



## **CITE STUDENT RESEARCH COMPETITION - REVISED DEC 21 2009**

The Canadian Institute of Transportation Engineers (CITE) is excited to announce a new Undergraduate Student Competition based on the Canadian Capacity Guide for Signalized Intersections and the InterCalc software. The competition begins in September 2009, and submissions are due on March 29, 2010 (revised date). The winner will be announced in April of 2010, and may have an opportunity to present their results at the annual conference in August.

The Competition is an opportunity to use real-world data, analyze it, and develop meaningful conclusions and recommendations regarding traffic operations. CITE is supporting this Competition with prizes of \$500, \$300 and \$200, for 1st, 2nd and 3rd prizes respectively.

The Competition is open to University and College students in a Canadian civil engineering, transportation engineering or transportation planning program. Students must register with the program coordinator at their institution and the contest organizer in order to be notified of any related addenda or news items.

### **The Rules for the 2010 Competition are as follows:**

1. Competitors will receive the following data:
  - a. Intersection Turning Movement Counts – cars, heavy vehicles and pedestrians;
  - b. Intersection Geometrics;
  - c. Video of the intersection showing the traffic flows and queues;
  - d. Basic Assumptions such as Saturation Flow, Pedestrian Walk Speeds;
  - e. Location of Municipality; and
  - f. Signal Timing Plan.
  - g. Output from HCS2000 and Synchro 7 software will be provided.
2. Competitors will be required to show analysis work for the intersection using a manual calculation of the Canadian Capacity Guide Methodology for one leg of the intersection.
3. Competitors will be required to show analysis work for all legs of the intersection using computer software. The software to be used is:
  - a. The InterCalc software that supports the Canadian Capacity Guide;
  - b. The HCS2000 software that is based on the Highway Capacity Methodology and ;
  - c. Synchro 6 or Synchro 7 software that is based on the Highway Capacity.Reminder: output for HCS2000 and Synchro will be provided so student does not need access to this software and student can download InterCalc for free. Student can download a demo version of Synchro from the Trafficware Software Site.
4. Competitors will be required to show comparisons between the manual and software results for the following:
  - a. degree of saturation;
  - b. delay; and

- c. queuing.
5. Competitors will draw conclusions and make recommendations as to the appropriateness of the results, the methodology and use of the software packages.
6. Competitors will give their own personal evaluations of the ease of use of the methodology and the software packages.

**The Competitors will be evaluated on the following:**

1. Adherence to submission dates;
2. Completeness of the analysis;
3. Development of Comparisons;
4. Presentation of Conclusions and Recommendations;
5. Format of the document, including structure, graphics and composition; and
6. Presentation of personal evaluation.

**The Report should use a numbering system similar to the following:**

- 1.0 Introduction
  - 1.1 Purpose (a specific statement as to what you are trying to achieve)
  - 1.2 Scope (what is the study area, time frame of study, deliverables)
- 2.0 Data (what data is collected, did you need additional data or information not originally supplied)
- 3.0 Analysis of Data
  - 3.1 Manual
  - 3.2 Software
- 4.0 Comparison of Results
- 5.0 Conclusions (What did you specifically learn from the study)
- 6.0 Recommendations (What can you tell a transportation practitioner about using or applying this traffic analysis methodology to their work, Are there concerns that they should have about using it, etc)
- 7.0 Personal Evaluation (This is an opportunity for you to show what insight you received from undertaking this project. Can you share some insights to making the software more user friendly or more practical).

**SPECIAL NOTES:**

1. This is the first year for this across Canada contest and, as such, the organizers may need to modify the rules somewhat to meet the requirements of all institutions. The organizers do not anticipate having to make any major modifications; however, the organizers do retain the right to make changes as may be needed. Any change will be announced via email to all registered participants.
2. An Instructor of competitors will not qualify as a judge.
3. To register for the contest email both :
  - a. Dan Havercroft – [dan.havercroft@mohawkcollege.ca](mailto:dan.havercroft@mohawkcollege.ca)
  - b. And the advisor of the institution you attend. If you do not have an advisor please inform Dan Havercroft.

- c. Add the following information in your registration, your name, your program name, institution and year of study, and your advisor's name and contact email.
4. Winner will be notified by the organizing committee and names and institutions will be published in the CITE Newsletter.
5. The decisions of the judges are final.
6. The following data will be supplied by CITE for the competition.
  - Video of Intersection
  - Output of HCS2000 and Synchro
  - File of recommendations – assumptions for the competition