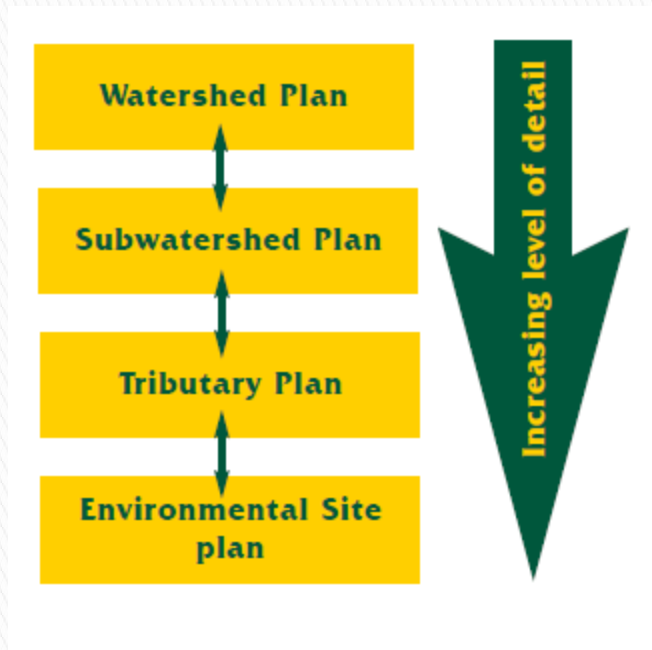


Watershed Planning in Ontario



- ▶ [Often undertaken by conservation authorities](#)
- ▶ http://www.conservationontario.ca/media/lessons_learned_best_practices.pdf

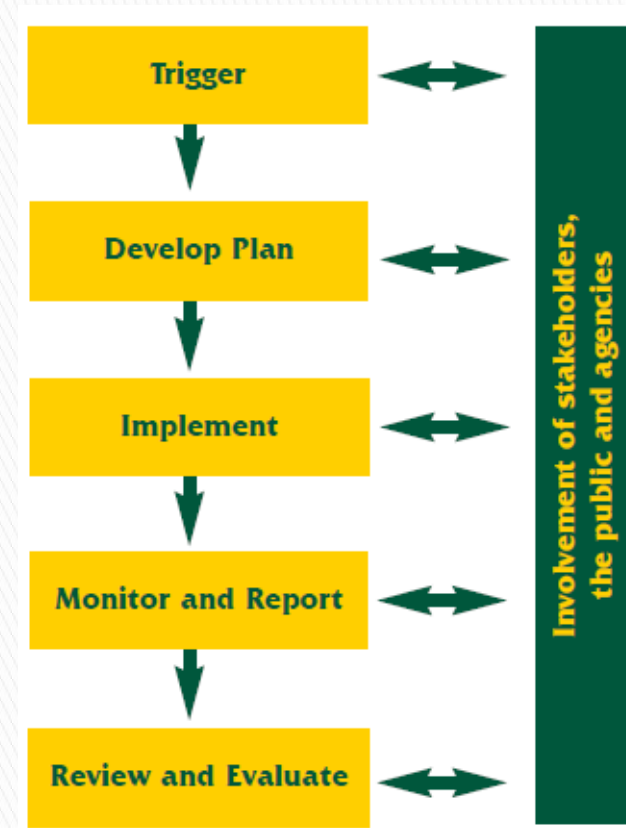
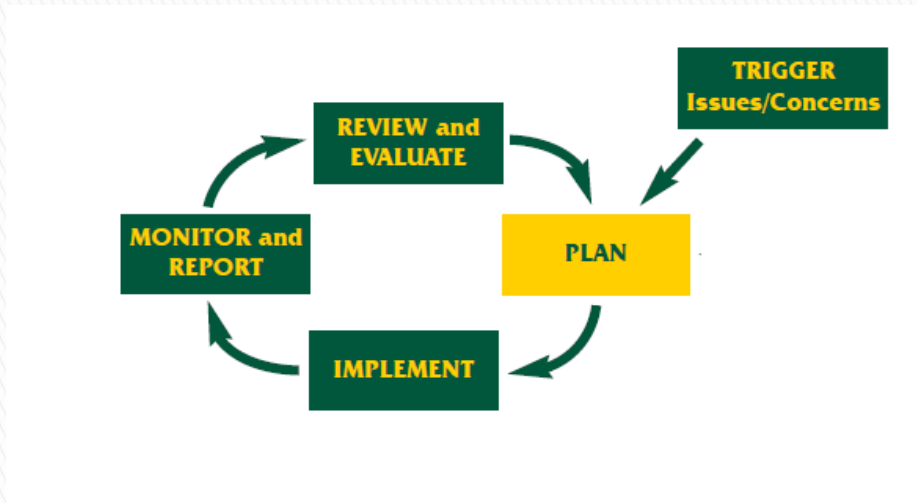
Watershed Planning



Scales of planning

e.g. Credit River

Watershed Planning



It starts with a trigger....

