

## Junction Creek Subwatershed Study and Master Plan Open House

For Immediate Release  
Tuesday, February 7, 2017

### Junction Creek Subwatershed Study and Master Plan Open House

The City of Greater Sudbury invites residents to the first of a series of public consultation sessions for the Junction Creek subwatershed study.

Wednesday, February 15 from 4 p.m. to 6 p.m.  
McClelland Community Centre, 37 Veterans Road, Copper Cliff

Thursday, February 16 from 4 p.m. to 6 p.m.  
Terry Fox Sports Complex Clubhouse, 17 Lasalle Boulevard, Sudbury

The Junction Creek subwatershed study is the second of three studies currently underway. The Ramsey Lake subwatershed study started in 2016. The Whitewater Lake subwatershed study has been awarded; preparation is underway.

The studies are made possible thanks to a [\\$2.3 million grant from the province](#), allowing the City to complete nine watershed studies over two years. The studies will assess the health of several local watersheds and make recommendations surrounding reducing erosion, preventing flooding and maintaining and improving water quality.

Residents wishing to provide feedback are welcome to attend any of these consultation sessions or submit online at [www.greatersudbury.ca/watershedstudy](http://www.greatersudbury.ca/watershedstudy).

The City of Greater Sudbury remains committed to improving lake water quality and the protection of our local watersheds through the subwatershed study 2016-2018.

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### Contact the City

[311@greatersudbury.ca](mailto:311@greatersudbury.ca)

Local: Dial 311

Long Distance: 705-671-2489

TTY (Hearing Impaired): 705-688-3919

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## Stokke, Samantha

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**From:** Shannon Dowling <Shannon.Dowling@greatersudbury.ca>  
**Sent:** Tuesday, February 7, 2017 1:44 PM  
**Subject:** Junction Creek Subwatershed Study and Master Plan Open House / Portes ouvertes sur l'étude du sous-bassin hydrographique du ruisseau Junction et sur le plan directeur

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-30-

Media Contact:  
Shannon Dowling, Corporate Communications  
City of Greater Sudbury 705-674-4455 ext. 2539  
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Pour distribution immédiate mardi 7 février 2017

Portes ouvertes sur l'étude du sous-bassin hydrographique du ruisseau Junction et sur le plan directeur

La Ville du Grand Sudbury invite ses habitants à l'une des premières d'une série de séances de consultation publique sur l'étude du sous-bassin hydrographique du ruisseau Junction.

Mercredi 15 février, de 16 h à 18 h  
Centre communautaire McClelland, 37, chemin Veterans, Copper Cliff

Jeudi 16 février, de 16 h à 18 h  
Salle du complexe sportif Terry Fox, 17, boulevard Lasalle, Sudbury

L'étude du sous-bassin hydrographique du ruisseau Junction est la deuxième de trois études en cours. Celle du sous-bassin hydrographique du lac Ramsey a débuté en 2016. Celle du sous-bassin hydrographique du lac Whitewater a été attribuée et sa préparation est en cours.

Ces études ont été rendues possibles grâce à une subvention de 2,3 millions de dollars du gouvernement provincial. Ces fonds permettent à la Ville de mener neuf études de bassins hydrographiques sur deux ans. Ces études évalueront la santé de plusieurs bassins hydrographiques de la localité et elles feront des recommandations visant à réduire l'érosion, à prévenir l'inondation et à maintenir et à améliorer la qualité de l'eau.

Les habitants de la ville qui veulent faire part de leurs réactions peuvent assister à l'une ou l'autre de ces séances de consultation ou en ligne à l'adresse [www.grandsudbury.ca/etude-bassins-hydrographiques](http://www.grandsudbury.ca/etude-bassins-hydrographiques).

La Ville du Grand Sudbury tient toujours à améliorer la qualité de l'eau des lacs et à protéger ses bassins hydrographiques locaux par l'entremise des études des sous-bassins hydrographiques 2016-2018.

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Renseignements :  
Shannon Dowling, Communications corporatives  
Ville du Grand Sudbury, 705 674-4455, poste 2539  
Facebook : [www.facebook.com/greatersudbury](https://www.facebook.com/greatersudbury)  
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**Stokke, Samantha**

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**From:** Paul Javor <Paul.Javor@greatersudbury.ca>  
**Sent:** Monday, February 6, 2017 9:26 AM  
**To:** Paul Javor  
**Subject:** First Open House for the Junction Creek Subwatershed Study and Stormwater Master Plan

Good Morning,

The City of Greater Sudbury would like to extend an invitation to local agencies, stakeholders and members of the Watershed Advisory Panel to the first open house for the Junction Creek Subwatershed Study and Stormwater Master Plan, immediately before the public open house. The open house is on February 15, from 3 p.m. to 4 p.m. at the McClelland Community Centre, 37 Veterans Rd, Copper Cliff.

Given the large area that the Junction Creek Study covers the City will be hosting two meetings in different locations of the Junction Creek subwatershed for each of the five public meetings. The second public open house will be on February 16, from 4 p.m. to 6 p.m. at the Terry Fox Sports Complex Clubhouse, 17 Lasalle Blvd, Sudbury.

Additional information and a questionnaire will be available on the City web page today at the link below. You will also be able to find a schedule of meetings for 2017 that will be updated with specific dates and locations as we progress.

[www.greatersudbury.ca/watershedstudy](http://www.greatersudbury.ca/watershedstudy)

Thank You,

Paul Javor, MASc, P.Eng.  
Drainage Engineer  
Roads and Transportation Services  
City of Greater Sudbury  
Tel: 705-674-4455 Ext. 3691  
[Paul.Javor@greatersudbury.ca](mailto:Paul.Javor@greatersudbury.ca)

# **Junction Creek Subwatershed Study and Stormwater Master Plan**

**Public Meeting No. 1  
February 15 and 16, 2017**



# 1. Introduction and Meeting Goals

- Water resources are important to life and protecting our watersheds has been identified as a City priority
  - Received a \$2.3 Million grant from the Ontario Government to complete 9 watershed studies (of which 7 are part of this Study) and develop plans to protect them
- Public Meeting goals:
  - Introduce the Study and Study Area
  - Review the Study process
  - General review of existing conditions (characterization)
  - Provide information regarding the next steps
  - Provide an opportunity for the public to offer feedback on the Study, specifically to its objectives and work completed to-date

## *What is a watershed?*

An area of land that collects water from rain and snow and drains through surface waterways (wetlands, stream, rivers, lakes) or seeps beneath the surface to groundwater. The area of land is defined by the shape and height (elevation) of the ground surface.





## 2. Subwatershed Study and Stormwater Master Plan Purpose and Objectives

Subwatershed Study and Stormwater Master Plan	
<b>Purpose:</b>	<ul style="list-style-type: none"><li>• Develop a long-term plan that will provide policy and management actions to protect, maintain and enhance the surface water, groundwater and natural resources of Junction Creek and its tributaries</li></ul>
<b>Objectives:</b>	<p><b>Water Quality</b></p> <ul style="list-style-type: none"><li>• Improve sediment, surface water and groundwater quality</li><li>• Minimize pollutant loadings to groundwater and surface water</li><li>• Improved aesthetics of Junction Creek and its tributaries</li></ul> <p><b>Water Quantity</b></p> <ul style="list-style-type: none"><li>• Preserve and re-establish the natural hydrologic process to protect, restore and replenish surface water and groundwater resources</li><li>• Reduce the impacts of erosion on aquatic and terrestrial habitats and property</li><li>• Minimize the threats to life and property from flooding</li></ul> <p><b>Natural Environment</b></p> <ul style="list-style-type: none"><li>• Protect, enhance and restore natural features and functions such as wetlands, riparian and ecological corridors</li><li>• Improve warmwater and coldwater fisheries</li></ul>



# 3. Municipal Class Environmental Assessment Process

- Many municipal projects are similar in nature, carried out routinely and have predictable and environmental effects that can be effectively managed – these projects are examined according to the Municipal Engineers Association "Municipal Class Environmental Assessment", (October 2007, 2011 and 2015)
- Master Plans are completed at the broad level of assessment and require more detailed investigations at the project-specific level. They have distinguishing features that set them apart from project-specific studies
  - Master Plans are broad in scope and focus on the analysis of a system for the purpose of outlining a framework for the provision of future works and developments
  - Master Plans provide recommendations for specific projects that are part of a larger management system and are distributed geographically throughout the study area
- The Stormwater Management Master Plan will follow the Class EA process for Master Plans and will satisfy Phases 1 and 2 of the process

## *The Class EA defines a Master Plan as:*

“A Long Range Plan which integrates infrastructure requirements for existing and future land use with environmental planning principles. These Plans examine the whole infrastructure system or group of related projects, in order to outline a framework for planning subsequent projects and/or developments.”



# 4. Study Process and Schedule



# 5. Study Deliverables

- Two main deliverables will result from the Study
  - 1. Background Characterization Report (Existing Conditions Report)**
    - Describes the existing conditions within the subwatershed
    - Summarizes existing information obtained during the background review and additional data collection / supplementary investigations
    - Summarizes the natural heritage system (flora/fauna)
    - Identifies issues, opportunities for restoration and/or enhancement and potential constraints to future development
  - 2. Subwatershed Study Report and Stormwater Master Plan**
    - Provide details on alternatives to address key problems and issues in the subwatershed
    - Provides recommendations associated with the mitigation strategy including implementation triggers and accompanying maps and figures



## 6. Engaging Students and Academic Institutions

- Study Team is actively engaging students from Cambrian College and Laurentian University in the Study
- Opportunities will provide direct experience through specific study tasks under the guidance of the Consulting Team
- Specific activities will include:
  - *Data review*
  - *Modelling support*
  - *Field work (specific to stream characterization)*

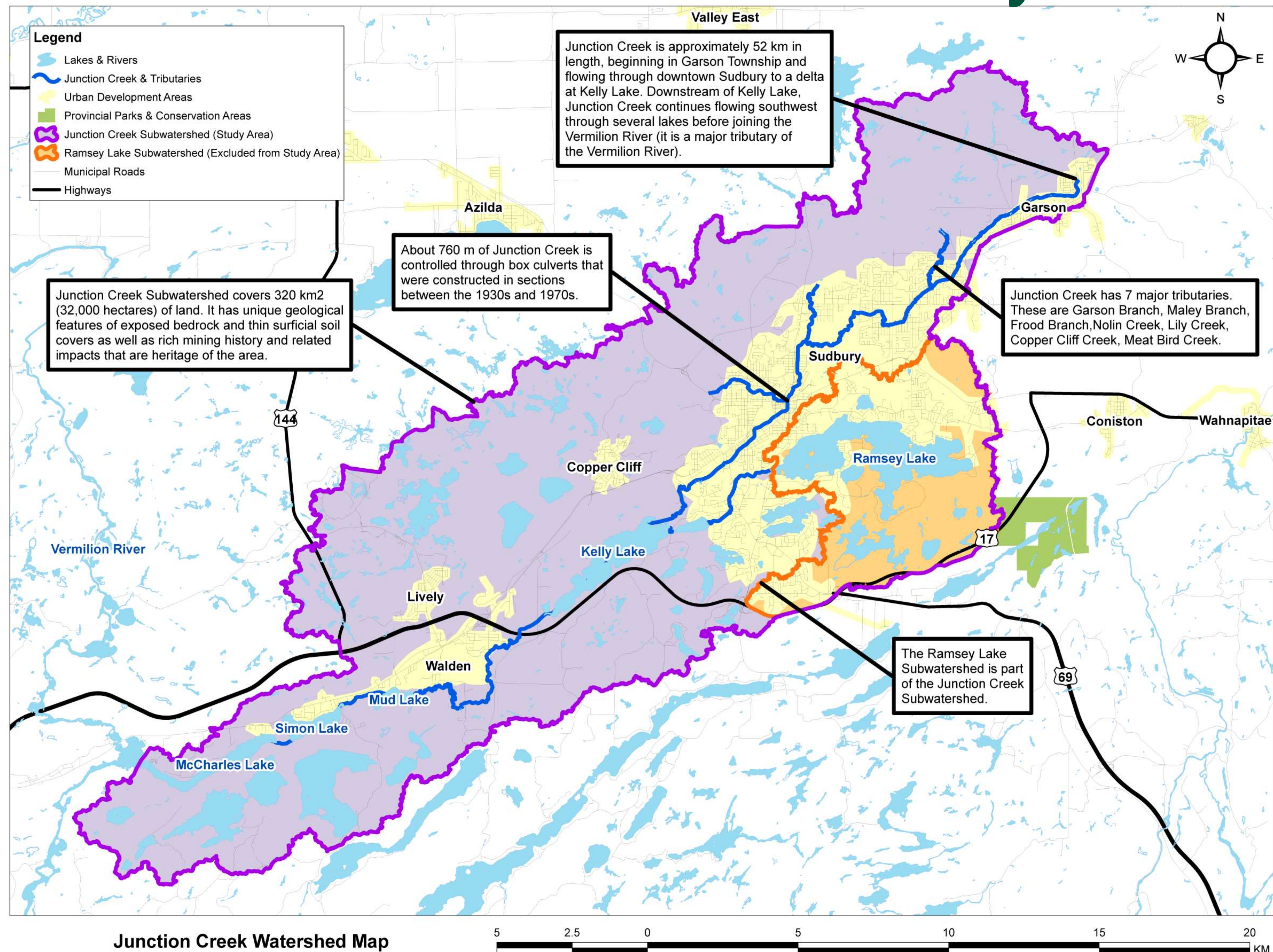
*Do you know  
someone that  
may be  
interested?*

