

Presented To:	City Council
Presented:	Tuesday, Aug 13, 2019
Report Date	Tuesday, Jul 23, 2019
Type:	Presentations

## For Information Only

### Subwatershed Studies and Stormwater Master Plan Update

#### Resolution

For Information Only

#### Relationship to the Strategic Plan / Health Impact Assessment

The subwatershed studies will provide strategies and policies to mitigate the impact of climate change in our community through management of our infrastructure and future development.

#### Report Summary

This report provides an update on the Subwatershed Studies and Stormwater Master Plans that are currently in progress as well as preliminary key findings of these studies.

#### Financial Implications

There are no financial implications associated with this report. The subwatershed studies are funded through existing capital budgets and a Provincial Grant.

#### Signed By

**Report Prepared By**

Paul Javor  
Drainage Engineer  
*Digitally Signed Jul 23, 19*

**Manager Review**

Paul Javor  
Drainage Engineer  
*Digitally Signed Jul 23, 19*

**Financial Implications**

Lisa Lenz  
Coordinator of Budgets  
*Digitally Signed Jul 24, 19*

**Recommended by the Department**

Tony Cecutti  
General Manager of Growth and  
Infrastructure  
*Digitally Signed Jul 25, 19*

**Recommended by the C.A.O.**

Ed Archer  
Chief Administrative Officer  
*Digitally Signed Jul 29, 19*

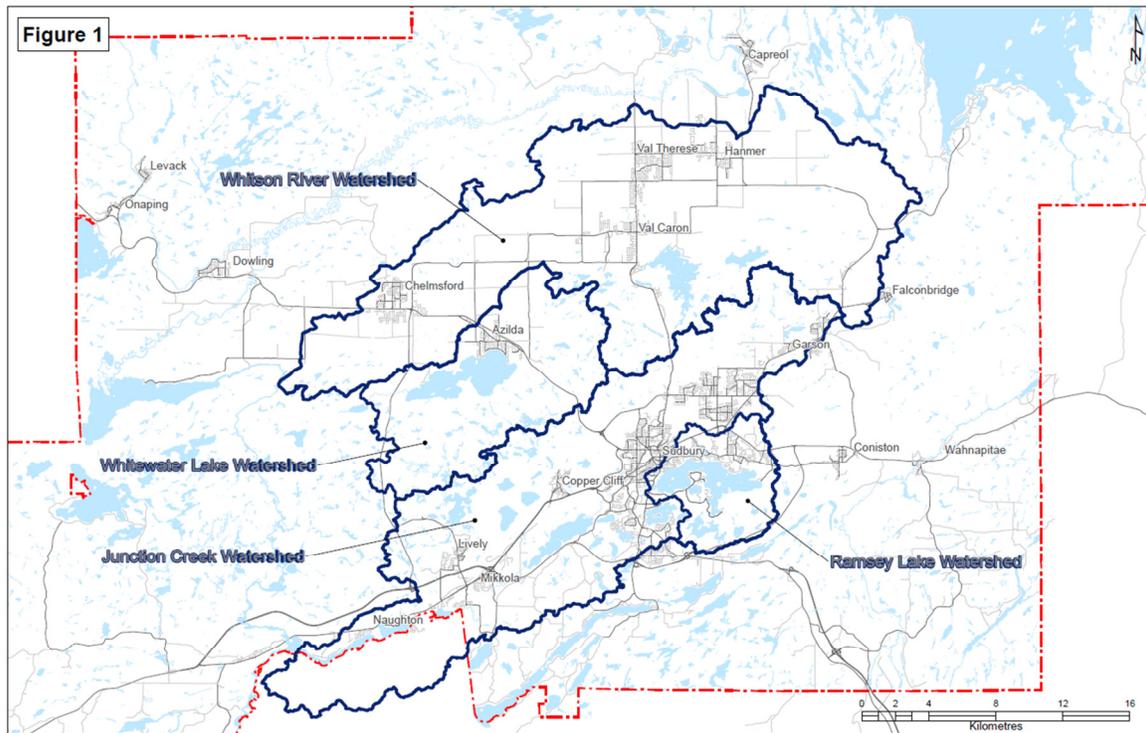
## Watershed Studies Information Report

### Background

The 2006 Stormwater Background Study to the Official Plan identified priority subwatershed studies that should be undertaken. In February 2016 the Ministry of the Environment and Climate Change (MOECC) announced a \$2,300,000 grant for the completion of nine of those identified subwatersheds. The nine subwatersheds are identified in Table 1 as part of three assignments; the Ramsey Lake, Junction Creek and Whitewater Lake studies. Council authorized the priority schedule of those studies and future studies in March 2016. The assignment approach created cost efficiencies and resulted in the addition of the Whitson River Subwatershed Study and Stormwater Master Plan. Figure 1 shows the spatial area of each of the subwatershed study areas.