Stakeholder, Public & Agency
Involvement

Watershed Planning



▶ Characterizing the System

- surface water resources
- surface water quality
- groundwater resources
- stream morphology
- terrestrial resources
- aquatic resources
- land use (ex. & prop.)
- demographics

Steps in Sub/watershed planning

Watershed Studies

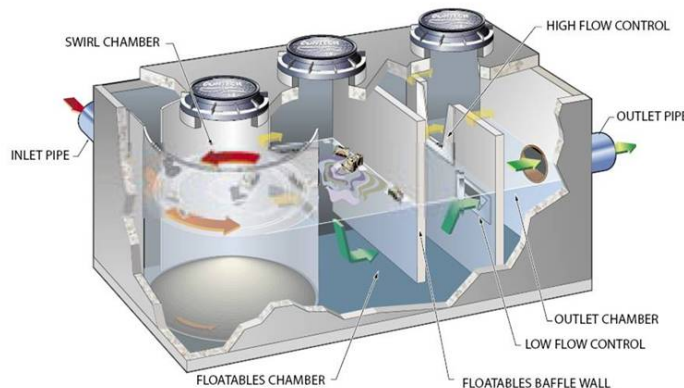
Background

- 2006 Stormwater Background Study recommends 17 priority subwatershed studies
- MOECC announces \$2.3 Million in funding to complete 9 subwatershed studies
- Ramsey Lake first study to be initiated
- Funding Agreement requires the City to reassess subwatershed priorities and determine the remaining 8 to be completed



Key Objectives

Identify BMPs to preserve or enhance the quality of runoff



Enhanced Swale (photo from Toronto Regional Conservation Authority LID Guide) used in Valley areas, Vortec Treatment Unit Schematic and Interior of Nepahwin Unit

Key Objectives

Identify BMPs to manage excessive runoff and minimize the impacts of flooding



Lavallee Stormwater Quality and Quantity Pond and Channel Improvements, Chelmsford

