



Report to: Development Services Committee Date Report Authored: January 24, 2012

SUBJECT: Main Street Markham Reconstruction - Highway 7 to Bullock Drive

PREPARED BY: Dale MacKenzie, Senior Capital Works Engineer Ext. 4055
 Alan Brown, Director of Engineering Ext. 7507

RECOMMENDATION:

- 1) **THAT** the staff report entitled, “Main Street Markham Reconstruction - Highway 7 to Bullock Drive” be received;
- 2) **AND THAT** the scope and cost for project 12328 Watermain Construction and Replacement Program be modified to include the watermain replacement on Main Street Markham from Highway 7 to Bullock Drive at an estimated cost of \$1,000,000 inclusive of HST, to be funded from the Watermain Replacement Program Account 053-6150-12328-005;
- 3) **AND THAT** the existing sanitary sewer on Main Street Markham from Highway 7 to Bullock Drive be maintained as-is and any repairs that may be necessary, be completed and funded from the Environmental Services Department’s – Sanitary Sewer System Upgrade/Rehab Program Account 053-6150-12334-005;
- 4) **AND THAT** a new 2012 Asset Management – Right of Way capital project be created for the proposed upgrade of the existing storm sewer system on Main Street Markham from Highway 7 to Bullock Drive in the amount of \$565,000 inclusive of HST, to be funded from the remaining balance of the Investing in Ontario Act Grant;
- 5) **AND THAT** Engineering/Asset Management staff be authorized to determine the final design decision regarding either to replace the existing storm sewer from Highway 7 to Bullock Drive or to install a second storm sewer along the east curb line based on level of service requirements on the current engineering standards;
- 6) **AND THAT** staff be authorized and directed to do all things necessary to give effect to this resolution.

PURPOSE:

The purpose of this report is to obtain Council’s approval and funding for the replacement of watermain, repair of the existing sanitary sewer, and the upgrading of the storm sewer system on Main Street Markham from Highway 7 to Bullock Drive.

BACKGROUND:**Environmental Assessment Completion:**

The Class Environmental Assessment for the reconstruction of Main Street Markham (Highway 48) from Highway 407 to the future connection of the Donald Cousens Parkway north of Major Mackenzie Drive was completed and the Environmental Study Report was subsequently endorsed by Council and then submitted to the Ministry of the Environment all in 2010. The Ministry of the Environment gave its approval to the Environmental Study Report on February 24, 2011.

There are three main sections to the main Street Markham reconstruction as follows:

- 16th Avenue to Major Mackenzie Drive;
- Highway 7 to 16th Avenue;
- Highway 407 to Highway 7;

Detailed Design/Construction Administration:

A "Request for Proposal" for each of the above noted road sections were issued and the following consulting firms were retained to complete the detailed design and to provide construction inspection and administration during construction. Construction funding for the Highway 407 to Highway 7 and Bullock to 16th Avenue sections are still subject to Council approval. The construction budget for the section from 16th to Major Mackenzie Drive has already been approved by Council.

Name of Consulting Firm	Section of Main Street Markham	Project Status - Design	Estimated Construction Schedule
Morrison Hershfield	16th Ave to Major Mackenzie Dr.	Approx. 90% Complete	2012/2013
Morrison Hershfield	Hwy. 7 to Bullock Drive	Approx. 60% Complete	2012/2013
Morrison Hershfield	Bullock Drive to 16 th Avenue	Approx. 60% Complete	2014/2015
McCormick Rankin	Hwy. 407 to Hwy. 7	Approx. 20% Complete	2013/2014

Phase 1 - Main Street Markham, Hwy 7 to Bullock Drive:

The section of Main Street Markham from Highway 7 to 16th Avenue has been divided into two phases. Phase 1 includes the section from Highway 7 to Bullock Drive while Phase 2 includes the remainder from Bullock Drive northward to 16th Avenue. Council has approved funding for the road improvements for Phase 1 to proceed. The construction of Phase 2 is subject to additional funding and will be considered in the 2013/2014 capital budget process.

Engineering staff have met with both Environmental Services and Asset Management Departments to review the status of the existing watermain, sanitary sewer and storm sewer infrastructure of the Phase 1 section of roadway. In addition, staff has contacted the various utility companies as to the status of their infrastructure.

Subsurface Investigation:

An excavation contracting company "Underground Engineering Services" has been retained to complete a subsurface utility investigation which will include approximately 100 test holes to

confirm the location of utilities, sanitary and storm services as well as watermain services for Main Street from Highway 7 to 16th Avenue. This information will be used in the design to minimize conflicts, delays and contractor claims during construction.

Utilities:

All of the utility companies have been contacted and they have advised that they do not require upgrades to their existing services on Main Street Markham. Staff will advise the utility companies of a moratorium on any new capital works for a 10 year period.

Watermain:

The Environmental Services Department has advised that the existing 300mm diameter cast iron watermain is at the end of its life cycle and should be replaced with a new 300mm diameter PVC watermain. In addition, all existing services including water boxes will be replaced. To ensure minimal disruption, temporary waterlines will be connected to the 76 residences and businesses along Main Street Markham during watermain reconstruction.