*If so, please  
contact the  
Study Team!*





# 7. Junction Creek Subwatershed / Study Area





# 8. History of the Junction Creek Subwatershed

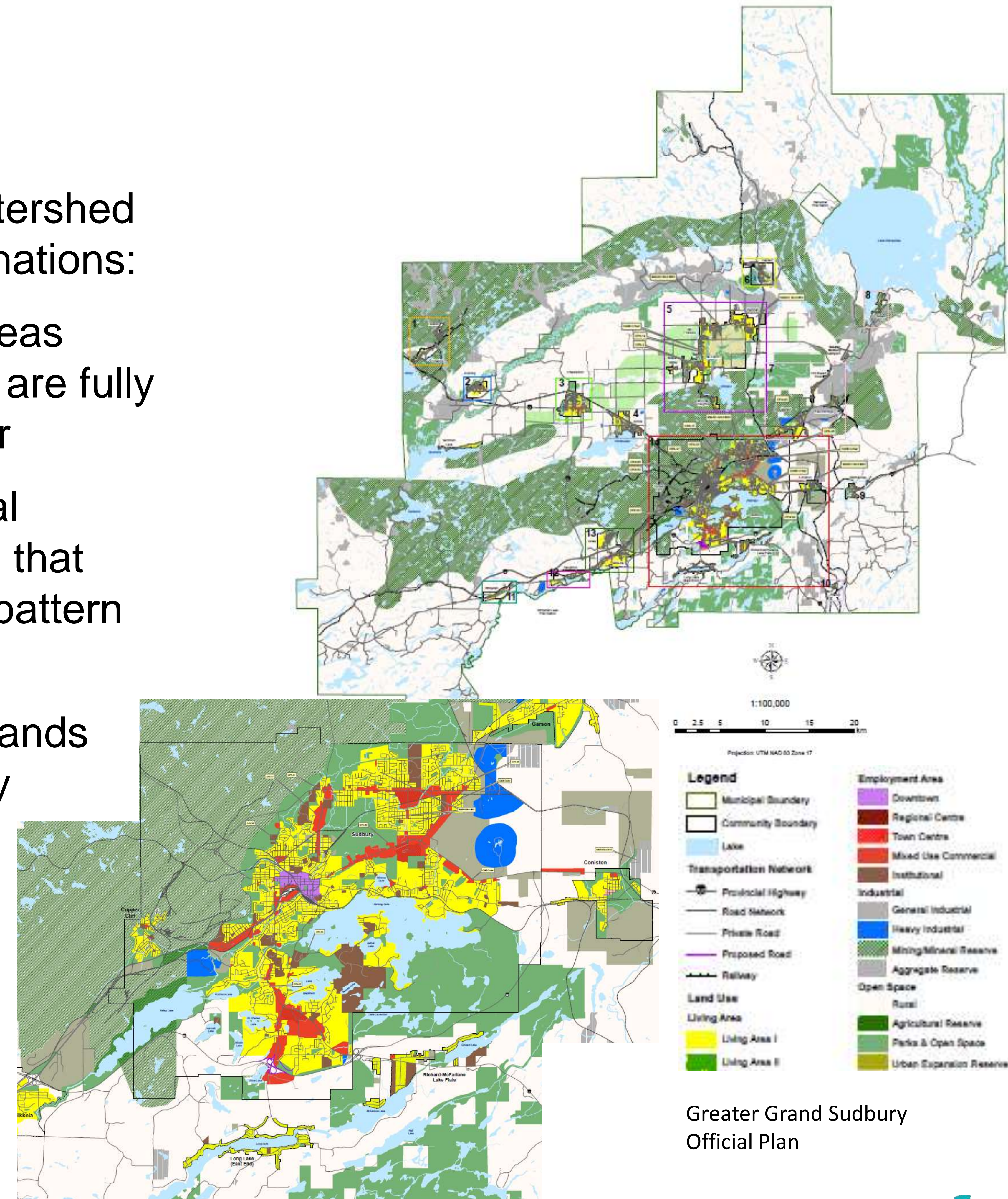
Date	Details
1872	<ul style="list-style-type: none"> <li>Logging began in Sudbury</li> </ul>
Late 1800's	<ul style="list-style-type: none"> <li>Combined logging and mining activities</li> </ul>
1900's	<ul style="list-style-type: none"> <li>Loss of plant cover and exposed soil may have increased erosion by two orders of magnitude</li> </ul>
1916-1976	<ul style="list-style-type: none"> <li>46 floods occurred resulting in development of Maley and Nickeldale dams</li> </ul>
1950's	<ul style="list-style-type: none"> <li>Rapid urban expansion</li> </ul>
1954	<ul style="list-style-type: none"> <li>"Big Storm" resulted in destruction of property and loss of life</li> </ul>
1957	<ul style="list-style-type: none"> <li>Development of Nickel District Conservation Authority (NDCA)</li> </ul>
1964-1965	<ul style="list-style-type: none"> <li>3.8 km of Junction Creek routed through culverts in the downtown core</li> </ul>
1960's/1970's	<ul style="list-style-type: none"> <li>Large reaches of Junction Creek were straightened</li> </ul>
1999	<ul style="list-style-type: none"> <li>Junction Creek Stewardship Committee launched yearly clean-up days, where volunteers remove garbage and debris</li> </ul>
2000-2002	<ul style="list-style-type: none"> <li>Over 6,000 Brook Trout released into Junction Creek</li> </ul>
1978-Present	<ul style="list-style-type: none"> <li>Land reclamation activities take place (several thousand trees have been planted within the Junction Creek subwatershed)</li> </ul>





# 9. Land Use

- Land use within the Junction Creek Subwatershed is a mixture of the following land use designations:
  - Living Area 1** - includes residential areas located in urbanized communities that are fully serviced by municipal water and sewer
  - Living Area 2** - is comprised of several residential clusters in non-urban areas that evolved based on the City's historical pattern of settlement
  - Aggregate Reserve** - primary use of lands within this designation is pit and quarry operations
  - Parks and Open Space** - includes a variety of lands used for active and passive recreational uses





# 10. Water Quality

- Urban runoff transports various contaminants to waterways degrading water quality and habitat

## Objectives

- Identify sources of pollution and trends in water quality
- Identify ways to address and improve water quality issues

## Tasks

- Review existing data - historical water quality and biological indicators
- Evaluate existing water quality
- Identify sources of pollution and contaminants





# 11. Surface Water

- Flooding risk is widespread in the Study Area
- Two major flood control dams - Maley and Nickeldale - are located within the Junction Creek watershed; several other dams and water control/conveyance features are within the watershed
- Several watercourses reaches are prone to erosion

## Objectives

- Characterize surface water features (flooding and erosion susceptibility)
- Identify flood hazards, sites of erosion and capacity constraints

## Tasks

- Conduct field investigations and watercourse measurements
- Survey bridges and culverts, and model hydrologic (flow) conditions
- Map sites of flood hazards, erosion and geomorphological hazards
- Conduct sensitivity analysis for potential climate change impacts
- Identify opportunities for restoration and outline stormwater management/erosion control requirements for new developments





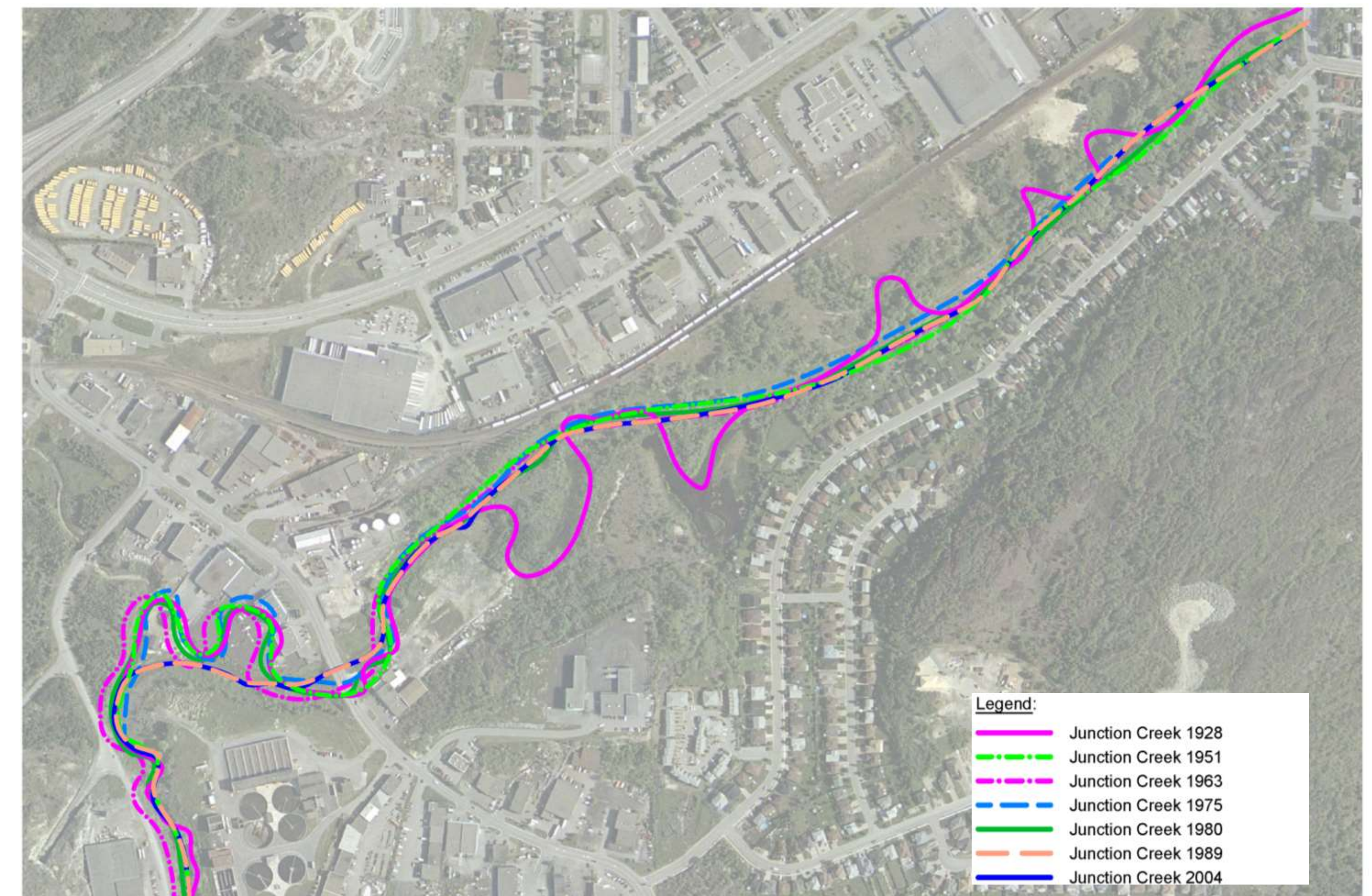
# 12. Stream Morphology

## Objectives

- To characterize the subwatershed watercourses with regards to morphology (form), function, sensitivity, and to identify and quantify erosion related hazards

