The Honourable Glen R. Murray
Minister of Environment and Climate Change
Attention: Ms.Kathleen Hedley
Environmental Assessment and Approvals Branch
2 St. Clair Avenue West, Floor 12 A
Toronto, ON M4V 1L5

April 27th 2015

**Response to Notice of Completion** – Second Avenue (MR72) Infrastructure Improvements. April 1st 2015

**Requester Details**: The following comments are presented by Lionel W. R. Rudd. C.E.T., of 2671, Maurice Street, Sudbury, Ontario. P3E 4Z2, private citizen - safety consultant - concerned taxpayer

**Proponent :** City of Greater Sudbury Municipal Class Environmental Assessment Second Avenue (MR72) Infrastructure Improvements.

**Request:** Specifically for a Part Two Order as provided for by the MOECC for additional assessment:

**Request Particulars:**

**Environmental Impact:** Ramsey Lake, situated in a central place near the downtown core of the City of Greater Sudbury is a major source of drinking water for approximately 60,000 or more people who reside in a greater area adjacent and surrounding the lake, This major body of water is subject to many pressures as it is used also as a significant recreational area in both winter and summer. With development(s) and networks of roads and residential and business activities around the lake it is therefore subjected to ever increasing burdens on its ability to absorb environmental degradation. Blue/green algae blooms in the lake have increased as development(s) and usage has increased. Frequently beaches and areas of the lake are closed to recreational use due to these algae blooms and other contaminants. Fortunately these occurrences have not adversely impacted the drinking water quality – yet – but the water has to be treated to ensure that is safe from algae toxicity and to remove any possible contaminants.
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It is of great concern that the proposed enlargement of the Second Avenue/Scarlett Road intersection to five lanes of asphalt paving to accommodate traffic control lights at the intersection with Scarlett Road will further burden Ramsey Lake with significantly increased storm rainwater untreated runoff. It is also felt that further environmental impact might be caused by the extensive excavation activity of the construction work causing storm water to migrate through uncontrolled and untreated seepage to the bedrock subsurface and possibly into rock cracks, and sub-surface aquifers that will ultimately drain into Lake Ramsey.

Other environmental concerns involve the proximity of the widened road to existing residential homes. This will bring dust, noise, gas and fumes closer to these homes with serious health and comfort issues and concerns. The proximity of the road poses further safety/social issues as this area, being largely, residential, means that children walking to the local school and recreation area will be unduly exposed to passing traffic. This of course also includes normal pedestrians and cyclists.

**Atmospheric Emission Concerns:**

Due to the lack of or reference to a comprehensive traffic study great concern should be addressed prior to anything that might adversely affect traffic volumes and vehicle types. By allowing vehicles to travel closer to residences the noise levels will increase substantially. At the same time atmospheric contaminants will also increase especially P.A.H.'s (polynuclear aromatic hydrocarbons) which are know to contain carcinogenic products and when combined with dust and other aerosols can precipitate serious health problems to vulnerable people. Also, fumes, dusts and gases can seriously and adversely affect people with respiratory issues. Children and the elderly might be more susceptible to such environmental assaults. Idling vehicles will certainly add to the miseries of the people affected.

The new intersection with stop and go traffic will further release environmentally harmful pollutants into the atmosphere with a much closer proximity (over 12 feet in some instances) of the roadway to the social housing units that will further affect the atmosphere in this highly residential area where already high incidence of respiratory illness has been reported. This area has a greater representation of children and seniors than other sections of the city.

**Environmental Safety Concerns – Safe Alternative:**

Safety is an environmental concern of some significance. Fewer lanes of traffic and a single lane roundabout would reduce potential injuries and fatalities for motorists, pedestrians and cyclists, according to recognized statistics. Roundabouts will also create less noise than a signaled intersection and are more aesthetically pleasing. Less stop and go traffic will mean less noise and fumes as vehicles will not be required to increase their engine power to start from scratch.

The proponent has advised there is not sufficient space for a roundabout, but as fewer access lanes would be required there would conceivably be space for a single lane roundabout similar to one planned for another intersection in the area. Fewer traffic lanes and a roundabout with no traffic signals would answer environmental concerns with respect to additional storm water runoff, air pollution, noise and safety. See attached material for backup information.

