

The Honourable Glen Murray
Minister of the Environment and Climate Change
Attention Mary Hennessy Director (A)
Environmental Assessment and Approvals Branch
2 St Clair Avenue West Floor 12A
Toronto Ontario M4V 1L5

Dear The Honourable Glen Murray
:
and
Mary Hennessy Director (A) Environmental Approvals Branch

RE: Notice of Completion
Municipal Class Environmental Assessment
Second Avenue (MR72) Infrastructure Improvements
Notice Issued April 7 2016

Re: Second Avenue Infrastructure Improvements – Municipal Class Environmental Assessment Schedule “B” Project.
– Project File Report prepared for the City of Great Sudbury, April 2016

Response By: Details: The following comments are presented by Lionel W. R. Rudd. C.E.T., of 2671, Maurice Street, Sudbury, Ontario. P3E 4Z2, private citizen and concerned City of Greater Sudbury taxpayer.

IMPORTANT: I AM REQUESTING THAT THIS CORRESPONDENCE REGISTERS MY REQUEST THAT A “PART TWO ORDER” TAKES PLACE AS PER THE REGULATIONS AND DUE PROCESS,

Response and Observations.

The size and complexity of the report is extremely voluminous and is quite a daunting task to sift through all the detail and “fine print”. In fact it is my professional observation and opinion that the intent of such complexity is to discourage all but the most determined and astute individuals from taking the time and trouble to digest the material. It should and must be put in a far more digestible and simplified form for any meaningful community input.

Therefore, my objections and concerns still stand. The project is heavily flawed in so many aspects.

Why the Need to Expand Second Avenue into a Four Lane Road: The argument presented claims that it is intended to relieve congestion. However, the authors of the report as well as the staff of the Greater City of Sudbury have completely failed to recognize that any congestion or traffic volume surges is contrived by the poor design and traffic management control(s) “upstream” of Second Avenue. Namely Howey Drive, Bellvue, and Bancroft Drive feeder roads. This coupled with the stop/go traffic on the Kingsway artificially causes a “plug flow” affect that adversely impacts Second Avenue as drivers attempt to find a more comfortable driving route to their destination. Traffic, being considered a “fluid flow” gets “plugged” at traffic lights and stop signs, where large volumes of vehicles get “stored”. When given the green light the traffic surges causing a slug of high volume vehicles. A simple study of fluid mechanics and even rheology would help clarify the approaches to road and traffic design.

Solution:

- 1) There HAS to an integrated overall traffic network plan especially including the peripheral and feeder roads to Second Avenue. Is it to be assumed that Second Avenue will ultimately become a major artery? If so the individuals promoting the expansion of Second avenue should be honest with the people of the area in order for them to make any living adjustments.
- 2) A system of MODERN roundabouts MUST replace existing traffic light controls on Howey Drive, Bancroft Drive, Bellevue, AND Second Avenue at the Scarlett Road intersection (although any form of control may not be warranted – as it is now). Further, a program of introducing MODERN roundabout on the Kingsway, Notre Dame, Barrydown Road and Lasalle Bld., would improve the overall flow of traffic, minimize congestions and save money while improving safety and efficiency, besides the improvement environmental impact.

- 3) MODERN ROUNDABOUTS offer many opportunities to save money – maintenance being minimal, they in fact require less space than most signaled intersections, they provide a “traffic calming” affect and they help minimize exhaust pollution indicative of signaled intersections – little or no idling!

Proximity to Homes: It appears that the report recommends that the four lane Second Avenue will place the roadway up to 15 feet closer to the “rent geared to income” town houses. Even the most casual observer will see that the families who live in these homes utilize the front area of their homes as a recreation space as their back yards are tiny by any modern standard.

This proximity fails to address the exposure to PAH’s – polynuclear aromatic hydrocarbons. – from the exhausts of passing vehicles. Besides being a smelly nuisance PAH’s are carcinogenic. At best they can be a respiratory irritant.