## Tasks

- Conduct a field investigation to measure watercourse geometry (planform profile, substrate/channel materials and riparian condition)
- Conduct a historical assessment to assess physical changes over time
- Delineate the watercourses into reaches
- Collaborate with local academic institutions to provide training for students to collect consistent/standard field observations of physical characteristics of the channel and erosion hazards
- Quantify erosion limits for the watercourses
- Develop erosion thresholds (the point at which the sediment transport occurs in the watercourse channels) to support the assessment of watershed management approaches



The historical assessment above illustrates past channel straightening, which limits the channel's ability to adjust to changes in flow and sediment regime



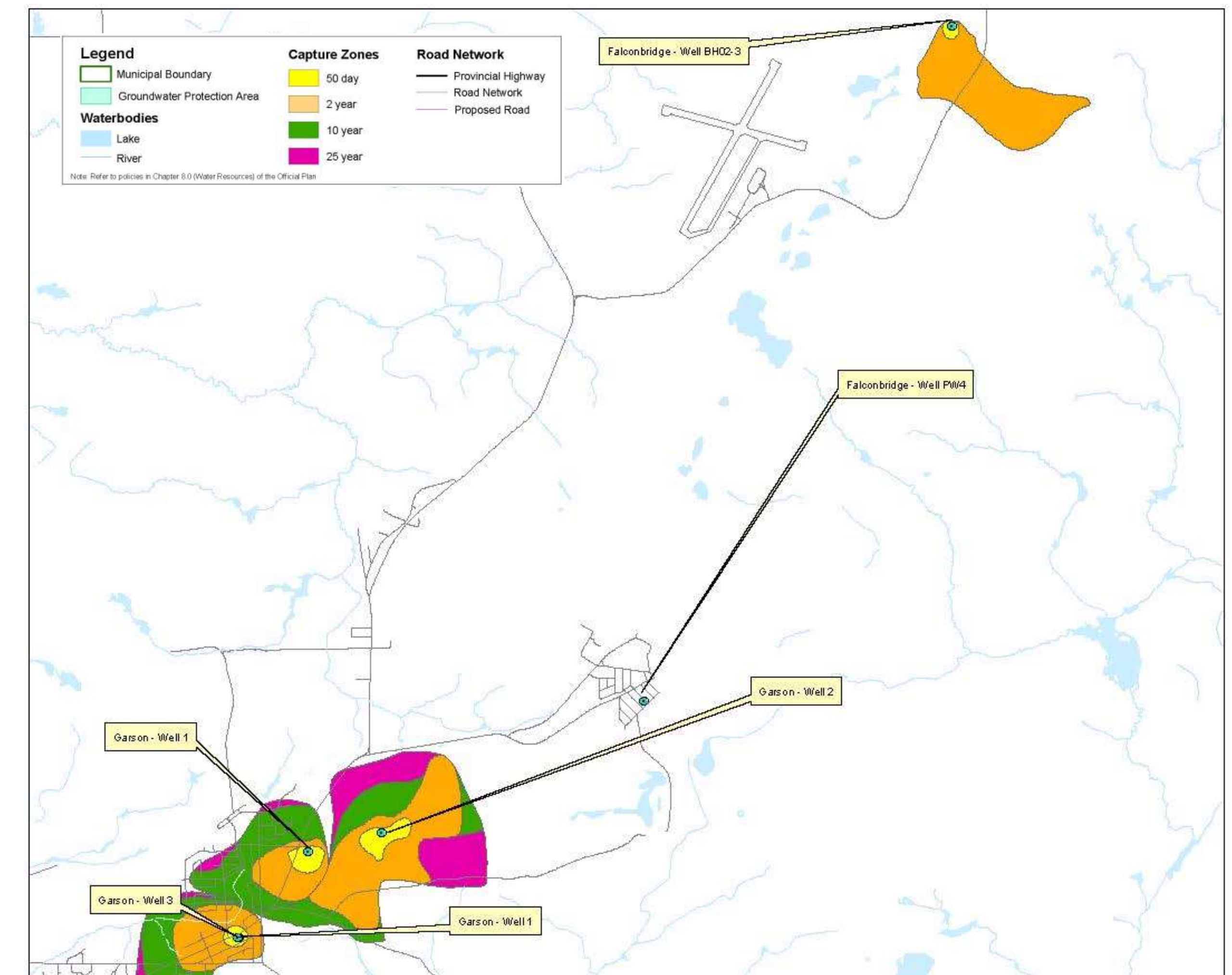
# 13. Groundwater

## Objectives

- Characterize groundwater conditions (levels, quality, sensitivity)
- Identify components that may be sensitive to future land use changes
- Identify opportunities to mitigate long-term impacts

## Tasks

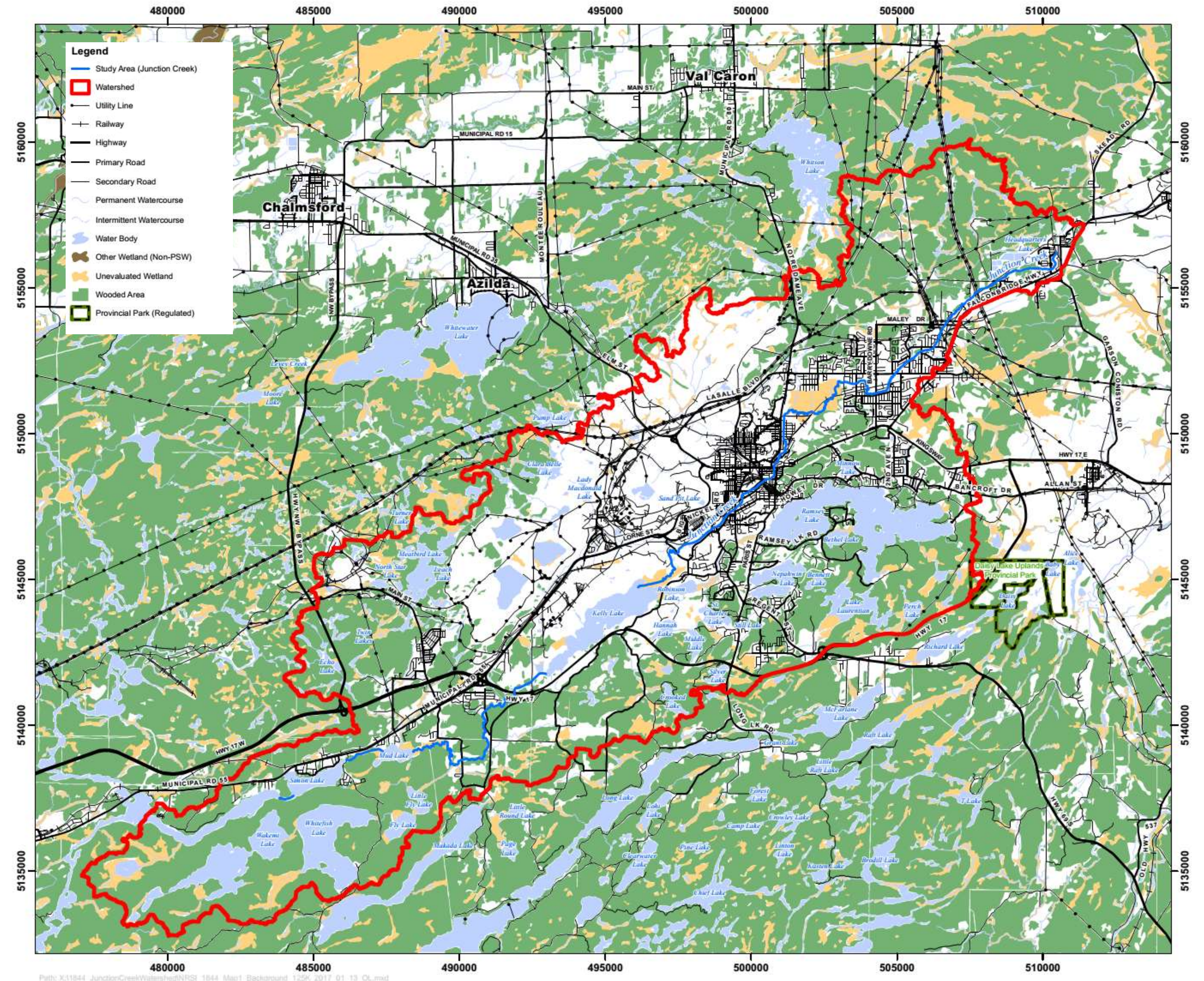
- Review data - regional geologic and groundwater conditions
- Evaluate groundwater resources
- Identify strategies to enhance and/or maintain groundwater integrity
- Identify a long-term groundwater monitoring program





# 14. Natural Heritage

- Approximately 40% of the Study Area is covered in woodlands
- Approximately 6% of the Study Area is covered in wetlands
- The total natural cover in the Study Area is approximately 45%
- Initial background data indicates the potential for 14 Species at Risk to be found within and adjacent to the Study Area, including:
  - 3 mammals
  - 6 birds
  - 3 amphibians and reptiles
  - 2 insects





# 15. Aquatic Resources (fish, invertebrates and their habitat)

- Barriers to fish movement and water quality has an impact on the aquatic ecosystem in Junction Creek
- A lack of riparian vegetation warms the water and impacts channel stability degrading aquatic habitat

## Objectives

- Identify aquatic resources that are sensitive or of high importance to aquatic communities
- Identify need for additional assessment and monitoring of aquatic resources
- Identify opportunities to preserve, enhance or restore aquatic habitats

## Tasks

- Review data, conduct gap analysis - aquatic species and their habitat
- Characterize and describe the aquatic conditions, species and habitat in Junction Creek and its tributaries





# 16. Terrestrial Resources

## (land-based animals and their habitat)

- Woodlands and forests provide important wildlife habitat, help to filter pollutants from the air and reduce thermal impacts on lakes and rivers
- Lack of forest cover, particularly in the middle of the Study Area
- Wetlands provide water quality benefits, help reduce flooding and provide fish and wildlife habitat
- Wetlands are particularly sensitive to development impacts

### Objectives

- Identify terrestrial resources and evaluate their sensitivity
- Identify natural heritage system protection areas
- Identify habitat enhancement/restoration and management opportunities
- Assess areas that may be potentially impacted by proposed mitigation or enhancement activities throughout the watershed

### Tasks

- Review data and conduct gap analysis - terrestrial species and their habitat
- Evaluate the natural heritage and identify natural heritage constraints
- Identify an adaptive management plan
- Identify potential locations and measures for restoration, enhancement and protection
- Identify implementation and monitoring plans



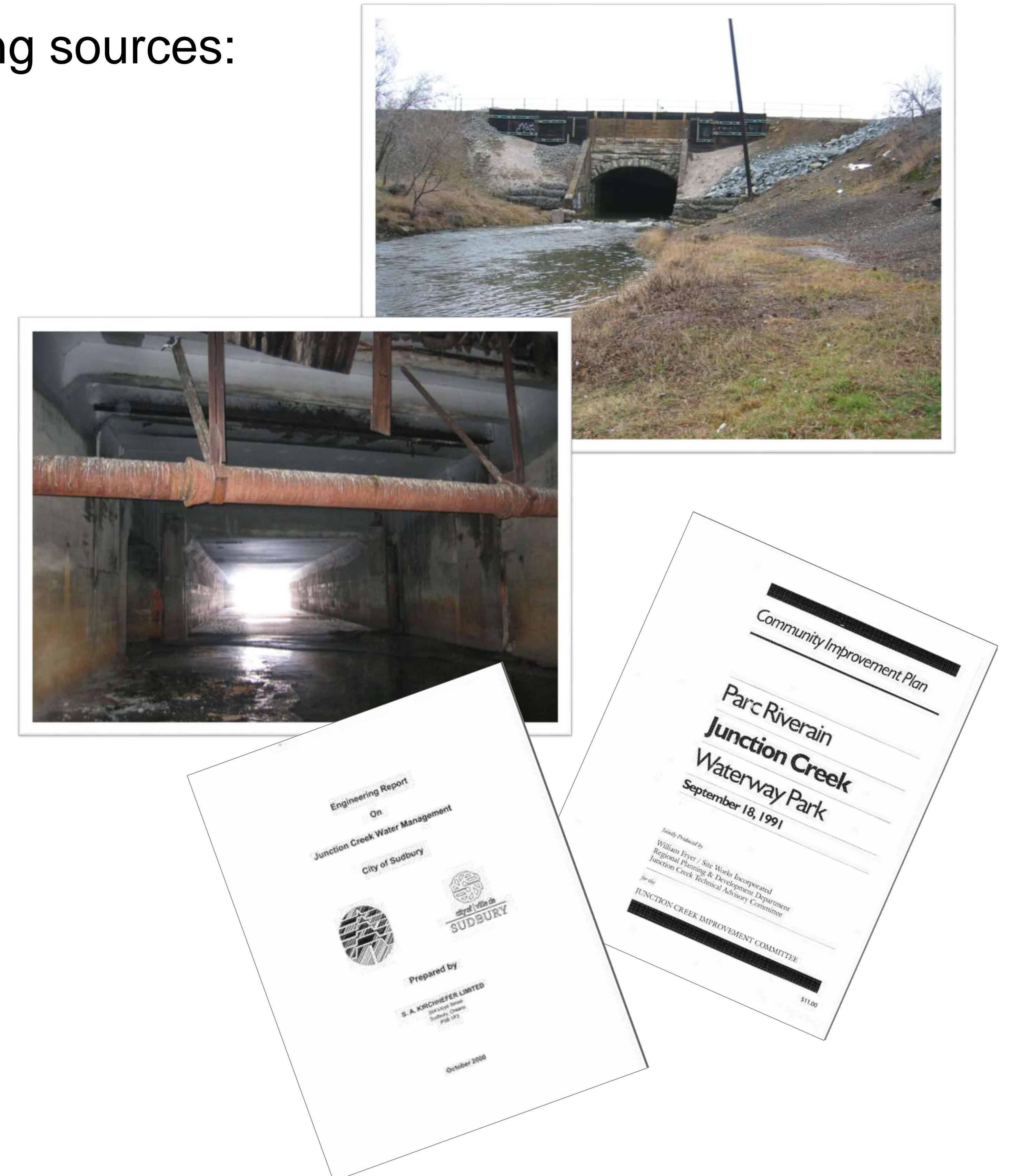


# 17. Data Sources

The Study Team has received data from the following sources:

- Ministry of Natural Resources & Forestry
- Ministry of the Environment & Climate Change
- City of Greater Sudbury
- Conservation Sudbury
- Junction Creek Stewardship Committee
- Vale Living with Lakes Centre
- Laurentian University
- Sudbury Source Water Protection Study

Data collection is on-going





# 18. Preliminary Constraints and Opportunities

- Based on the early review of available background data the Study Team has identified some preliminary constraints and opportunities
- **Constraints:**
  - Historical stormwater management practices
  - Degraded habitat
  - In fill development pressure
  - Flooding in Flour Mill area
  - Water quality issues in lower reaches of the Study Area
  - Proposed developments encroaching onto flood plains
- **Opportunities:**
  - Retrofit neighbourhoods with stormwater management
  - Improve conveyance capacity of deficient systems (culverts, sewers, overland systems)
  - Low impact development (LID)
  - Restoring degraded streams and habitats

*Do you know of a constraint or opportunity that the Study Team should be aware of?*

*Add your input to the large map to right by writing down the constraint and/or the opportunity.*





# 19. Potential Recommendations

- The Study Team will develop a long list of potential recommendations that could include the following:

## Increase Conveyance Capacity

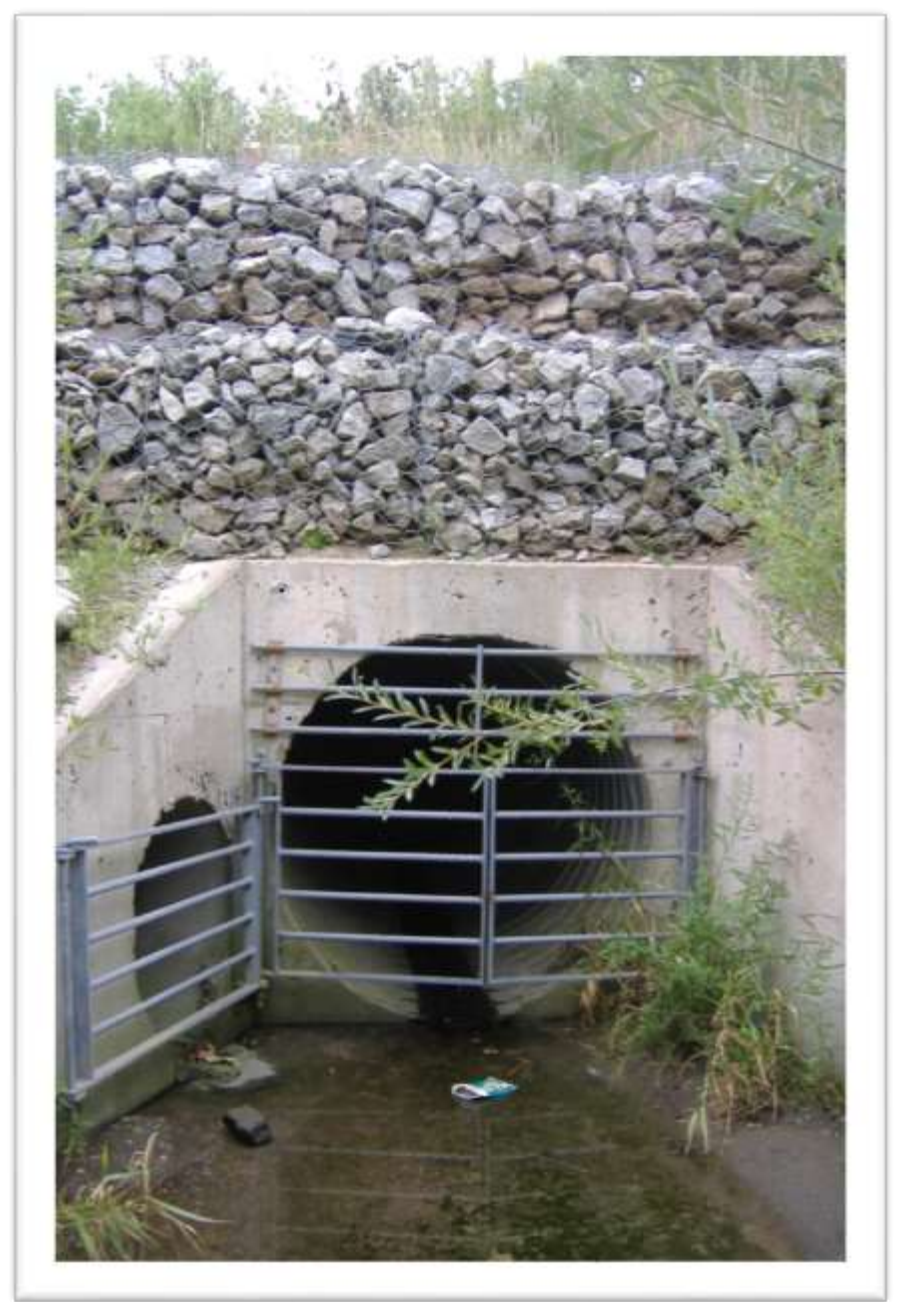
- Sewer Upgrades
- Culvert and Bridge Upgrades

## Stormwater Management Flood and Erosion Control

- Create/Protect Overland Flow Routes
- Flood Storage/Localized Diversion
- Low Impact Development (LID) Best Management Practices (BMPs)

## Other

- Habitat Restoration
- Policy Amendments
- Emergency Preparedness
- Public Education/Stewardship





# 20. Climate Change Perspectives

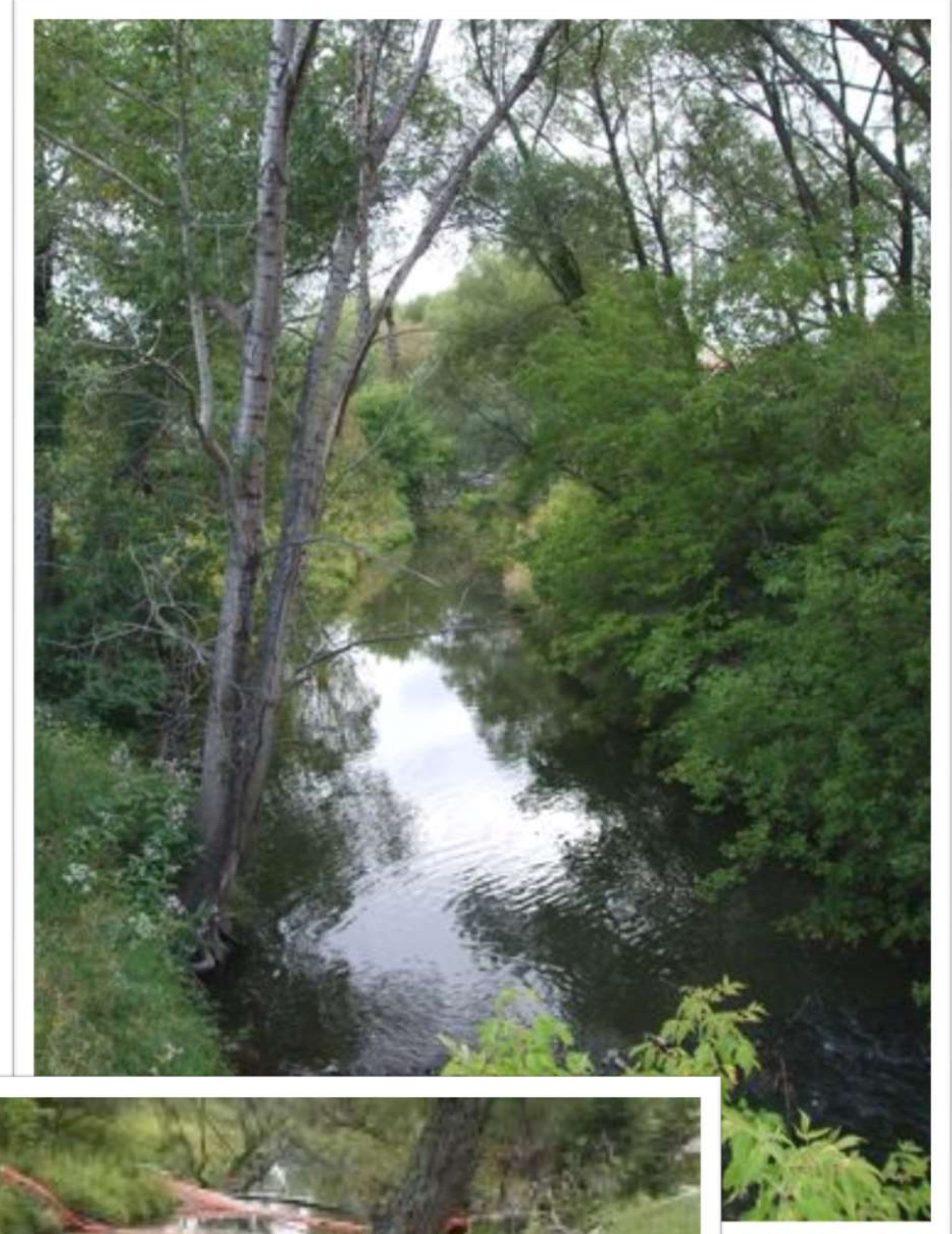
- Climate change, as it relates to precipitation events, may follow one or more of the following trends:
  - An increase in total (mm) annual rainfall (~5% increase since 1953)
  - An increase in frequency of impactful rainfall events
  - An increase in rainfall intensity (mm/hr)
  - A change in seasonal distribution (more spring and fall rain, less snow in winter)
- This can lead to more frequent and severe flooding, with conveyance infrastructure (e.g., culverts, bridges, storm sewers, roads) becoming stressed

Extreme Rainfall Event	Total Rainfall Amount (mm)	Duration (hr)	1 Hour Maximum Intensity (mm/hr)
Timmins Storm, August 31, 1961	72.6	12	43
Peterborough (Trent U), July 14-15, 2004	250.0	16.5	87.2
Sudbury, July 26, 2009	100.0	2	n/a
Wawa, October 25, 2012	101.6	24	60.8
Thunder Bay, May 28, 2012	103.0	n/a	n/a
West Central GTA (Pearson), July 8, 2013	125.6	3	96.0
North-west Ontario Storm, June 8-11, 2002	360.0	48	n/a
100 Year Design Storm for Sudbury Airport (Environment Canada station #6068150)	106.2	24	n/a



## 21. Next Steps

- Receive/review remaining information
- Complete assessment of current conditions
- Characterization report
- Identify information gaps
- Conduct field work, as required
- Refine management objectives and targets
- Develop alternative solutions to addressing issues/problems
- Assess the alternative solutions, and where appropriate, identify mitigation or enhancement measures
- Recommend a preferred solution





