

STAFF REPORT

Report #CAO2007-27

To: His Worship the Mayor and Members of Council
From: Jeff Carswell, Chief Administrative Officer
Re: Niagara College Post-Graduate GIS Project – Adam Brooks
Date: July 26, 2007

Background:

This report examines an opportunity for the Township to participate in a Post Graduate Research project being proposed by the PW Asset Management Summer Student Adam Brooks.

Discussion:

At the end of the summer, Adam Brooks will be attending Niagara College and taking a post-graduate program in Geographic Information Systems. As part of his course, he must undertake a "real-life" project related to his course of study. Adam has approached staff and proposed a project related to the work he has completed over the summer and more specifically focused on Tavistock Storm Drainage. Basically, he proposes to create a 3D drainage model using GIS systems that would complement the other drainage work that has been completed and which will likely be completed in the future. He is anticipating the model would be detailed enough to see the effect of various storm events, water flows and other inputs. He intends to incorporate both subsurface drainage and surface flows. There may be the need for some site specific information gathering; however, such information will be needed before other drainage improvements are proceeded with as well. For example, it is apparent there is some uncertainty about the actual watershed breaks in the lands to the north-west of Tavistock (west of Janelle Drive). The Township may have to obtain detailed elevation information from this area to move forward with storm water retention. This information may also be required for the project being proposed by Adam. The information the Township currently has through the master drainage plan and other documents tends to be very "engineering" focused, since it was prepared by engineers. Adam's work will be more "GIS" focused, which should help to complement the engineering work. While the Township could obtain similar information by engaging a consulting firm, staff do not have enough knowledge and understanding of GIS to know exactly what to ask for.

Based on our experience over the summer, Adam will require little supervision with the project. The information from the College indicates the premise is very much “real-world” where Adam would be the consultant and the Township the client. A copy of the information from the College is attached. Deliverables would be identified for the project, with submission of a final report. Staff is confident that this project will be delivered in a timely manner, as it is a requirement to pass the course. Over the course of the summer Adam has been exposed the engineering and GIS work being completed on storm drainage and believes this project will be challenging and provide valuable information to the Township.

In general, staff has been very impressed with the work completed by our summer students. When looking at the work they completed, it is comparable and sometimes better than what is obtained from high priced consulting firms. As well, there tends to be better control over the work and fewer requirements for more consulting after the report is completed.

Recommendation:

1. That Council support participating in the Niagara College, Post-Graduate Project proposed by Adam Brooks and further authorize staff to participate in the program and proposed drainage analysis project.

Report prepared
and submitted by:



Jeff Carswell, AMCT
Chief Administrative Officer

Niagara College, Post-Graduate Certificate in G.I.S.



Centre for Environmental Training,
Environment, Horticulture and Agribusiness Division
Niagara-on-the-Lake Campus
135 Taylor Road, S54
Niagara-on-the-Lake, Ontario
L0S 1J0

e-mail: ijiang@niagarac.on.ca
URL: <http://www.niagarac.on.ca/gis/>

July 26, 2007

Dear Sir/Madam,

RE: Volunteer Postgraduate Geomatics (GIS) Project Opportunity

I would like to take this opportunity to introduce the Postgraduate Certificate program in Geographic Information Systems (GIS) from Niagara College and an opportunity to have a graduate student undertake a volunteer consultative project for your organization.

The postgraduate GIS program at Niagara College is an alternative to the traditional Master's Degree that allows for the development of an application based skill set that compliments existing experience and expertise within a student's or practicing scientist/technologist's chosen field.

Graduates of the Niagara College Postgraduate GIS program are highly motivated and superbly qualified individuals that are valuable additions to a diverse range of businesses and agencies that employ GIS. Of particular interest are the internship opportunities and the applied GIS projects that form the cornerstone of the program. Students receive invaluable experience with real GIS problems and real clients while completing their postgraduate certificate. Our graduates are currently employed in a diverse range of positions all over the world.

To learn more about the interesting and useful projects that have been undertaken at Niagara College, please visit our website at <http://www.niagarac.on.ca/gis/>.

I would also respectfully ask that you consider playing the role of 'client' to one (or more) of our current postgraduate students. The benefits to the student are obvious (and alluded to above). As a client, you will receive, at no cost to your organization, a very high quality consultative effort that must solve a complex problem or address a challenge that involves geospatial information of some sort. Our graduate students have all successfully completed a variety of undergraduate university or college programs; some already hold advanced degrees at the Masters and Doctorate level. The graduate students have access to a 'world-class' geomatics laboratory in which a great deal of the project can be undertaken, as well as access to professors with numerous years of scientific and geomatics experience and knowledge.

To make this experience worthwhile for both client and student consultant, we will require the following minor commitments from you and your organization:

1. A reasonably complex problem or advanced challenge that the postgraduate student consultant can address in a seven month period (October to April inclusive);
2. A contact individual or individuals for the student consultant to liaise with on a reasonable basis;
3. An individual or individuals to review the work of the student consultant as a 'formal client' would;
4. If time and proximity allow, attend presentations (at your facilities or the Niagara College facilities) of the formal proposal, one progress report presentation and a final report presentation.

In turn, the Niagara College student consultant will provide the following to you and your organization:

1. A formal proposal for professional consultative services for your approval and acceptance (mid-December);
2. A formal mid-project progress report for your review (February);

3. A formal, final consultative report that addresses the challenge or problem detailed in the proposal in both a printed and digital format (end-April);
4. A CD- or DVD-ROM containing all data, analyses, maps, etc. (end-April);
5. A presentation to you (the client), peers, academic advisors and the public (where possible) regarding the project in its entirety (end-April).

It should be noted that the student consultant must transmit all of the above noted deliverables to both Niagara College and the client to be awarded the postgraduate certificate (see timeline attached to this letter). We also require that student consultants estimate and track costs in a very real manner; in fact, it is estimated that the average value (donated to the client agency) for a project completed in the 2005/2006 academic year was on the order of \$30,000!

Our project experience has included but has not been limited to the following fields/topics in the past:

- Sociological (crime analyses, archaeology, recreational issues, etc.);
- Humanitarian (mine detection, removal and risk minimization);
- Environmental (topographic analysis, habitat loss analysis and management, forestry issues, sustainable resource issues, etc.);
- Engineering (infrastructure, landscape change, waste management, etc.);
- Planning (development potential, transportation issues, demographic change, etc.);
- Business (optimal marketing strategies, business location, operating cost minimization, etc.).

I hope that you will consider working with one of our very enthusiastic postgraduate students and that you will present a challenge or problem that we may be integral in addressing. If you wish, our postgraduate internship/co-op coordinator, Mrs. Janet Finlay, can be contacted at (905) 641-2252, extension 4084 or at jfinlay@niagarac.on.ca to discuss this opportunity at greater length.

Thank you for your time and consideration.

With warmest regards,

Xinxia Jiang (James), PhD
Professor & Coordinator, GIS Graduate Program
E301, EHAD
Niagara-on-the-Lake Campus, Niagara College
135 Taylor Road, SS4
Niagara-on-the-Lake, Ontario, L0S 1J0
Tel: 905.641.2252x4462
Email: jjiang@niagarac.on.ca
WebPage: <http://niagarac.on.ca/gis/>

Niagara College Postgraduate GIS Program

Applied Thesis Project Timeline