****Other homes along Second Avenue are in extremely close proximity to the current, existing road layout. Widening of the road as proposed could very likely create an intolerable living environment for the residents from which there would be no escape or relief. You will note that by going to Google Maps - Earth and key in Second Avenue Sudbury locations of the various homes and building along the proposed route.

Noise: The report indicates that any increase in the noise level(s) will be less than 5 decibels (dBA’s). This statement is extremely flawed. In some jurisdictions (mostly for occupational health & safety purposes) a 5 decibel increase in the noise level represent a doubling of the noise level!!! However, in actual fact an increase of 3 decibels represents the actual doubly affect of noise. So by expanding Second Avenue to four lanes could mean the residents of the town houses (and other adjacent homes) could be exposed to up to double the current noise level. This oversight in science is most disturbing and compromises the accuracy and integrity of the whole report.

Further, there is the safety hazard of vehicles, far whatever reasons, veering off the roadway and encroaching on the play areas in front of the “rent geared to income” homes. A risk that should be patently obvious.

The Future: The report alludes to 2031 and that it is unlikely that traffic volumes will change. However, there is every indication that an overall population decline might occur and the means of transportation will evolve into other transportation conveyances, needs and means.

Serious Environmental Concern(s) The impression given by the City of Greater Sudbury is that the Second Avenue Project is to proceed BEFORE the Sudbury Watershed Study is complete. This would be both naïve and costly. It is well documented and readily proven that the topsoil of the Greater Sudbury area is very shallow – with few exceptions caused by glacial gouging and ancient erosion. Much of the ground water from rain and run off quickly filters down to the bedrock which ultimately drains into our lakes and watershed. In many instances it has been shown that such run off contains serious contaminants from sewage material from field beds and septic systems to fertilizers to salt and miscellaneous dumping and indiscriminant discharge of materials from car washing to unknown sources.

Should the expansion of Second Avenue proceed as planned it could further stimulate increased development in and around the greater area which could lead to further and increased burdens on the ground water system and further degradation of the Ramsey Lake water supply that around 60,000 people are dependent on.

The following might prove an interesting and enlightening study:

The Past, Present and Future of Sudbury’s Lakes

D.A.B. Pearson¹, J.M. Gunn² and W. Keller³

¹Department of Earth Sciences and Co-operative Freshwater Ecology Unit, Laurentian University, Sudbury

2Ministry of Natural Resources and Co-operative Freshwater Ecology Unit, Laurentian University, Sudbury
3Ministry of the Environment and Co-operative Freshwater Ecology Unit, Laurentian University, Sudbury.

SERIOUS SAFETY CONCERN(S): The use of traffic light signals and the enlargement of the intersection at Scarlett Road and Second Avenue to six lanes poses a very serious safety concern. A recent study in the Great City of Sudbury reviewing pedestrian/traffic accidents and fatalities revealed that a disproportionately high number of pedestrian accidents occurred at such intersections that is proposed and recommended. It is well documented in Canada and internationally that roundabouts offer a far greater level of safety to ALL road users and pedestrians. SO HEREOFRE, WHY ON EARTH CREATE AN IDENTIFIABLE DESIGN HAZARD?

CONCLUSION: I object to the proposed Second Avenue project until AFTER the Sudbury Watershed Study is completed, analysed and presented to the public. I also, strongly object to the perceived need for Second Avenue to be made into a four lane road. The safety and health concerns are already mentioned. I also strongly recommend that a full and complete moratorium on any and all construction projects in and around the Ramsey Lake watershed be halted until 1) The Ground Water Study is available and its recommendations implemented. And 2) A complete implementation of an integrated road/traffic system be implemented - including the replacement of traffic light intersections with MODERN ROUNDABOUTS.

Respectfully submitted

Lionel W. F. Rudd C.E.T.
Safety Specialist. And very concerned responsible citizen and taxpayer.
2671, Maurice Street,
Sudbury, P3E 4Z2
Ontario.

PREVIOUSLY SUBMITTED IN 2015

Re: Notice of Completion – Municipal Class Environmental Assessment – Second Avenue (MR72) Infrastructure Improvements. Notice issued 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 and concerned City of Greater Sudbury taxpayer.