## 22. How Can You Get Involved?

- Join our Project Mailing List for timely, relevant updates by adding your name to the sign-in sheet
- Review information shared at this Stage 1 public meeting
- Attend 1 of the 4 upcoming public meetings:
  - Stage 2: Management Objectives & Targets – April
  - Stage 3: Alternative Solutions & Assessment – June
  - Stage 4: Recommended Preferred Solution – September
  - Stage 5: Subwatershed Study Completion – November
- Provide input on your observations regarding:
  - priorities and interests
  - opportunities to enhance the health of the ecosystem
  - constraints that may be sensitive to disruption

### WAYS TO PROVIDE YOUR INPUT

- City's website:  
[greater Sudbury.ca/watershedstudy2016](http://greater Sudbury.ca/watershedstudy2016)
- Comment form:
  - Paper copy
  - Online
- Speak with one of the Study Team members:
  - **Paul Javor**, MASc, P.Eng.  
City of Greater Sudbury  
Phone: 705-674-4455 ext. 3691  
Fax: 705-560-6109  
Email: [Paul.Javor@greatersudbury.ca](mailto:Paul.Javor@greatersudbury.ca)
  - **Tim McBride**, B.Sc, P.Geo.  
Amec Foster Wheeler  
Phone: 705-682-2632  
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E-mail: [tim.mcbride@amecfw.com](mailto:tim.mcbride@amecfw.com)



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## Public meetings focus on Junction Creek watershed

Sessions on Wednesday, Thursday kick start the process

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Feb 14, 2017 9:00 PM By: [Darren MacDonald](#)

Updated Feb 16, 2017 10:11 AM



*After years of waiting, Greater Sudbury is moving ahead with studies of key watersheds in the community. A public meeting is planned Wednesday at the McClelland Arena in Copper Cliff and Thursday at Terry Fox on Lasalle Boulevard to get public input on the Junction Creek Subwatershed study. File photo.*

After years of waiting, Greater Sudbury is moving ahead with studies of key watersheds in the community.

A public meeting is planned Wednesday, Feb. 15 at the McClelland Arena in Copper Cliff and Thursday, Feb. 16 at Terry Fox on Lasalle Boulevard to get public input on the Junction Creek Subwatershed study.

Greater Sudbury has 330 lakes within 25 watersheds that drain into Lake Huron. A \$2.3-million grant from the province will allow the city to complete nine watershed studies over two years. The studies will assess the health of several Sudbury-area watersheds and make recommendations for their care.



A watershed is the land area that drains into a water body – whether it's runoff from rain, or streams that drain into a lake. Caring for and protecting watersheds is important because chemicals and other substances in the soil eventually drain into the water body and affects water quality.

Tony Cecutti, the city's of growth and infrastructure, said in its natural state, dead leaves and grass are substances that drain through the watershed.



"But as the area gets urbanized, that changes the quality of the water," Cecutti said, introducing a host of new compounds that get into the watershed.

The first step in the process is to characterize the watershed. That means getting not only an idea of the current state of the area, but what happens during storm events and the effect it has on the water.

"Flooding and that sort of stuff, that's another aspect that gets studied," Cecutti said. "And more modern watersheds also look at the ecology within the watershed. The whole ecosystem gets studied, because now we understand a subwatershed from a broader perspective.

"It's not just the water – it's the natural plant and water life and the animals that rely on the watershed. It's a broader perspective, although it's principally focused on the water – the storm runoff, the water quality."

The study will give an overview of the state of the watershed, how urbanized it is, how urbanization has impacted the watershed, the state of natural vegetation in the area, how those factors impacted the quality of the water going into the watershed.



"What are the necessary characteristics that we want to try to achieve?" he said.

"What is, ultimately, the quality of water that we'd like to see in the subwatershed. And then what are the strategies we need to achieve those desired outcomes."

Advertisement

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The assumption is that growth will take place in areas designated in the Official Plan. The watershed studies will help determine the best way to build in areas without harming the watershed.

"How do we manage growth so that it's not detrimental to the ecosystem?" Cecutti said. "The subwatershed (studies) can be informative in terms of the style of growth and how to manage that growth. What are the mitigation strategies to ensure that, as that growth occurs, we respect the ecosystem?"

"Growth in the community actually creates a tremendous opportunity for the city to partner with the developer to implement a solution that mitigates the effects that have been ongoing for some time."

The meetings this week are being held from 4-6 p.m. Cecutti said they're hoping for a strong turnout. It's the first of four public consultations that will eventually end in recommendations. The process will take between one and two years.

"We're looking for input from the public to help us satisfy ourselves that we have properly characterized the watershed," he said. "We're also using these first sessions to basically explain the process that we're going through."

"In future meetings, we'll be talking about developing management objectives and targets. Then we'll develop and assess some alternative solutions. Then we'll be back a fourth time to discuss some of the recommended and preferred solutions."

A preview of the information that will be presented at the meetings can be found [here](#).

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## **Junction Creek Subwatershed Study and Master Plan**

The City of Greater Sudbury recognizes the importance of water resources to life and so protecting watersheds has been identified as a priority. The City has received a \$2.3 Million grant from the Ontario Government to complete several subwatershed studies and develop plans to protect its water resources.

The Junction Creek Subwatershed Study and Master Plan is one of nine of these studies that will be carried out over the next two years. The City has retained Amec Foster Wheeler Environment & Infrastructure (Amec Foster Wheeler) to undertake the Junction Creek Subwatershed Study and Master Plan.

Through the Study and Class EA preferred solutions will be developed to meet the Study's objectives. These objectives include to:

- Identify, protect and enhance natural resources
- Protect and enhance surface water and groundwater resources (quality and quantity)
- Preserve natural hydrological and hydrogeological systems
- Develop strategies to minimize and manage flood risks, erosion and other potential impacts due to future urban development and climate change
- Develop recommendations that identify opportunities for ecological enhancement and improvement
- Develop recommendations for the responsible management of the ecosystem
- Identify projects to meet the objectives
- Develop an implementation plan that includes monitoring, adaptive management measures and reporting requirements

### **Your Participation Matters**

A key component of this Study and Class EA is to consult with regulatory agencies, Indigenous groups and stakeholders. Your input is important throughout the Study in order to:

- Provide important relevant information to the Study Team
- Identify concerns and constraints
- Identify priorities and opportunities
- Guide further studies

We would appreciate if you could take a few minutes to complete the attached comment form or complete it online at: [greatersudbury.ca/watershedstudy2016](http://greatersudbury.ca/watershedstudy2016)

Please return your completed questionnaire to one the Study Team members or mail your response to the City by Friday, March 17, 2017:

Paul Javor  
City of Greater Sudbury  
200 Brady Street  
Sudbury, ON P3A 5P3  
Phone: 705-674-4455 x. 3691  
Email: [Paul.Javor@greatersudbury.ca](mailto:Paul.Javor@greatersudbury.ca)







## Junction Creek Subwatershed Study and Stormwater Master Plan – Stage 1 Comment Form

1. Below are a list of environmental issues and concerns commonly identified in subwatershed studies. Please review this list and tell us which you feel are important to the Junction Creek Subwatershed and why.

	Very Important	Somewhat Important	Not Important	Why / Specific Area of Concern?
Quality of water for human use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quality of water use for fish and wildlife	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quality / quantity of water for recreation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Aquatic habitat (fish, invertebrates)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Terrestrial habitat (animals)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Vegetation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Flooding from streams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Flooding from streets / sewers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Stream erosion and sediment accumulation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lake sediment quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Shoreline disturbance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quality / quantity of groundwater	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Impacts of existing urban development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Impacts of future urban development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



2. Do you have any other environmental issues or concerns within the Junction Creek Subwatershed?

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3. What recommendations might you suggest to address the key issues or concerns you have identified as important?

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4. Do you have any other location background information that you believe would be useful to the Study Team? This may include flooding locations/incidents, erosion, natural features that are interesting, in a poor state or healthy, other areas of interest or concern, etc.

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5. Are there any other special features, areas or elements that you value within the Junction Creek Subwatershed that the Study Team should be aware of?

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6. Are there any other impacts of existing urban areas on the health of the Junction Creek Subwatershed that the Study Team should be aware of?

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This Study will include five public meetings at key points in the process. In addition to these formal meetings, there is an opportunity at any time during the Study for interested persons to review outstanding issues and bring concerns to the attention of the Study Team. Should you have any questions or comments or wish to be added to the mailing list, please contact:

Paul Javor  
City of Greater Sudbury  
200 Brady Street  
Sudbury, ON P3A 5P3  
Phone: 705-674-4455 x. 3691  
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Email: [Paul.Javor@greatersudbury.ca](mailto:Paul.Javor@greatersudbury.ca)

Tim McBride  
Amec Foster Wheeler  
131 Fielding Road  
Lively, ON P3Y 1L7  
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Email: [Tim.McBride@amecfw.com](mailto:Tim.McBride@amecfw.com)

Study updates will be posted to:

[greatersudbury.ca/watershedstudy2016](http://greatersudbury.ca/watershedstudy2016)

Should wish to receive study updates by email, please check here ☐ and provide your details below:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ Postal Code: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

**Thank you for your time and input!**

*Information will be collected and used solely for the purpose of informing the Junction Creek Subwatershed Study. This material will be maintained on file for use during the Study and may be included in Project documentation. Personal information is protected under authority of the Freedom of Information and Protection of Privacy Act, Section 32, and is used solely for the purpose of completing this Study. Individuals will not be identified in any public documents.*







1<sup>er</sup> mars, 2017

Paul Javor, MAsC, P.Eng.  
City of Greater Sudbury  
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Tim McBride, B.Sc, P.Geo.  
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Cher M. Javor & M. McBride

**RE : Étude de sous-bassin hydrographique et plan directeur pour le ruisseau Junction**

Je voudrais vous remercier pour cette occasion de discuter de mon opinion envers l'étude de sous-bassin hydrographique de Junction Creek ainsi que le plan directeur des eaux pluviales. Les sujets principaux de l'étude sont la qualité et la quantité de l'eau ainsi que l'environnement. Cependant, la construction de la nouvelle extension du chemin Maley passe à travers des tributaires du Junction Creek. Pour une étude de sous-bassin hydrographique, tous aspects devraient être considérés. J'aimerais discuter de mes commentaires en ce qui concerne la relation entre le sous-bassin de Junction Creek et le projet d'extension de Maley Drive.

1. Au courant des années, la sédimentation dans le ruisseau Junction est devenue de plus en plus un problème. Puisqu'un aspect de l'étude du sous-bassin est la qualité de l'eau, c'est certain que la sédimentation du ruisseau devrait être analysée et surveiller les endroits d'accumulation de sédimentation. Un aspect particulier de sédimentation qui soulève des inquiétudes est le projet de l'extension Maley. Dans le rapport, aucune étude n'est faite en ce qui concerne la construction du projet et son influence envers les tributaires. La sédimentation qui se rend dans les tributaires causé pas la construction est fort possible d'y arriver. Une fois dans les cours d'eau, la sédimentation continuera son voyage dans le ruisseau, causant des problèmes en aval du site de construction. Ces problèmes de sédimentation influenceront la qualité de l'eau. Donc, elle devrait être considérée comme aspect pour l'étude du sous-bassin.