Table 1: Subwatershed Study Prioritization

<b>Subwatershed Study</b>	<b>Subwatershed Name</b>	<b>2006 Background Study Priority</b>	<b>2018 Priority/Subwatershed Assignment Approach</b>
<b>Studies in progress with MOECC Funding</b>			
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
Whitson River	Whitson River	3	4
	Whitson Lake	10	
	Chelmsford	9	
<b>Studies to be Completed with City Funding</b>			
Richard Lake	Richard Lake	5	5
Wahnapiatae	Coniston	13	6
	Wahnapiatae	14	
Dowling	Dowling	15	7



The key objectives of the Provincial Grant are to complete subwatershed studies and stormwater master plans that:

- a. Identify priority stormwater best management practices (SWBMPs) within the subwatershed that serves the purpose of managing excessive stormwater runoff and minimizing the impacts from flooding for planned urban areas as identified in the Official Plan;
- b. Identify priority SWBMPs within the subwatershed that preserves or enhances the quality of the runoff from the City's drainage systems. The quality of the urban storm drainage can impact the quality of downstream water systems which can directly affect municipal and private drinking water supplies;
- c. Identify policy statements, and development criteria that could influence future City Official Plan policies, zoning by-laws, or development application comments, with the intent of preserving the necessary critical ecosystems and with the intent of managing quality and quantity urban runoff at the source of any developed property.

Completion of each of the above objectives will help the City adapt to and become more resilient to the effects of climate change with the focus of the protection of people, property and the environment.

## **Current Status**

City staff are working with retained consultants to finalize the Ramsey Lake and Whitewater Lake Subwatershed Study and Stormwater Master Plan reports so they can be presented to the public. Typically a project like this would only be posted to the Environmental Registry of Ontario (ERO) to satisfy Master Planning requirements. Given the great interest in the Watershed studies, it was deemed appropriate to provide additional opportunity for public review. Comments will then be considered and incorporated to finalize the reports and posted to the ERO. It is expected these Reports will be posted to the City website before the end of August for a month, and consider and incorporate feedback. The final posting to the ERO would be in November and the Master Plan process would be finalized by the end of 2019.

The Junction Creek Subwatershed Study and Stormwater Master Plan were posted on the City website in May which garnered much interest and feedback from the community and stakeholders. Those final comments are being considered and incorporated to the final document and the report is expected to be posted to the ERO in August.

Work to complete a first draft of the Whitson River Subwatershed Study and Stormwater Master Plan report continues. The first draft is expected to be delivered to City staff in mid September and finalized before public posting to the City website in November. This would follow the same process as the other studies with expected posting to the ERO in early 2020. Area residents can also expect a public information centre in early September to review the work completed to date, mainly the characterization of the Whitson River watershed and issue identification.

## **Preliminary Key Findings**

Although none of the subwatershed studies, as discussed above, have completed the formal registry and approval process, they have progressed well enough to identify preliminary key findings.

### **Ramsey Lake**

Ramsey Lake is a key drinking water source for much of Greater Sudbury and the protection and enhancement of the lake is the key outcome of the study. This is accomplished through several recommendations and projects. While there are many recommendations for Ramsey Lake, the focus of this report will be on two major themes, our existing infrastructure and future development.

Within the Ramsey Lake Watershed several stormwater management retrofit projects have been undertaken to improve the quality of water from City infrastructure before it reaches the lake. The report recommends several additional stormwater management retrofit projects on major stormwater outfalls to the lake through the Master Plan. These conceptual projects have a preliminary cost of \$20 to \$30 million dollars. Council has already approved one of these projects for McNaughton Terrace for 2020 construction. In addition to these large stormwater management retrofits low impact development approaches to stormwater management are recommended for consideration when a street is scheduled for reconstruction.

Development within the Ramsey Lake Watershed has been managing their projects in a pre- to post manner where the stormwater quantity generated in the developed condition is equal to the pre-development condition. In Addition developments have been expected to manage the quality of their stormwater, typically with manufactured sedimentation devices and/or ponds. Going forward developers could be asked to mimic the natural system, or a water balance approach, meaning some portion of stormwater may have to remain on the site and not reach the lake while the remainder would be treated. This will require developers to consider low impact development strategies to the extent that the geographical conditions allow this as a viable approach.