Proponent Details: Reference is made to Notice of Completion issued April 1st 2015 and previously issued April 16th 2014 regarding Municipal Class Environmental Assessment Second Avenue (MR72) Infrastructure Improvements by the City of Greater Sudbury.

Request: Specifically for a Part Two Order as detailed in Ontario procedural process document <http://www.ontario.ca/environment-and-energy/class-environmental-assessments-part-ii-order#section-0>.

Reason for Request:

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 50,000 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. 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.

It is of great concern that the proposed enlargement of the Second Avenue/Scarlett Road intersection to 6 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 involves 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 concerns 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 known 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 (12 feet) of the roadway to the social housing units that will further affect the atmosphere in this highly residential area that 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. (pictures of roundabouts)

Opportunities to Resolve Concerns:

It is not the intent in requesting a Part Two Order to stop this project, but to review the environmental considerations outlined in order to achieve the objectives of the project while reducing the negative environmental impact 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 the infrastructure of the whole neighbourhood. There is an obvious need to improve road quality as well as recreational quality and ambiance to the community. A modern roundabout would not only improve traffic flow but could be aesthetically pleasing to everyone living in the community or just passing through.

Rational: 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, far in excess of the current city figure of between 10 and 15,000 vehicles and any reasonable projected volumes, which the city does not forecast until at least 2031, the current transportation study period. 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 allowing for the accommodation of retail establishments in small adjacent strip mall – further details attached.

Peripheral Influences:

There are many complaints about the traffic flow and volumes on Second Avenue. One must observe the feeder routes to Second Avenue in order to fully appreciate the current traffic flow or lack thereof. On Bancroft Drive there are two sets of

traffic 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 Kingsway. 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 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.

Why this request: 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.

Safety Specialist. And very concerned responsible citizen and taxpayer.

2671, Maurice Street,
Sudbury. P3E 4Z2.

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)**

APPROVED 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.*

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.



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. Proposed freeway "tracking" lanes that automatically control vehicles could prevent driver behaviors that reduce traffic flow. Carpool lanes and high-speed trains built over freeways are designed to accomplish the same goal.

Similarly, vehicle collisions often happen during traffic “jams” contributing to stagnation. Congested flow also occurs in areas of merging particles in both systems. Those who travel from San Diego to North County are familiar with this concept at the I-805 to I-5 junction. Bifurcations (“Y’s”) where one flow path separates into two can split aggregations apart but may cause collisions at the apex of the split [e.g. the I-5/I-805 split southbound from North County to San Diego]. Proper infrastructure is essential in both systems. Collateral flow, the development of parallel or intersecting flow paths, can be effective in both systems. Collateral vessel recruitment increases during atherosclerosis when fatty deposits harden and narrow blood vessels making them prone to clots. When collateral flow is insufficient, a surgical bypass can meet flow demands. The same term is used for roads routing traffic around an area where municipal growth or redevelopment exceeds original carrying capacity and infrastructure. Rheologists trying to destroy cancer cells surrounded by myriad interconnecting blood vessels in a tortuous geometry analyze tumor microcirculation. Traffic engineers meet similar problems regulating flow in complex combinations of intersections, bypasses and cloverleaf geometries. Traffic "roundabouts" can be effective alternatives to intersections and bifurcations, sites of collisions and disturbed flow in both systems.

The generalizations and oversimplifications presented here are meant to emphasize rheological similarities rather than the many differences in these systems. Forensic consultants in engineering and accident reconstruction are often called upon to analyze road architecture and flow patterns in assessment of motor vehicle accidents while biomedical consultants may be more concerned with body fluids, tissues, and mechanical properties of the occupants. Effective communication among these scientists can provide synergistic collaborations using tools for prediction and problem solving from seemingly disparate fields resulting in novel approaches and solutions.

If you find yourself in a jam call a forensic consultant!

This article written by Lori Wickham, Ph.D. was 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.