2. Les terres humides sont une partie clé dans les bassins hydrographiques. Elles aident à gérer la qualité et la quantité de l'eau. La construction de l'extension de Maley Drive va couper à travers les tributaires du ruisseau ainsi que les terres humides du bassin. Ces terres humides gèrent la qualité et la quantité d'eau dans le bassin. En construisant la route, on est en mesure d'altérer la capacité du sous-bassin de tenir l'eau. Ceci donc influencera la quantité de l'eau du bassin. De plus, on peut penser à la qualité de l'eau du fait que des inondations peuvent amasser des polluants et les acheminer dans le ruisseau, changeant la qualité de l'eau. L'étude du sous-bassin devrait certainement inclure le projet d'extension pour bien mesure la quantité d'eau prévue dans le bassin dans les années futures.
3. Les cours d'eau sont une partie clé dans les écosystèmes. La qualité de l'eau est importante pour un écosystème en santé. L'extension du Maley Drive se situe dans une région où habitent des espèces en péril telles que les tortues mouchetées et les tortues serpentes. La construction crée une fragmentation des habitats des espèces, et va majoritairement causer la pollution de bruit pour les animaux. La construction de ce projet poussera les animaux dans des régions plus urbanisées, puisque la superficie forestière diminue. De cela, on est en mesure d'altérer les écosystèmes de ces régions. En altérant les écosystèmes, la qualité de l'eau peut surtout fluctuer. Donc, pour l'étude de 2017, on devrait surveiller le cours d'eau au courant du projet afin d'assurer de maintenir une bonne qualité de l'eau.
4. L'imperméabilité des surfaces causée par l'urbanisation est devenue un problème au courant des années. Sudbury fait face à un problème d'écoulement des eaux pluvial. La qualité des écoulements des eaux pluviales n'est pas adéquate. Ces écoulements sont acheminés vers les cours d'eau, la plupart du temps, le ruisseau Junction. L'extension de Maley Drive serait une autoroute de 4 voies d'environ de 12 km, dont environ 8 km est une nouvelle route au complet. Lorsque ces 8 km de route seraient construits, on ajoute un total de 8 km de routes qui seront imperméables. Avec ceci, on influence la qualité et quantité de l'eau du bassin. On ouvre la porte aussi à une augmentation de sédimentation et autres polluants de la route qui se ruissellera dans les tributaires du ruisseau Junction, et se rendrait dans les autres parties du bassin.

Du point de vue minier, je suis en accord avec l'extension du chemin Maley. Ce projet aiderait à la réduction de congestion sur la route Lasalle, mais aussi la sécurité des Sudburois sur les routes. Cependant, le projet de l'extension contribue à plusieurs événements qui nuit à la qualité et la quantité de l'eau, des sujets principales dans l'étude du sous-bassin. Je pense que plus d'études et de mesure devront être prises afin de bien faire une évaluation sur le sous-bassin hydrographique du ruisseau Junction. Le projet de Maley Drive est un gros projet pour la ville de Sudbury, et est dans le cœur du bassin du ruisseau Junction. Ce projet ne devrait absolument pas être oublié lors de l'étude du




sous-bassin. Je crois que les problèmes de sédimentations et de contaminations dans l'eau deviendraient un problème, surtout dans la région de la construction du projet, si on ne protège pas les tributaires et les autres cours d'eau. Aussi, la réduction de la superficie des terres humides influencera la quantité de l'eau, surtout au printemps, ainsi que le temps et vitesse que l'eau voyage, ce qui causerait des ennuis pour cette section urbanisée du sous-bassin, ainsi que les régions en aval du projet. Ce sont tous des points à analyser d'avantages pour avoir une meilleure étude de sous-bassin hydrographique. Je vous remercie, encore une fois, pour prendre le temps de me laisser exprimer mes opinions au sujet de l'étude du sous-bassin.

Cordialement,

A solid black rectangular box used to redact the signature of the student.

Étudiante à l'Université Laurentienne  
Études de l'environnement, 4<sup>e</sup> année





1er Mars, 2017

Tim McBride  
AMEC Foster Wheeler

Cher M. McBride :

**RE: Junction Creek Subwatershed Study and Master Plan – Comments submitted as part of the part of the public consultation process**

Je te remercie pour l'opportunité de soumettre des commentaires en ce qui concerne le "Junction Creek Subwatershed Study and Master Plan" proposée par la ville du Grand Sudbury. En consultant le PowerPoint fourni par la ville, j'ai vu qu'il y a quelques aspects que vous n'avez pas mentionnés dans la présentation publique du 16 février dans le Nouveau Sudbury. D'après moi, le sujet que j'ai trouvé le plus important était celui du point « 14. Natural Heritage », mais j'aurais aimé savoir les espèces (3 mammifères, 6 oiseaux, 3 amphibiens et reptiles et 2 insectes) qui sont à risque enfin d'annoncer aux publiques de faire bien attention lorsque ça vient à ses individus. De plus, puisque le sujet de la présentation est plutôt hydrologique je trouve qu'il aurait pu avoir plus d'informations sur les poissons (truite mouchée) et les autres espèces aquatiques que l'on peut trouver dans la région. Voici quelques questions concernant les contenus de la présentation.



1. D'après le centre d'écologie de l'état de Washington les plantes aquatiques bénéficient les écosystèmes hydrologiques de plusieurs manières. Celle que j'ai trouvée la plus pertinente pour le cas de Sudbury est que les plantes aquatiques agissent comme filtres naturels pour les produits chimiques, elles sont un aspect très important pour les terres humides et pour assurer que la qualité de l'eau soit optimale de manière naturelle.

En ce sujet, quels efforts anticipés vous présenter pour assurer que les plantes aquatiques du sous bassin hydrographique de Sudbury restent en santé?

Department of Ecology, 2016, "Native Freshwater Plants – The uses and Benefits of Aquatic Plants, *State of Washington*, (en ligne), consulté le 27 février 2017, disponible à:  
<http://www.ecy.wa.gov/programs/wq/plants/native/uses.html>

2. Sur le site de *Support the royal parks* il est dit que les arbres sont très importants pour un écosystème, ses racines sont importantes pour minimiser l'érosion. Lorsque la terre s'érode, les sédiments se propagent le long du sous-bassin hydrographique où il se verse éventuellement dans le lac. Ceci est le cas au lac Kelley.

Est-ce qu'il y a des plans futurs pour empêcher la déforestation dans les régions du sous-bassin hydrographique de Sudbury?

The Royal Parks Foundation, 2017, "Why are trees so important?" (en ligne), consulté le 27 février 2017, disponible à:  
[http://www.supporttheroyalparks.org/visit\\_the\\_parks/the\\_regents\\_park/tree\\_map/why\\_trees\\_are\\_important](http://www.supporttheroyalparks.org/visit_the_parks/the_regents_park/tree_map/why_trees_are_important)

3. Le département des services environnementaux de New Hampshire explique sur son site que les produits chimiques qui composent le sel, surtout le chlore, que l'on met sur nos chemins pour empêcher de glisser, a un impact sur la qualité d'eau. Il est évident que l'on utilise ce produit sur



les chemins de Sudbury donc l'eau qui s'écoule dans nos lacs est certainement contaminée ce qui a un effet sur les systèmes aquatiques. Pour élaborer, le chlore retrouvé dans le sel de rue est toxique à la vie aquatique, « There is no natural process by which chlorides are broken down, metabolized, taken up, or removed from the environment » (New Hampshire Gouvernement, 2017). Le sodium a un effet moins sérieux, mais a quand même un impact sur l'environnement aquatique.

Quel type de projets est-ce que vous pourriez mettre en place pour diminuer le taux de contamination dans nos eaux?

New Hampshire Gouvernement, (2017), "Environmental, Health and Economic Impacts of Road Salt " (en ligne), consulté le 27 février 2017, disponible à:  
<http://www.des.nh.gov/organization/divisions/water/wmb/was/salt-reduction-initiative/impacts.htm>

4. Le ruisseau Junction passe sous le centre-ville de Sudbury, dans cette région on retrouve plusieurs déchets. Ces déchets ont un impact sur la qualité d'eau du ruisseau pour plusieurs raisons (Penn State Extension, 2011). Par exemple, des sacs de plastiques d'épicerie peuvent être ingérés par des animaux, si les déchets sont toxiques comme une canisse d'essence elle va diminuer la qualité de l'eau.

Est-ce que vous avez des idées pour aider avec ce problème de pollution? Quels sont-ils?

PennState Extension, (2011), « Litter and Trash Impact Water Quality » (en ligne), consulté le 27 février 2017, disponible à: <http://extension.psu.edu/natural-resources/water/news/2011/litter-and-trash-impact-water-quality>



5. Contrairement à aujourd'hui, il y avait un temps qu'on ne trouvait aucun signe de vie dans le ruisseau Junction parce que l'activité minière avait des effets désastreux, incluant la baisse du pH.

Quelles sont les mesures que vous allez prendre afin d'assurer une présence vie aquatique dans les cours d'eau?

Ulrichsen, H., (2014), « After 15 years, Junction Creek showing signs of life », *Sudbury.com*, (en ligne), consulté le 27 février 2017, disponible à: <https://www.sudbury.com/local-news/after-15-years-junction-creek-showing-signs-of-life-250489>



**Kelly, Mary K**

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**Subject:** FW: Commentaires sur l'Étude des Sous-Bassins Hydrographiques de Junction Creek

**From:** [REDACTED]

**Sent:** March-01-17 12:58 PM

**To:** [Paul.Javor@greatersudbury.ca](mailto:Paul.Javor@greatersudbury.ca); McBride, Tim I (Sudbury) <[Tim.McBride@amecfw.com](mailto:Tim.McBride@amecfw.com)>

**Cc:** Sarah Woods <[sb\\_woods@laurentian.ca](mailto:sb_woods@laurentian.ca)>

**Subject:** Commentaires sur l'Étude des Sous-Bassins Hydrographiques de Junction Creek

Bonjour,

Je t'écris aujourd'hui pour te parler de l'étude des sous bassins hydrologiques au Sudbury. Les bassins hydrographiques sont des parties importants dans les écosystèmes. Ils sont cruciaux à la santé et bien-être des humains et des animaux même. Comme citoyen de Sudbury, je veux te donner quel que commentaire pour considérer dans votre étude.

1. Le ruisseau Junction a souffert beaucoup à cause de l'industrie minière, qui a causé des eaux plus acides et pollué. L'acidité haute de l'eau minimise le montant d'espèces qui vivent dans les eaux et la réintroduction des espèces est important pour l'écosystème. Je suggère qu'étudier comment baisser l'acidité de l'eau et réduire la pollution pour assurer que la restauration complète de l'écosystème est possible à l'avenir.
2. Il y a plusieurs chemins pour marcher à côté de ruisseau Junction. Ils traversent tout le long de ruisseau, puis certains sont maintenus, d'autre ne sont pas. Je pense que ça sera important d'évaluer l'impact humain de ces chemins sur le ruisseau. Je suis certain qu'il y a des conséquences négatives comme la pollution (le déversement illégal, gens qui jettent leurs ordures par terre) ou l'érosion des berges. Peut-être qu'il sera utile de mettre en place des nouvelles boîtes de poubelle ou recyclage.
3. À ce moment, il y a deux lacs, le lac Panache et le lac Nepahwin, qui sont affectés par l'espèce invasive le cladocère épineux. Cette espèce de zooplancton cause des problèmes dans nos lacs, comme réduire la nourriture disponible pour les poissons qui vient là, qui réduit leurs populations. Comme les lacs ont déjà des problèmes



avec garder des populations de poissons ou d'autres espèces aquatiques à cause de la pollution, les espèces invasives sont un autre

4. En 2015, les biologistes de l'Université Laurentienne a publier une étude qui a dit que le surdéveloppement de la côte de lac Long est la cause des fleurs des algues bleu-vert. La site-web de la ville de Grand Sudbury dit que l'algue bleu-vert pose des risques à des animaux et humains, s'il y a du contact physique comme nager dans l'eau contaminé. J'espère que votre étude va regarder comment réduire l'écoulement des nutriments qui causent l'algue bleu-vert pour protéger nos eaux.

5. Il y a deux espèces de tortues qui sont trouvées dans ruisseau Junction, la tortue mouchetée est une espèce menacée et la tortue serpentine est une espèce préoccupante. Dans la législation de l'Ontario, c'est illégale de détruire les habitats des espèces menacées, et depuis 2011, 25 tortues mouchetée ont été trouvée aux ruisseaux Junction. Je suggère que dans votre étude, tu cherches à assurer que les populations de ces tortues sont sans danger, et comment réduire des menaces existants à leurs populations.

Merci pour prendre le temps pour lire mes commentaires, et je te souhaite bonne chance avec l'étude.

Sincèrement,



Élève d'Études de l'Environnement,

Université Laurentienne



28 février 2017

Tim McBride  
Phone : 705-682-2632  
E-mail : [tim.mcbride@amecfw.com](mailto:tim.mcbride@amecfw.com)

Mr.McBride,

**RE : Junction Creek Subwatershed Study and Master Plan-Comments submitted as part of the public consultation process**

Je vous remercie pour l'opportunité de pouvoir commenter mes inquiétudes et mes satisfactions à propos de l'étude « Junction Creek Subwatershed Study and Master Plan ». Lors de la consultation publique du 16 février 2017 à Terry Fox Sports Complex Clubhouse, 17 Lasalle Boulevard, Sudbury, des affiches démontrant les évaluations qui vont être produit sur le bassin versant du ruisseau Junction m'ont interpellé. Voici mes commentaires :

1. Cette étude couvre bien plusieurs parties dont je m'inquiétais à propos du bassin versant du ruisseau Junction. Par contre, lorsque je me suis promené dans plusieurs quartiers dans Sudbury il m'est arrivé à quelques occasions de trouver des seringues. Selon Radio-Canada, il y a plusieurs déchets, dont des seringues qui se retrouvent dans le ruisseau Junction. Est-ce que vous allez inclure un plan d'action afin de réduire le montant de déchets rejeté dans le ruisseau?