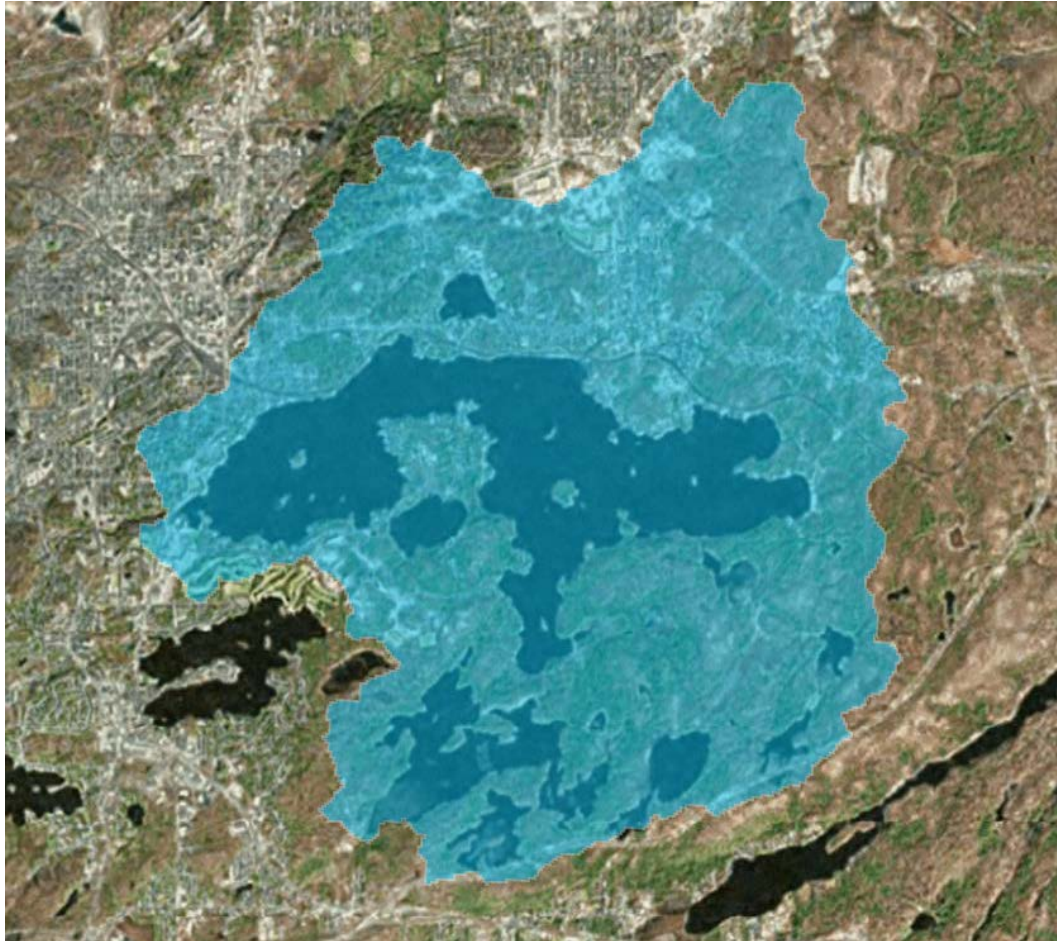
Key Objectives

Complement the Official Plan by providing an additional lens to assist with the review and assessment of future development applications