**Opportunities to Resolve Concerns:**

It is not the intent in requesting a Part Two Order to stop or to delay unnecessarily this project, but to review the environmental considerations outlined in order to achieve the objectives of the project while reducing the negative environmental impacts and to study viable alternatives such as a one lane roundabout which may have not been thoroughly or realistically considered. The cost saving in installing a simple single lane roundabout would mean that monies could be better invested in enhancing storm water control measures. There is an obvious need to improve road quality as well as community ambiance. A modern roundabout would not only improve traffic flow but could be aesthetically pleasing to everyone living in the community or just passing through.

**Determination:** Specifically it is recognized that there is the need for improved road infrastructure for Second Avenue, but it is felt that the objectives can be achieved in a more environmentally friendly, less intrusive, safer and more cost effective manner.

**Consideration of Alternatives:**

It is strongly suggested and recommended that Second Avenue be rebuilt to accommodate a single lane MODERN roundabout at the Scarlet Drive and the new Cemetery/Dog Park entrance. According to recognized capacity standards this roundabout could function satisfactorily with up to 26,000 vehicles daily, considerably more than the current city figure of between 10 and 15,000 vehicles and any reasonable projected volume increase, which the city does not forecast until at least 2031, according to the as yet unreleased Transportation Master Plan to which the Project File purportedly refers or is based upon. City traffic staff recognizes the value of roundabouts and have plans for this type of intersection elsewhere in the city. It is believed there is sufficient space for this type of intersection properly engineered at this location to accommodate local adjacent retail establishments.

**Peripheral Influences:**

The city states that there is a problem with congestion on Second Avenue, however, based on observation, traffic flow, while heavy at times flows relatively smoothly. The situation is different on the feeder corridor to Second Avenue on Bancroft Drive where there are two sets of lights, one at the intersection with Bellevue Avenue (that continues from Howey Drive – an artery from down town Sudbury), and the other at the intersection with Bancroft Drive and Second Avenue. At certain times of the day drivers tend to prefer the Howey Drive route mostly due to severe traffic congestion on the Kingsway with vehicles exiting the City from the downtown area. Also, many people use the Howey Drive/Bellevue/Bancroft route to avoid traffic on the Kingsway at any time of the day to avoid the congested Kingsway which awaits expansion to five lanes close to downtown. Traffic at these traffic light controlled intersections gets “stored” or backed up often requiring motorists to wait for two cycles of the lights – or more. Traffic held up at the Bancroft/Second Avenue intersection waiting to turn into Second Avenue create a “surge” flow affect with a large slug of vehicles – often 30 or more – travelling en-mass along Second Avenue. This causes the “Jack-Rabbit” affect. The proposed traffic light control at Scarlett Road would further cause a traffic backup culminating in increased traffic noise, fumes and congestion – and of course driver frustration – possible road rage.

The solution being to not only place a single lane roundabout at the Scarlet Road intersection but to eventually construct similar roundabouts at the Bancroft intersection and the Bellevue intersection(s). This would effectively create traffic flow rather than plug flow as it currently exists.

**Rational:** The community most affected by the proposed construction is a pleasant and viable residential area of long standing and therefore every effort must be made to maintain and improve the amenities and the ambience of the area while preserving the environmental integrity of the area. It is vital to all that the drinking water in Lake Ramsey be protected by every means. The social quality of the whole neighbourhood must also be preserved for all to enjoy – safely.

Sincerely,

Lionel W. F. Rudd. C.E.T. 2671 Maurice Street, Sudbury, ON P3E 4 Z2

**Copy: City Clerk, City of Greater Sudbury, PO Box 5000, Station A Sudbury ON P3A 5P3**

**Attachments:**

**Environmental Assessment Process:**

Issues surrounding the process is of great concern. These issue(s) involve the proponent failing to conform and comply with the EA process respecting the first Notice of Completion (April 16th 2014) having not created a Project File or referred to a completed Transportation Background Study.

Also, it seems that the **"SOURCE PROTECTION PLAN" PREPARED ON BEHALF OF THE GREATER SUDBURY SOURCE PROTECTION COMMITTEE UNDER THE CLEAN WATER ACT, 2006 (ONTARIO REGULATION 287/07) A**PPROVED SEPTEMBER 19, 2014" appears to have not been fully observed or complied with. There appears to be no reference to this plan. Some excerpts are noted below. Phosphorous has been observed entering Lake Ramsey via the Frobisher Creek run-off area. This, coupled with other sources around the lake should be of great concern and cannot be treated in isolation. The proposed expansion of the road surface will also lead to a much greater volume of snow and ice in winter months. This will result in an increase in salt usage which will further add to the run-off volumes and disposal issues.

