

COMMITTEE OF THE WHOLE - NOVEMBER 29, 2004

2004 ANNUAL REPORT ON INFRASTRUCTURE - GEODETIC CONTROL SURVEY MONUMENTS

Recommendation

The Commissioner of Engineering and Public Works in consultation with the Director of Reserves and Investments recommends:

1. That this report on the current status of our Geodetic Control Survey Monument Network be received as information;
2. That an Annual Replacement Program be established utilizing available funding in the Geodetic Reserve; and
3. That the amount of \$50,000 be considered in the Proposed 2005 Capital Budget for the Annual Replacement Program with this amount to be reviewed annually through the Capital Budget Process.

Purpose

The purpose of this report is to provide Council with an annual report on the current inventory, value and condition of our Geodetic Control Survey Monument Network.

Background - Analysis and Options

The Infrastructure Management Systems section of the Engineering and Public Works Department is responsible for infrastructure records, data and data management and strategic analysis related to the City's civil infrastructure.

It is our intent to report annually to Council on the current inventory, value and condition of all classes of civil infrastructure including but not limited to roads, pipes, structures, stormwater management ponds, street lighting and traffic appurtenances. This report focuses on our Geodetic Control Survey Monument Network.

The Geodetic Control Survey Monument Network consists of Vertical Control Monuments (Benchmarks) and Horizontal and Vertical Control Monuments and are used extensively by the municipal and development communities to establish Survey Control in all facets of building and construction.

Vertical Control Monuments (Benchmarks) typically are a permanent marker affixed to a structure such as a building, bridge or culvert and denote a fixed ground elevation in metric denomination with mean sea level as the base elevation reference. Horizontal and Vertical Control Monuments typically are a Brass Cap affixed to either a concrete structure or an iron survey bar and articulate geographic positioning relative to the surface of the earth as well as a fixed ground elevation.

The Infrastructure Management Systems section maintains information on the Network and has initiated a regular inspection and condition assessment program of all Geodetic Control Survey Monuments annually.

Our current inventory consists of 102 Vertical Control Monuments (Benchmarks) and 274 Horizontal and Vertical Control Monuments for a total of 376 Monuments. The age of these monuments varies from 6 to 38 years. The total replacement value of all Monuments is estimated at \$71,400 and \$191,800 respectively with a grand total value of \$263,200.

The simple breakdown of the City of Vaughan's current inventory is captured in the following table:

TYPE	NUMBER	REPLACEMENT VALUE
Vertical Control Good	79	\$ 55,300
Vertical Control Not Found	23	\$ 16,100
Total	102	\$ 71,400
Horizontal & Vertical Control Good	199	\$ 139,300
Horizontal & Vertical Control Not Found	75	\$ 52,500
Total	274	\$ 191,800
Grand Total	376	\$ 263,200

Through our analysis, we have determined that the network, as it stands today, is incomplete and inefficient. Effectively, the City is unable to serve citizen, municipal and development needs due to "gaps" in the network.

The Infrastructure Management Systems Section is inspecting the condition of these monuments annually with inspections planned for the fall of each year. This affords us the ability to document any changes to the Network nearing the end of the traditional construction season. Through our inspection program, we have determined that 98 monuments or 26% of the current network has been destroyed due to construction activity. The replacement value of these monuments is estimated at \$ 68,600. We are actively communicating this information to those parties that may be responsible and are seeking compensation for their loss.

Given that we have established a firm business plan to regularly inspect the Network, maintain this data and communicate it to Staff, we are now positioned to better communicate to the municipal and development communities, our understanding of impacts that any future activity will have to this type of infrastructure.

We recommend that an annual Geodetic Control Survey Monument Program be established with a fixed budget to replace those monuments destroyed and to infill, existing older areas and new development areas of the City that require geodetic control.

An amount of \$50,000 from the Geodetic Reserve has been included in the Proposed 2005 Capital Budget for consideration by the Budget Committee to establish an Annual Replacement Program.

Relationship to Vaughan Vision 2007

This report is consistent with the priorities previously set by Council and the necessary resources have been allocated and approved.

Conclusion

That this report on the current status of our Geodetic Control Survey Monument Network be received as information and that an Annual Replacement Program can be sufficiently funded from the Geodetic Reserve. An amount of \$50,000 has been included in the Proposed 2005 Capital Budget for consideration by the Budget Committee to begin the Annual Replacement Program with this amount to be reviewed annually through the Capital Budget Process.

Attachments

None

Report prepared by:

Denny S. Boskovski, Infrastructure Management Systems Supervisor, ext. 3105

Respectfully submitted,

Bill Robinson, P. Eng.
Commissioner of Engineering and Public Works

Gary Carroll, P. Eng.
Director of Engineering Services

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