Radio-Canada, « Un ruisseau de Sudbury rempli de seringues » consulté en ligne : <http://ici.radio-canada.ca/nouvelle/560720/ruisseau-junction-sudbury>

2. Deuxièmement, vous avez mentionné dans l'étude du sous-bassin versant du ruisseau Junction que vous allez étudier le risque potentiel de 14 espèces en péril trouvé sur cette région. Par contre, il y a un sujet qui me préoccupe que



vous n'avez pas couvert, du moins, dans votre PowerPoint c'est sur les espèces envahissantes. Selon le site du Grand Sudbury, une des espèces envahissantes qui se retrouve dans le sous-bassin hydrographique du ruisseau Junction est le myriophylle à épis. Le myriophylle à épi est nocif pour la vie aquatique, car elles poussent rapidement et en grande quantité qu'elle élimine les autres plantes aquatiques. Non seulement elle est nocive pour la vie aquatique, mais aussi pour les activités récréatives pratiquées par l'être humain, soit en s'emmêlant dans le moteur des bateaux et plusieurs autres équipements. Est-ce que vous avez pensé à des moyens pour mieux surveiller cette espèce afin qu'elle ne nuise pas les cours d'eau.

Agence de bassin versant des 7, « Le Myriophylle à épis », consulté en ligne : <http://www.abv7.org/administration/content/UserFiles/File/Especies%20aquatiques%20envahissantes/myriophylleaepi.pdf>

3. Nous savons que les activités minières par le passé ont beaucoup affecté la qualité de l'eau et la vie aquatique qui y contenait. Nous savons aussi que le ruisseau Junction, il y a plusieurs dizaines d'années passées, ne contenait aucune vie aquatique causée par les activités minières qui a diminué le pH de l'eau. Quelles seront les mesures prises afin de continuer à garder la vie aquatique dans le ruisseau? Avez-vous déjà des mesures entreprises pour un résultat à long terme? Enfin, est-ce possible pour la ville de faire mieux de ce qu'elle fait déjà actuellement?

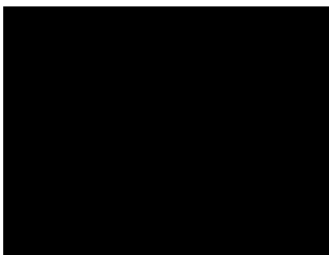
Heidi Ulrichsen (2014), « After 15 years, Junction Creek showing signs of life » consulté en ligne : <https://www.sudbury.com/local-news/after-15-years-junction-creek-showing-signs-of-life-250489>



4. Une de mes inquiétudes au départ était de savoir si vous auriez inclus dans l'étude la santé des bandes riparian (zone tampon). J'ai été satisfait par le PowerPoint montré lors de la consultation publique qui indiquait qu'elles sont une de vos préoccupations. La végétation autour des berges permet de stabiliser le sol grâce à leur racine. Je me demandais quelles sont les mesures que vous allez prendre afin d'assurer que les berges continuent à rester en santé et à stabiliser le sol?
  
5. Enfin, vous mentionnez dans le PowerPoint que vous allez vous concentrer à augmenter les calivrettes et les égouts afin d'évacuer plus rapidement l'eau de la ville. Avez-vous pensé à un système qui permettra de bien filtrer l'eau qui sera envoyée dans le cours d'eau afin de ne pas nuire à la qualité de l'eau du ruisseau Junction? De plus, allez-vous évaluer l'impact d'une augmentation du niveau de l'eau du ruisseau Junction, à la suite d'une augmentation de l'évacuation de l'eau, sur la vie aquatique et sur l'érosion possible des berges?

Je vous remercier, encore une fois, de prendre le temps de lire mes commentaires et inquiétudes à propos de cette étude de sous-bassin hydrographique du ruisseau Junction.

Sincèrement,



Université Laurentienne  
935 Ramsey Lake Rd  
Sudbury, P3E 2C6





March 8, 2017

## **Coalition for a Liveable Sudbury**

### **Written submission – Junction Creek Subwatershed Study and Stormwater Master Plan (PIC 1)**

Thank you for the opportunity to provide input.

We were pleased to see considerable more detail presented than at the comparable Ramsey Lake subwatershed study PIC.

Overall, we are pleased with the purpose and objectives listed.

We would like to see Recreational Value added to the objectives, as the Junction Creek Watershed Waterway Park is highly valued as a trail and natural park for many residents throughout Greater Sudbury. More broadly, demographics and human use of the creek should be part of the characterization.

Best practices for subwatershed studies, as recommended by Conservation Ontario should be followed, including assessing cumulative impacts.

Studying all seven subwatersheds will create an important overview of the big picture.

However, it is important that the most significant challenges **for each specific subwatershed** are assessed and identified. Different areas have very different challenges and conditions.

The health of the lakes within the Junction Creek subwatershed should also be looked at specifically as part of the study. These lakes have known water quality issues.

We are pleased that the study will include a gap analysis for future work. However, our preference would be for more data gaps to be filled as part of the study, to best inform recommendations and collect needed data while resources are available. For example, we heard at the PIC that the study will not be quantifying contributions from different sources (e.g. stormwater, industrial), identifying specific sources of contamination, or creating a phosphorus budget. Urban run-off is directed into Junction Cree at many locations. In addition, there are point source inputs of treated metal mine effluent into multiple tributaries and point source input from three wastewater treatment facilities.

We are pleased to see some of the details for natural heritage objectives and tasks in Slides 10-16.

We look forward to more information on natural heritage, aquatic resources, terrestrial resources and wetlands moving forward. It is important that the information gathered supports watershed planning in the Official Plan. Specifically identifying sensitive water features, sensitive groundwater features, wetlands, sensitivity of individual wetlands, and environmental constraints within the watershed will trigger OP policies protective of watershed health.



We are pleased to see that Policy amendments are anticipated in the recommendations.

The study should identify areas within the watershed that should not be developed, independent of existing land use designations (i.e. the recommendations should not be constrained by existing land use designations). The precautionary principle should be used – e.g. it cannot be assumed that property owners will use best practices, even if regulated to do so.

We would like to see targets for total wetland cover and total vegetative cover in each subwatershed (especially urban areas). For example, the Lake Simcoe Protection Plan establishes a target of 40% high quality natural vegetative cover in the watershed, and targets the achievement of greater proportion of natural vegetative cover in large high quality patches.

Aquatic ecosystem health declines with more than 10% impervious cover throughout a watershed ([Identifying and Protecting Healthy Watersheds, Chapter 4. EPA. 2012](#)).

We were concerned to hear at the PIC that the modelling being done focused on hard infrastructure and engineering, but not natural function or scenarios using green infrastructure and/or LID. We would like to see modelling that includes natural function (including enhanced natural function from proposed restoration) as well as climate change scenarios.

We hope that the study will identify opportunities and challenges for Low Impact Development and green infrastructure given existing conditions in the watershed. Specifically, we would like to see locations for LID and green infrastructure identified in the Stormwater Master Plan.

We look forward to seeing the options presented, which we trust will include ecosystem management and green infrastructure approaches. Metrics to evaluate options should reflect the overall purpose and objectives listed in Slide 2.

We are concerned that increasing conveyance capacity is listed as a potential recommendation in Slide 19. This will negatively impact stream health, water quality, water quantity, and erosion.

We would like to suggest improvements for engagement with stakeholders such as the Junction Creek Stewardship Committee, Watershed Advisory Panel, Conservation Sudbury, and Living with Lakes. The stakeholder meeting should start with a presentation of the material, followed by discussion around the table for a productive exchange of ideas, expertise and questions. Written material should be available for review prior to the meeting. Engagement with stakeholder should be an on-going conversation.

Finally, we would like to support the feedback of the Junction Creek Stewardship Committee.

We look forward to further opportunities to provide input.

Regards,  
Naomi Grant  
Co-Chair, Coalition for a Liveable Sudbury  
[grant\\_naomi@hotmail.com](mailto:grant_naomi@hotmail.com)





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March 17, 2017

Tim McBride  
Amec Foster Wheeler  
131 Fielding Road  
Lively, ON P3Y 1L7

To Tim McBride:

### **Re. Junction Creek Subwatershed Study and Stormwater Master Plan Public Meeting No. 1**

Thank-you for the opportunity to provide feedback on the Junction Creek Subwatershed Study as part of the public consultation process. We appreciate the chance to share some of our experiences and knowledge of Junction Creek through this process and through other meetings. We hope that you will continue to engage us as the project moves forward.

Members of the Junction Creek Stewardship Committee (JCSC) attended the first public meetings held in February 2017 and/or reviewed the information boards which are available online. Overall, we are encouraged to see the inclusion of natural heritage into this study. However, we do have some suggestions and concerns that we would like to share with you.

#### **Summary of comments**

- The main emphasis of the study appears to be the upper reaches, with insufficient details provided for the lake.
- All potential sources of metals and nutrients must be considered in the analysis of water quality.
- There are no objectives or tasks for the Natural Heritage objective.
- There appears to be a conflict between the recommendations of reducing erosion and increasing conveyance.
- Existing barriers to healthy fish populations and solutions to improve habitats should be explicitly listed as objectives.
- Acknowledgement of the social importance of Junction Creek should be included in the study.

#### **Comprehensiveness: lakes**

The information presented at the public information centre concentrated on the upper reaches of Junction Creek and on stream related objectives and tasks. There was an evident lack of inclusion of the four lakes within the Junction Creek subwatershed (Kelly, Mud, Simon, McCharles). Even the Purpose statement, as listed in section 2. Subwatershed Study and Stormwater Master Plan Purpose and Objectives, highlights Junction Creek and its tributaries, and there is no mention of the lakes included in this study. Lakes must be included and given as much attention as the stream system.

Additionally, the Junction Creek study includes seven sub-watersheds that the City of Greater Sudbury has identified as important (or problematic) in its Official Plan. Issues, constraints and opportunities must be provided which represent all of the subwatersheds listed in the Official Plan, and not





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concentrate on the upper reaches of Junction Creek, as is assumed to be the approach based on the information presented on the boards.

We also suggest including the names of the relevant lakes in outreach materials. It has been our observation that many community members are not aware of the extent of this study, and many landowners within the lower reaches of Junction Creek are associated with the lakes. This information will encourage participation by a broader subset of stakeholders.

### **Comprehensiveness: nutrients, metals, sources of contaminants**

In section 10. Water Quality, urban runoff is the only source of contaminants listed. However, the Junction Creek system also receives point source inputs of treated metal mine effluent into three tributaries and runoff from watershed areas that may have elevated metals and depressed pH due to past mining activities. The system also receives point source inputs from three municipal wastewater treatment facilities. Finally, sewage by-passes that result from overloaded wastewater systems during spring melt or large rain events input nutrients and other contaminants into the system. The multiple sources of metals and nutrients must be considered in any analysis of water quality. Solutions, such as increased liming and planting of the watershed (to decrease metal mobility and erosion), better attenuation of nutrients through the existing wastewater treatment facilities and more targeted efforts to reduce inflow and infiltration (which ultimately cause sewage by-passes), should all be considered.

We understand that a lack of data poses analytical constraints for the lower reaches of Junction Creek and of the lakes within those lower reaches. However, spring phosphorus data are available for all of these lakes showing that they are eutrophic, despite being fed by lower nutrients systems (upper Junction Creek and Robinson Lake, which is mesotrophic), and there are known issues related to nutrients and algae blooms within the lakes. This study must not dismiss these issues because of a lack of biological data and associated constraints on running a 'comprehensive' model.

### **Lack of information provided: objectives and tasks related to natural heritage**

In section 14. Natural Heritage you provide background information regarding the proportion of natural areas, wetlands, etc. within the study area and species at risk however, you do not indicate how this information will be used throughout the study. You suggest that Natural Environment is important and list it as one of the three key objectives (in section 2. Subwatershed Study and Stormwater Master Plan Purpose and Objectives), however Natural Heritage is the only area not broken down into more specific Objectives and Tasks. What are the specific objectives and tasks related to natural heritage? The identification of natural heritage features that provide important ecosystem services such as flood attenuation, water quality improvements, habitat for species at risk, habitat connectivity and corridors (as listed in section 2) should all be listed in this section, and heavily weighed throughout this study.