**Item 15 of the Plan "Water Quality Monitoring Policy and Issues"** ***The City of Greater Sudbury shall sample raw water to monitor and trend changes in sodium and phosphorus in the Ramsey Lake Issue Contributing Area (IPZ 1, 2 and 3). The sampling will occur on a frequency adequate to monitor concentrations with the purpose of tracking changes over time in the water quality parameters (sodium and phosphorus) associated with the drinking water issues (sodium and microcystin LR). The City of Greater Sudbury shall design and implement the required monitoring program within one year of the source protection plan taking effect.***
***Monitoring policy M5 applies.***

## PART III - PLAN ADMINISTRATION

## 18.0 LEGAL EFFECT OF POLICIES AND EFFECTIVE DATES

### 18.1 LEGAL EFFECT OF POLICIES

***The policies in the Source Protection Plan have one of three types of legal effect – "must conform/comply with" policies, "have regard to" policies, and "non-legally binding" policies. The following is an explanation of which policies fall under each legal effect provision. Appendix D of the Source Protection Plan contains lists of policies ensuring Source Protection Plan policies are designated under the appropriate legal effect provision as outlined in the Clean Water Act.***

***Specific reference to these lists is included in the definitions below, where applicable. Persons or bodies with obligations to ensure their decisions conform with policies in the plan or who are required to satisfy obligations in the plan should refer to these lists to determine the specific policies that apply to their respective decision-making responsibilities.***

***Must Conform With:***

***The Clean Water Act requires municipalities; local boards and source protection authorities to comply with any obligations imposed on them to address a significant drinking water threat/condition, regardless of the particular tool or approach used in the policy (see List E).***

- ***The Act requires decisions under the Planning Act and Condominium Act, 1998 to conform with significant threat/condition policies (see List A).***
- ***The Act requires decisions related to prescribed instruments to conform with significant threat/condition policies (see List C).***
- ***Persons carrying out significant threat activities must conform with policies that use Part IV powers under the Clean Water Act (see Lists G, H and I).***
- ***The source protection plan must designate a public body to carry out monitoring required by the Clean Water Act and these public bodies must conform with the obligations set out in the monitoring policies (see List F).***

***Have Regard To:***

- ***The Act requires decisions under the Planning Act and Condominium Act, 1998 to have regard to moderate and low threat/condition policies (see List B).***
- ***The Act requires decisions related to prescribed instruments to have regard to moderate and low threat/condition policies (see List D).***

***Non-legally Binding***
***The source protection plan includes other types of policies that, while the committee may determine are important to achieving the Plan's objectives, are not given legal effect by the Act. These include:***
- ***Significant, moderate and low threat/condition policies to be implemented by bodies other than municipalities, local boards or source protection authorities and which do not rely on Part IV, prescribed instrument or Planning Act tools (List K).***

**The Storage of Snow (Threat 14)**

***Snow removed from roads and parking lots can be contaminated with salt, oil, grease and heavy metals from vehicles, litter and airborne pollutants. The disposal of snow in one location concentrates the potential contaminants. Since the snow is contaminated, it must be handled and stored in ways that protect water sources. This drinking water threat includes:***
- ***snow that is pushed into large piles on a property (e.g. stored in parking lots);***
- ***snow transported to a central site from other locations (e.g. snow disposal sites); and***
- ***large snow banks along roads that are close to municipal wellheads or surface water intakes.***

## And with respect to the above:

***The snow storage drinking water threat is closely linked to the application of road salt. Reducing the amount of salt applied would reduce the amount of road salt in stockpiled snow.***

**Project Details**: The proposed project will create quite an unnecessary expanse of asphalt in the form of multiple lanes for vehicles (and so called "traffic storage" areas) plus bus stopping bays. This creates a total 6 traffic lanes including the turning lanes. When the bus stopping areas are included pedestrians will have negotiate a considerably wide expanse of roadway in order to make a crossing. This will compare with other intersections found on some of the City's major roads.

**Impact of Project:** The enlarged asphalt area will certainly increase the catchment capacity for storm situations which will cause surge impacts on the water drainage into Ramsey Lake and adversely affect any attempts and systems to control the contamination by nutrients entering the lake.

