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2011 DIGITAL ORTHOPHOTOGRAPHY PROJECT UPDATE

The Planning and Economic Development Committee recommends:

- 1. Receipt of the presentation by John Houweling, Director, Geomatics; and**
- 2. Adoption of the recommendation contained in the following report dated December 20, 2011, from the Executive Director, Office of the Chief Administrative Officer.**

1. RECOMMENDATION

It is recommended that Council receive this report for information.

2. PURPOSE

This report updates Council on the status of the 2009/2011 Orthophotography Project including the success of partnering with local municipalities, school boards and conservation authorities, in the acquisition of the orthophotography every two years.

3. BACKGROUND

Current orthophotography provides Local and Regional employees a look at an area of interest

Digital orthophotography has become an essential source of information that supports the Local Area Municipalities, other YorkInfo Partners and Regional staff with their daily business. Detailed aerial images and elevations have proven to be a high impact tool providing rich geographic context for infrastructure, community and long range planning activities, emergency response, and communication with the public.

Digital orthophotography was acquired for York Region in: 1995, 1999, 2002, 2005, 2007, 2009 and 2011 to meet Regional growth management needs and operations. Since 2005, the Region has received orthophotography on a two-year cycle. The current contract expires in 2014.

YorkInfo Partners participate in the cost of acquiring imagery

York Region solicited participation of the YorkInfo Partners (primarily Local Area Municipalities and the Conservation Authorities) to share in the selection, acquisition,

quality assurance and cost of jointly purchasing orthophotography. The Region agreed to fund 50% of the cost with the partners funding the remaining 50%. The funding model was based on the population and size of each of the municipalities.

Over the past six years YorkInfo partners have collaborated in the procurement process. An Orthophotography Task Force was established to participate in the formulation of the RFP and evaluation of submissions. The Orthophotography Task Force consisted of members from the YorkInfo Partnership represented by staff from the Town of Markham, Town of Richmond Hill, City of Vaughan and Lake Simcoe Region Conservation Authority and York Region Geomatics Branch. Each of these procurements were reported to and approved by Regional Council.

4. ANALYSIS AND OPTIONS

Current agreement similar to previous contracts that allow for costs to be spread over a two year period to allow for consistent budgeting

The agreement with First Base Solutions Inc. (vendor), a company based in Markham, exercises an option which allowed for two deliveries of orthophotography in 2009 and 2011, an option for a third delivery in 2013 with costs spread over four years (2009 to 2012).

Licencing orthophotography compared to owning the data allows for cost savings

Under the agreement the Region can share the data with “registered associates” including municipalities, municipally-owned corporations and contractors working on their behalf. Through the licence, the Region and its registered associates have the right to use this data in perpetuity. The Region cannot sell the data to other interested parties; instead they would need to purchase it from the vendor. The Region has found the benefits of the lower cost of licencing data are greater than the potential for net revenue from data sales.

Orthophotography Task Force provides quality assurance

The Orthophotography Task Force provides data quality assurance (QA) of the new orthophotography received from the vendor. The Region received samples of the orthophotography in August 2011 as part of the QA process. The Task Force reviewed and agreed the images met the specifications which were confirmed in correspondence to the vendor.

In October 2011, the Region received final delivery of the 2011 orthophotography and the Digital Elevation Model. The Orthophotography Task Force conducted a final review and accepted the orthophotography for 2011.

Orthophotography and elevation data delivered to YorkInfo Partners and York Regional Police

The Region, the YorkInfo Partners and York Regional Police have access to the 2011 imagery and elevation data. The resolution of the imagery is 15cm which meets the needs of the YorkInfo Partners and the Region at a reasonable cost. The Region has acquired 15cm resolution imagery since 2005. This provides a consistent view and enables easy analysis including having the ability to see changes at a particular location over time.

The updated orthophotography is essential to YorkInfo Partners, Regional staff and York Regional Police in making informed decisions in our rapidly changing region. The information has been used by the local area municipalities for their Mosquito Control Program, Tree Inventory, as well as Council Reports. The Region has used the imagery for tracking of the West Nile Virus and the VIVA expansion along Highway 7 and Davis Drive. York Regional Police have orthophotography accessible through Communications (dispatch) and Search and Rescue (helicopter).

The orthophotography has become a tool used in day-to-day business. It allows users to visualize an area where development applications, utility applications, and permit applications are submitted for review. It enables staff to provide better feedback when commenting on applications. Also, it is useful in the visual verification of alignments of roads, assets, pavement markings, property edges and rights.

Link to Key Council-approved Plans

The Orthophotography project supports the 2011 to 2015 Strategic Plan in the priority area of “Strengthen Organizational Capacity” as it contributes to the centralization of data accessible to the organization and greater Region.

5. FINANCIAL IMPLICATIONS

The ability to pay over a two-year period allows for consistent budgeting practices

Through the competitive procurement process and the licensing option, the Region and the Partners realized a cost savings of approximately 50% over previous purchases of the orthophotography. These savings were passed along to all partners.

The Region’s existing contract with First Base Solutions Inc. is a six year agreement for a total amount of \$500,000 for acquisition of the 2009, 2011 and an option for 2013 orthophotography. The budget item was identified and approved as part of the Region’s 2009 Business Planning and Budget process.

6. LOCAL MUNICIPAL IMPACT

Geomatics held discussions with the YorkInfo Partners on their requirements as well as the opportunity for cost sharing and avoidance of duplication. All members of the YorkInfo partners agreed to cost share with the Region in acquiring the orthophotography. The partners' portion represents 50% of the total cost. The data has been made available to the members of the YorkInfo Partnership in the Region's continued efforts in the sharing of data, applications and resources. The members' cost for the orthophotography and the associated products average 50% less than if they had purchased the information independently from the vendor.