There are three areas that deal with the Natural Environment, including 14. Natural Heritage, 15. Aquatic Resources and 16. Terrestrial Resources. Wetlands are specifically mentioned in sections 14 and 16, however there are no objectives and targets that deal specifically with wetlands and their ecosystem services.





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Under section 15. Aquatic Resources, stream temperature must also be included as an important factor that influences the health of aquatic resources. There is a lot of literature on the effects of urbanization on aquatic communities (such as fish), due to decreased water quality and increased water temperature. Brook trout are known to have occurred in Junction Creek historically, and the stocking and research efforts of the JCSC have demonstrated that they can survive in the creek today, however their distribution appears to be limited by thermal constraints (rather than chemical constraints). Increased water temperatures may be associated with decreased riparian cover, but they are likely more influenced by changes to hydrology, which have led to decreased groundwater input, and elevated water temperatures entering the stream via warm, impervious surfaces. These changes in hydrology and impervious surfaces are likely due to both the industrial history of the region (which has increased the surface area comprised of bare rock) and, perhaps in a greater way, by urbanization in the headwaters (where the best brook trout habitat occurs due to morphology and soils).

The tasks listed in section 15. Aquatic Resources have largely already been completed. There have been multiple comprehensive studies conducted on Junction Creek which identified the distribution of fish within the stream (from Garson to Kelly Lake, and other studies done on Kelly Lake by the Cooperative Freshwater Ecology Unit). Your gap analysis will simply conclude that there is a lack of data downstream of Kelly Lake. We also already know the main constraints to fish communities in the upper reaches of the stream – which are related to water chemistry in the Frood, Copper Cliff and Nolin tributaries, and water temperature (for brook trout specifically) in the Garson and Maley tributaries.

### **Conflicting “goals”: increase conveyance and reduce erosion**

Throughout the presentation boards you recognize erosion as an issue within the system, however in section 18. Preliminary Constraints and Opportunities and section 19. Potential Recommendations, you indicate improved conveyance as a possible opportunity/recommendation. If conveyance is increased in storm sewers, culverts and overland systems (as listed in section 18), then water velocities will increase within the stream, which in turn will likely cause increased erosion of stream banks. This increased conveyance will also increase the probability and magnitude of downstream flooding and increase risk to downstream infrastructure (particularly those already negatively impacted by flooding and erosion). Finally, increased conveyance will have negative effects on ecological systems by amplifying unnatural hydrological patterns and through the negative effects associated with erosion (sedimentation, decreased quality of riparian habitat and cover, contaminant entrainment, etc).

These same concerns apply to section 20. Climate Change Perspectives, which again suggests increased conveyance as a solution to anticipated changes in precipitation regimes, but does not mention increased upland or on-line water storage capacity as a solution to mitigating against future flooding.

### **Comprehensiveness: solutions for improved habitat for aquatic species**

Aquatic resources figure prominently in the information boards. However, under section 15. Aquatic Resources, the determination of barriers which may be inhibiting the health of existing aquatic resources is not included within the objectives or tasks. We understand that there are data gaps, but given the extensive information available on water chemistry, fish communities, benthic communities, sediment chemistry, etc within the upper reaches of Junction Creek (Garson to Kelly Lake), we suggest





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that there are enough data available to determine existing factors which are limiting ecosystem health, and the sensitivity of populations to perturbations.

Furthermore, thermal characteristics pose constraints on fish populations and must be listed under section 15.

Because stream thermal regimes are so heavily influenced by groundwater input, and groundwater recharge is influenced by urbanization and future development, we recommend that the conservation and enhancement of fish habitat be listed as an objective under section 13. Groundwater. For more information on the current distribution of brook trout (a temperature-sensitive species) within the watershed and the distribution of potential brook trout habitat within the system, please refer to the 2008 Fish Study and contact staff at the JCSC.

### **Comprehensiveness: social component**

Junction Creek Waterway Park and trail, which runs almost 18km along the stream, is an important community asset, and tens of thousands of people live within a short walk of the trail. Appreciation for the stream itself has also improved over the last several years, and we have noticed an improvement in the perception of the stream which we attribute to increased awareness and with increased aesthetics brought about by cleanup efforts. Finally, thousands of landowners live along the stream and the lakes. We suggest that a social or recreation component be added to the study.

### **Errors: section 8. History of the Junction Creek Subwatershed**

- 1999 was the *formation* of the Junction Creek Stewardship Committee, which accomplishes far more than just garbage cleanups through its restoration, research, education and awareness programs.
- 1957 was the formation of the Junction Creek Conservation Authority. It was joined with another CA to become the Nickel District Conservation Authority in the early 1970's.
- Brook trout have been released into the creek annually since 2000. As of 2016, 25,700 trout have been released.
- Land reclamation: many more than a few thousand trees have been planted in the Junction Creek watershed. Almost the entire watershed has been influenced by historic industrial activities, and falls within the semi-barren zone (it also includes a barren zone). This is an important 'bullet' on your timeline as it brings together the logging and mining history, erosion, and greening. Consult the CGS new online map to obtain better estimates.
- You must include a timeline that includes information about the history of wastewater within the system – from direct inputs of sewage to the establishment of the main sewer trunk (all important for the upper reaches of the system), and also the history of the 3 wastewater treatment facilities that output directly into the system.

### **Other points**

- Studies out of the University of Saskatchewan and others have shown that continued ecological impairment of Junction Creek is more closely associated with sediment chemistry than water chemistry. We suggest that you review this work and include sediment chemistry in your analyses of the barriers to ecological recovery.





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- We have noticed the use of photos taken by the Junction Creek Stewardship Committee in the information boards. We grant permission for their use in future outreach efforts, however we would appreciate being recognized through a photo credit.

Should you wish to discuss these comments further please do not hesitate to be in touch.

Sincerely,

Sarah Woods, MSc  
Research Manager, Junction Creek Stewardship Committee

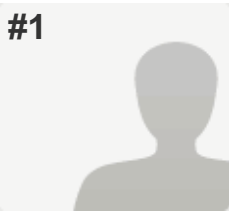
cc. Paul Javor, CGS

Members of the Junction Creek Stewardship Committee board of directors:

Paula Worton, Registered Nurse (retired)  
Amanda Wittmann, MSc Candidate, Laurentian University  
Rachelle Niemela, IT Technician (retired)  
Allison Merla, Senior Environmental Analyst, Vale  
Brigitte Angster-Beckett, Laboratory Technologist, Laurentian University  
Bruce Doran, Staff Scientist – Wetlands Lab, Science North  
Erin Calder, Environmental Consultant Technician, AECOM  
Franco Mariotti, Staff Scientist, Science North (retired)  
Kayla Stewart, MSc Candidate, Laurentian University  
Dr. Peter Beckett, Restoration and Wetland Ecologist, Laurentian University



#1



**COMPLETE**

**Collector:** Web Link 1 (Web Link)

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**IP Address:** 142.51.207.33

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PAGE 2

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**Q1: Please rank the below factors in respect to the Junction Creek Subwatershed Study:**

Quality of water for human use	Very Important
Quality/quantity of water for recreation	Very Important
Quality of water for healthy fish communities	Somewhat Important
Recreational activities within lakes/streams	Very Important
Fish and aquatic habitat	Somewhat Important
Vegetation and terrestrial habitat	Very Important
Flooding from streams	Very Important
Sewer/street flooding	Very Important
Stream erosion or sediment accumulation	Very Important
Lake sediment quality	Very Important
Shoreline disturbance	Very Important
Quantity and quality of groundwater	Very Important
Impacts of existing urban development	Very Important
Impacts from future urban development	Very Important

---

**Q2: Do you have other environmental concerns within the Junction Creek Subwatershed? If yes, please state the concern(s) and why it's concerning to you.**

Concerns about flooding and how it could be erased by controlling the amount of water flowing down Junction creek, either and by controlling dams and have retaining ponds, etc...

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PAGE 3

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**Q3: What recommendations would you suggest to address the key issues you have identified as important?**

That Junction creek be dredged in certain areas, "Flour Mill" in order to permit a rapid flow of water. The stormwater pipes located at the end of Perreault and St-George streets are lower than the bed of the creek. Silt and erosion of the sides of the creek are creating this problem.

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## Junction Creek Subwatershed Study and Master Plan

**Q4: Do you have any local background information or data that you believe would be useful to the study team? (e.g. location or incidents of flooding, erosion, interesting/healthy or degraded natural features, other areas of interest or concern, etc.)**

Yes, I have made a presentation to the city council in 2009. I have documents and pictures which I will send.

---

**Q5: Are there any special features, areas or elements that you value within the Junction Creek Subwatershed which you would like to bring to our attention?**

You could create retaining ponds that slowly release the water and also control the dams. A few years ago the dams were controlled and we had no flooding. In the past years the city states that they can not close the dams because of fear the ice will break them. Hydro electric dams have always been controlled and ice is no problem. They installed booms (chains with wood logs floating up stream a hundred feet or so from the dam to stop the ice and prevent any damage. Better control when a weather event or the spring thaw will certainly help.

---

**Q6: Are there any other impacts of existing urban areas upon the health of the Junction Creek Subwatershed which you would like to bring to our attention?**

Flooding is not good for urban areas (Houses and people). It is not good for the environment as it brings debris and garbage onto the banks of the creek. It also pushes out the fish and wildlife from the creek.

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**PAGE 4: Thank you for your feedback.**

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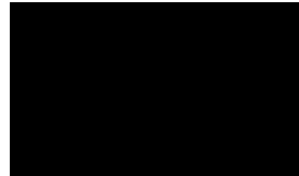
**Q7: Should you wish to receive study updates by email, please provide your email address below:**

Name

Address

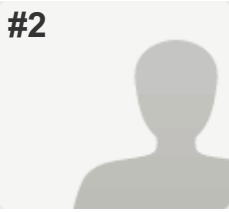
Email Address

Phone Number





#2



**COMPLETE**

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**Last Modified:** Thursday, February 16, 2017 8:27:45 PM

**Time Spent:** 00:09:59

**IP Address:** 66.206.226.214

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PAGE 2

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**Q1: Please rank the below factors in respect to the Junction Creek Subwatershed Study:**

Quality of water for human use	Somewhat Important
Quality/quantity of water for recreation	Very Important
Quality of water for healthy fish communities	Very Important
Recreational activities within lakes/streams	Very Important
Fish and aquatic habitat	Very Important
Vegetation and terrestrial habitat	Very Important
Flooding from streams	Somewhat Important
Sewer/street flooding	Somewhat Important
Stream erosion or sediment accumulation	Very Important
Lake sediment quality	Somewhat Important
Shoreline disturbance	Very Important
Quantity and quality of groundwater	Somewhat Important
Impacts of existing urban development	Very Important
Impacts from future urban development	Very Important

---

**Q2: Do you have other environmental concerns within the Junction Creek Subwatershed? If yes, please state the concern(s) and why it's concerning to you.**

traffic corridors need to be provided for fish & reptiles to travel within the city. Snow removal should not include dumping snow into creeks and waterways

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PAGE 3

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**Q3: What recommendations would you suggest to address the key issues you have identified as important?**

use LID on all changes made so as to protect and preserve waterways as best as possible. Restrict further development in wetlands to preserve natural methods of storm water retention.

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## Junction Creek Subwatershed Study and Master Plan

**Q4: Do you have any local background information or data that you believe would be useful to the study team? (e.g. location or incidents of flooding, erosion, interesting/healthy or degraded natural features, other areas of interest or concern, etc.)**

The Sudbury basin was formed by meteor impact. There is no other place like this in the world. So we cannot apply "textbook" or standard practice to an area that is unique worldwide. Keep this in mind and be very creative...

---

**Q5: Are there any special features, areas or elements that you value within the Junction Creek Subwatershed which you would like to bring to our attention?**

the shattercones

The value of greenspace to the citizens

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**Q6: Are there any other impacts of existing urban areas upon the health of the Junction Creek Subwatershed which you would like to bring to our attention?**

Yes quit allowing wetlands to be filled in or made into parking lots.

---

**PAGE 4: Thank you for your feedback.**

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**Q7: Should you wish to receive study updates by email, please provide your email address below:**

Name

Address

Email Address

Phone Number