**Storm Water Concern Details**: It is my understanding that the proponent will address the stormwater and drainage concerns only AFTER the completion of the project rather than offering a detailed plane of how the stormwater will be processed and cleared before discharge into Ramsey Lake. Surely, it is not only good engineering but good and best practice to install a stormwater control system prior to any major construction work.

The next attachment relates to traffic safety concerns.

# Blood, Traffic and Rheology: Go with the Flow

*Lori L. Wickham, Ph.D.*

What do blood, traffic and rheology all have in common? They all involve flow. Rheology is the study of flow. Rheological applications include flow analyses of water in pipes or air around airplanes. Bioengineers often study flowing blood, body fluids, cells and tissues. What does this have to do with Traffic? Skimming through the Journal of Rheology one finds articles on mathematical modeling of car flow on roads as well as blood flow inside organisms. There are even models of clothes tumbling in washers and dryers. Driving on highways at night, the flow behavior of those red taillights ahead seems similar to red blood cells. Both those who study blood flow behavior (hemorheologists) and traffic engineering modelers use the terms arterial flow and collateral flow. Sometimes there are perturbations in both systems causing slow flow, "sludging" or "traffic jams". In both fields, optimization involves enhancement of fluidity and/or reduction of interactions between the particles [cells or vehicles]. Deformability and elasticity are quite different between cells and cars. Cells are usually deformable and elastic while cars rarely assume their original shape after a collision. Accident reconstructionists measure the "crush" of vehicles after an accident in order to determine the "flow" in terms of speed at impact. Calculations of the forces during impact can be used to study the effects to both vehicles and occupants after a crash. A traffic jam or clog can exhibit "elasticity" changing from completely stalled to “stop and go” or “high flow”. Stalled jams are similar to blood “sludging” where cells contact each other and become transiently attached in loose formations resulting in three dimensional networks with a great deal of elasticity. These cell aggregations can require high forces to re-establish flow during peripheral vascular disease, deep vein thrombosis and intermittent claudication. The latter pathology is common to diabetic and geriatric patients when cell aggregation causes poor circulation in the extremities. Unfortunately, over time, these aggregations may irreversibly clot causing the death of surrounding or downstream tissue. Myocardial infarction or "heart attack" happens when coronary vessels feeding the heart are compromised.

Throughput during congested flow can be maintained by a velocity profile that is uneven across lanes so that slower vehicles or cells do not “line up” reducing flow. In blood vessels, the optimum velocity profile is parabolic with cells in the center of the vessel traveling faster than those near the 'wall'. A layer of plasma, the suspending fluid, next to the walls causes a lubrication effect. Models of the separation of blood at branch points and the effects on downstream flow are applicable to traffic flow. "Plasma skimming" lowers the numbers of cells in a side branch at vessel bifurcations. Highway off-ramps are similar in architecture but not in effect since they are skimming off vehicles thereby enhancing flow in the main thoroughfare. When cars block access ramps, decreased flow, collisions, and stagnation may occur. Current highway flow design indicates that cars in the left [#1] lane should travel faster than the other lanes. Slow vehicles in the left lane can cause “plug flow” where vehicles in adjacent lanes travel closely at similar speeds reducing throughput and making ramp access difficult. Faster drivers may then try to squeeze between slower cars increasing the probability for collisions that can cause stagnation. Similarly, vehicle collisions often happen during traffic “jams” contributing to stagnation. Traffic "roundabouts" can be effective alternatives to intersections and bifurcations, sites of collisions and disturbed flow in both systems.

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*Excerpted from an article written by Lori Wickham, Ph.D. published in the San Diego Daily Transcript on October 18, 2006 as part of the Forensic Consultants Association Newsletter. Dr. Wickham is a member of John Fiske Brown Associates, www.fiskebrown.com., San Diego’s most experienced forensic science and engineering group.*

While any intersection accident is of concern the most dangerous are “T bone” occurrences which take place most often when one driver fails to stop for any reason including “running” a red light and the other driver is unable to avoid a collision, especially if one or both vehicles are travelling at high speeds. These are the accidents that are most likely to result in death or serious injury. This type of accident is virtually impossible in a roundabout as all vehicles are moving in the same direction and at low speeds. Roundabout safety is well documented.


Overview of a simple one lane modern roundabout in an urban setting located with commercial business property in close proximity. Roundabouts can be located in virtually any location providing a safe and attractive alternative to a traditional signalized intersection.