## **Junction Creek**

Junction Creek is a primary watercourse within the City of Greater Sudbury with a total length of 52 km. There are many historical records which indicate that the Downtown and Flour Mill areas of the City were subjected to numerous floods as the urbanized sections of the creek could not cope with significant wet weather events. The City and Conservation Authority have successfully taken a number of steps to improve the flood resiliency of Junction Creek and the major focus of this study was to determine what further steps would benefit the watershed. Junction Creek also provides numerous natural linkages throughout the community. The natural and ecological health of the creek has made significant improvements in recent years after many years of industrialization and urbanization negatively affected the creek. Another key focus of the study is to further protect and enhance the natural environment.

Two projects recommended in the Junction Creek Master Plan have been partially funded through the Disaster Mitigation and Adaptation Fund (DMAF) program by the Federal government and the City. These projects will improve flood resiliency in the Flour Mill and New Sudbury and enhance the existing environmental condition. The total cost for the DMAF projects is \$13 million. In addition to the DMAF projects five others have been recommended to improve flood resiliency of Junction Creek areas that could be implemented over time with a preliminary estimated value of \$70 million.

Many of the flood resiliency projects also improve the quality of stormwater reaching Junction Creek and enhance natural habitat. The Watershed Plan also provide recommended conditions for new development. New development would be addressed in the same manner as described for Ramsey Lake consistent with best practices across North America.

One key finding is validation of the positive effect the restoration of the environment in Greater Sudbury has had on Junction Creek. Through emission reductions, water treatment and re-greening much of the rainfall that falls in Greater Sudbury is now absorbed. This is a significant reversal in trends of increased runoff experienced prior to the 1980's and that caused so much soil erosion and associated environmental damage. The Watershed Plan is making recommendations to continue re-greening efforts and other steps to continue to add soil cover to the watershed.

### **Whitewater Lake**

Whitewater Lake is the most significant natural feature in Azilda and is a source of both aesthetic and recreational enjoyment for residents. It is a shallow lake with a fragile ecosystem that is sensitive to impacts from development within its watershed. The focus of the Whitewater Lake Subwatershed Study and Stormwater Master Plan has been the protection and enhancement of the natural environment as flood risks are relatively low. Similar to Ramsey Lake there are two major themes emerging in the study, existing infrastructure and future development.

The report recommends the construction of stormwater management facilities at the location of three major stormwater outfalls at Ellen Street, Montcalm Street and St. Agnes Street at a conceptual cost of \$8 million. These projects would improve the quality of stormwater reaching Whitewater Lake. In addition to these larger stormwater management retrofits, low impact development approaches to stormwater management are recommended for consideration when a street is planned for reconstruction.

New development projects in Whitewater Lake should be designed to mimic the natural system, or a water balance approach, meaning some portion of stormwater may have to remain on the site and not reach the lake while the remainder would be treated, as in the Ramsey Lake watershed. This will require developers to consider low impact development strategies to the extent that the geographical conditions allow this as a viable approach.

### **Whitson River**

The Whitson River Subwatershed Study and Stormwater Master Plan has not progressed far enough to provide specific recommendations at this time but the focus has been on flood resiliency and protection of the environment, similar to

the Junction Creek project. To accomplish these efforts a list of stormwater management projects for the Whitson River watershed will be produced for existing development areas. For new developments, the expectations would be the establishment of polices similar to other Subwatershed Studies.

## **Closing**

The Subwatershed Studies and Stormwater Master Plans all recognize the impacts of climate change and all modeling work done within the subwatersheds considered several climate change scenarios. The modeling results informed the recommendations in each of the studies.

Importantly the results of these watershed studies will help our community develop in a manner that best supports continued economic development with due respect for preservation and in some cases enhancement of natural ecosystems. The subwatershed studies provide certainty to the private sector when making investments in our community as they provide guidance on how to develop, removing the risks and expenses of doing their own studies. This broad perspective on the watershed approach is recognized throughout the City's recently approved Official Plan to support responsible growth and growth related decision processes.

While the four watershed studies and stormwater master plans are not finalized yet, these studies will lead to the improvement of quality of life and advance environmental initiatives that support the continued health of our natural ecosystems within the City of Greater Sudbury. The studies recognize and provide a plan that allows the City's lakes and waterways to be recognized as a destination and a place to grow.