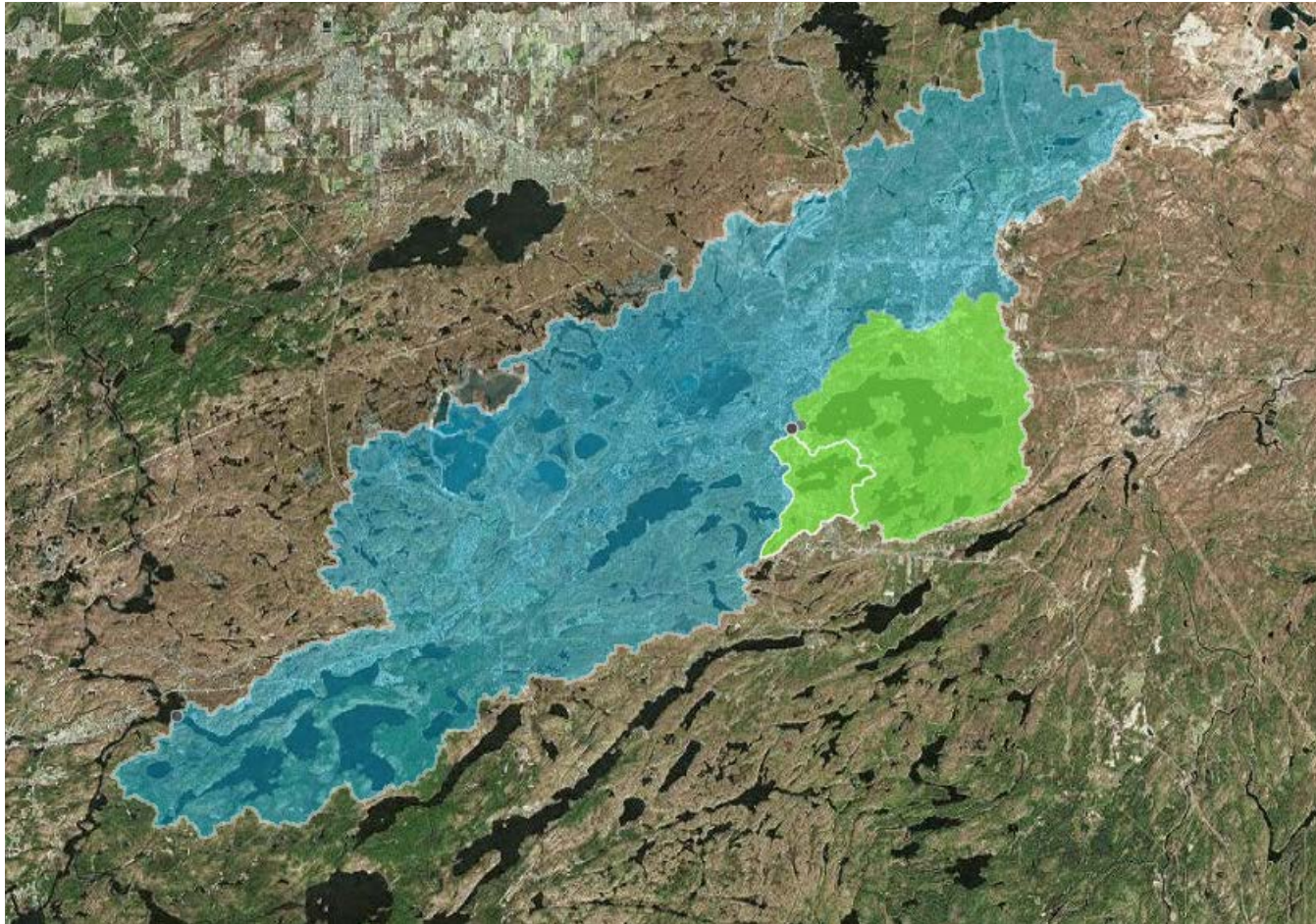


St. Agnes Street Stormwater Quality and Quantity Pond, Azilda

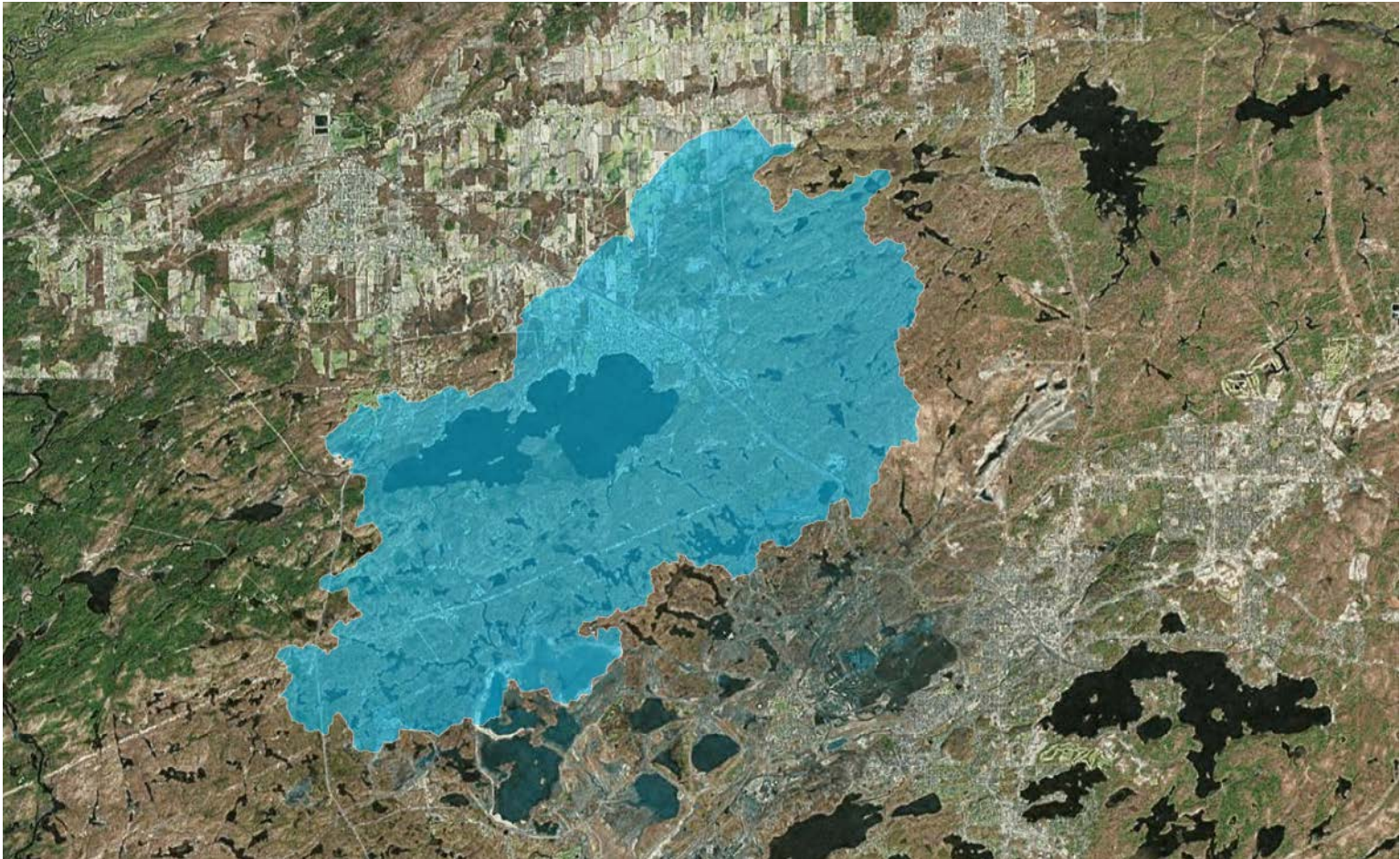
1. Ramsey Lake Priority Subwatershed



2. Junction Creek Priority Subwatershed



3. Whitewater (Azilda) Priority Subwatershed



Remaining Subwatershed Prioritization

Subwatershed Study	Subwatershed Name	2006 Background Study Priority	2016 Priority
Ramsey Lake	Ramsey Lake	2	1
Junction Creek	Junction Creek	6	2
	Garson	11	
	Kelly Lake	17	
	Copper Cliff	16	
	Meatbird Creek – Lively	12	
	Mud Lake	7	
	Simon / McCharles Lake	8	
Whitewater Lake	Azilda	4	3

Benefits

Combining identified subwatershed studies into their larger subwatersheds allows;

- More effective use of funds
- More efficient use of time
- Holistic approach to study of subwatershed



Recommendation

- That the City of Greater Sudbury completes the subwatershed studies in the order identified in the report date March 22, 2016 by the General Manager of Infrastructure Services.