Consistent collection of orthophotography has benefited the YorkInfo Partnership and the Region with the same geographic currency across multiple jurisdictions. The involvement of the members from the YorkInfo Partnership in the Orthophotography Task Force assisted with the acceptance of the data.

7. CONCLUSION

The updated Orthophotography is an essential tool to the Region as well as the YorkInfo Partners and York Regional Police in assisting to make informed decisions in our rapidly changing region and is a useful aid in visualizing the changing landscape of the Region. The orthophotography is used in some fashion on a daily basis and is accessible to the public through the internet.

The Region partnered with the Local Area Municipalities and Conservation Authorities which provided savings of both staff time and money. The 2011 orthophotography is now available and has been shared with all the YorkInfo Partners and York Regional Police.

By partnering we were able to get more value for our money and see continuing to make joint purchases of orthophotography in the future.

For more information on this report, please contact John Houweling, Director, Geomatics at (905) 830-4444 Ext. 1529.

The Senior Management Group has reviewed this report.



2011 Digital Orthophotography Project Update

Presentation to Planning and
Economic Development
Committee

John Houweling
January 11, 2012

Presentation Overview

- ❑ Background
- ❑ What is Orthophotography?
- ❑ Comparison to Google
- ❑ Examples of How Orthophotography is Used
- ❑ Summary



Background

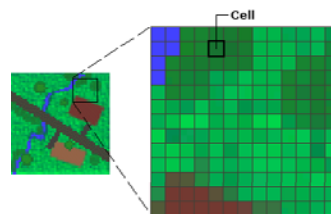
- ❑ Orthophotography Task Force struck in 2005
- ❑ Contract with First Base Solutions
 - ❑ Expires in 2014
 - ❑ License model
 - ❑ Share data with “registered associates”
 - ❑ 50 / 50 cost share between Region and partners
 - ❑ Substantial savings for all partners
- ❑ Ortho's: 1995, 1999, 2002, 2005, 2007, 2009 and 2011 available on www.yorkmaps.ca website



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What is Orthophotography?



Display color map
Image

1	6	3	2	2	4
6	2	4	2	6	1
6	6	5	5	3	3
2	1	2	4	1	3
4	4	4	1	1	3
2	4	2	1	3	3

Color map

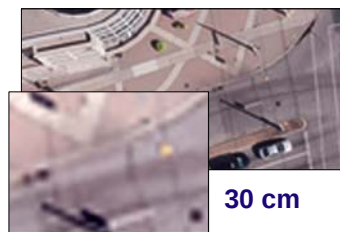
	Red	Green	Blue
1	255	255	0
2	64	0	128
3	255	32	32
4	0	255	0
5	0	0	255



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Why 15 cm Resolution?



- ❑ Business needs
- ❑ Cost
- ❑ File size

Source: <http://www.firstbasesolutions.com/imagery.php>



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Comparison to Google

York Region EMS Headquarters – Bales Drive East, East Gwillimbury taken Dec. 16, 2011



- ❑ No regular update schedule
- ❑ Lower resolution



- ❑ Source and vintage
- ❑ Leaf On



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Municipal and Regional Applications

- ❑ Encroachment analysis/ zoning infractions
- ❑ Asset management
- ❑ QA/QC of consultant deliverables
- ❑ Land acquisition/ housing selection
- ❑ Site Plan development applications
- ❑ Public information sessions
- ❑ Natural resource management
- ❑ Change detection
- ❑ Reference data for consultants
- ❑ Emergency management
- ❑ Property maintenance
- ❑ Facilities management
- ❑ Economic development
- ❑ Updating map data



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York Regional Police (AIR2)



York Regional Police Helicopter (AIR2) Looking at a commercial property in Newmarket.



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Replaces Need For Site Visits



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Replaces Need For Site Visits



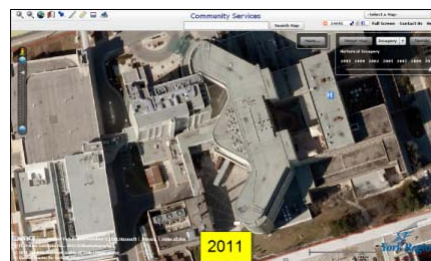
Encroachment Analysis



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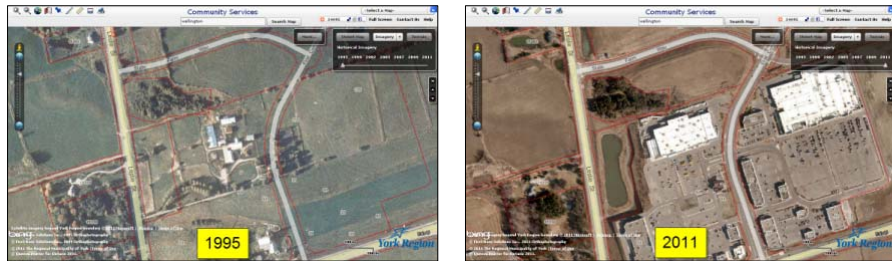
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Southlake Regional Health Centre – Davis Drive, Newmarket (www.yorkmaps.ca)



Change Detection

Shopping Centre Development – Wellington St. E and 404, Aurora (www.yorkmaps.ca)



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Public Outreach – Walk to School



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Public Outreach – Walk to School



Summary

- ❑ Municipalities, School Boards, CA's and Region benefit from the orthophotography partnership
- ❑ Orthophotography is an invaluable asset for providing services to the public
- ❑ Efficient use of staff resources
- ❑ Rich image library available of the Region dating from 1995 – 2011



End of Presentation