The estimated cost for this work is \$1,000,000 (including contingencies, consulting fees and internal fees) which will be funded from the amended Environmental Services – Watermain Construction and Replacement Program Account 053-6150-12328-005 as a replacement for the Grandview Avenue work budgeted at \$2,294,000 which will be deferred to 2013. Further discussions with impacted property owners/tenants as to construction and temporary supply will be held.

Sanitary Sewers:

The Environmental Services Department has completed videos of the existing sanitary sewer system and they are satisfied with the condition of the sewer. They have confirmed that this sewer system does not need any upgrades/repairs at this time and has at least an additional 50 years of service remaining.

However, Waterworks staff has requested that the service connections be videoed to determine if any repairs are needed at this time. The fees for this service and any required sanitary service repairs estimated to be \$50,000 inclusive of HST will be funded from the Environmental Services Departments Sanitary Sewer System Upgrade/Rehab Program Account 053-6150-12334-005.

Storm Sewers:

The existing storm sewer along Main Street Markham, from Highway 7 to Bullock Drive was originally sized to convey up to the 2 year return period rainfall event. Current engineering standards for most Municipalities now require storm sewers to be sized for the 5 year return period rainfall event and major storm events are conveyed on the road by an overland flow route system. This area has been designated by Asset Management as having sub-standard storm sewers and recommends that the existing storm sewer infrastructure be upsized to current Town Standards.

Town staff is currently finalizing the details of the proposed sewer and overland flow route improvements. To this end, the Town design consultant has reviewed the storm catchment areas to determine the costs and possible sizing opportunities that are available to the Town.

The following table was prepared using information supplied by the Town design consultant and is provided to show the various storm sewer pipe sizes, overland flow routes and estimated costs for each of the storm event return periods.

Storm Event	Pipe Diameter (mm)							Replace existing storm sewer with new sewer (Total Cost Estimate)
	300	375	450	525	600	750	900	
	Required Pipe Lengths in Metres							
10 Year	65	50	201		43	317		\$515,000.00
25 Year	65	50	151	50	43	317		\$530,000.00
50 Year	65		95	156		360		\$530,000.00
100 Year		65	50	201		161	199	\$565,000.00

Storm Event	Pipe Diameter (mm)							Additional sewer on East curb lane (Total Cost Estimate)
	200	300	375	450	525	600	750	
	Required Pipe Lengths in Metres							
10 Year		125	95	156	43	317		\$445,000.00
25 Year		125	50	201		118	242	\$490,000.00
50 Year		125	50	151	50	43	317	\$500,000.00
100 Year		125	50	79	123	43	317	\$505,000.00
Existing pipe	125	251		207	153			Included in the costs above

As noted above there is no substantial cost differential between a 10-year storm sewer system and a 100-year storm sewer system (\$50,000 to \$60,000). This is due to the small drainage area being serviced by the Main Street storm sewers as noted in Attachment 'C'. Typically a 10 year storm system would be sufficient to provide an adequate level of service but as Main Street is the heritage commercial district for Markham and Main Street provides a critical transportation route for the Town, staff recommends that the level of service be increased to a 100 year storm event to be accommodated by a new storm sewer system and overland flow route at a cost of \$565,000.00. It is recommended that Engineering/Asset Management staff be authorized to select the final design solution depending on constructability, and impact on construction schedule.

The proposed storm sewer and overland flow route improvements for this section of Main Street Markham will be funded from the Investing in Ontario Act grant. In 2009, Markham received the Investing in Ontario Act grant in the amount of \$9,426,000 of which \$8,126,000 was allocated to specific capital projects at the time and \$1,300,000 was committed to future storm water management projects. Of the \$1,300,000, \$735,000 has since been allocated to the 2011 and 2012 capital projects for storm sewer pipe rehabilitation, leaving a balance of \$565,000.

The existing downstream storm sewers located south of Highway 7 will also need to be upsized. The estimated cost for this work is \$350,000.00 to \$500,000.00 and funding will be requested by Engineering during the 2013 Capital budget process. In addition, the Region of York has a policy regarding the conveyance of 100 year storm flows over a Regional road. The Region does not

allow major flows to go over the Regional road and the policy requires that the major flows to be conveyed through a sewer system.

The Phase 2 storm sewer section (Bullock Drive to 16th Avenue) should also be improved to accommodate the runoff from a 25 to 100 year return period storm event. The estimated cost is \$700,000.00 which funding the Engineering staff will be applying for during the 2013/2014 Budget process.

Public Facilitator:

This project has a very high profile requiring consultation with the property owners, businesses and residents. During the Environmental Assessment stage of this project, communication was an important aspect to obtaining a unanimous approval from the Community Advisory Group (consisting of Ward Councillors, business owners and residents). Capital Works staff and the Ward Councillors continue to be committed to keeping the Residents and the Business Improvement Association Members abreast of all issues regarding this project.

Ogilvie, Ogilvie & Company was retained as facilitators during the Environmental Assessment process and is well versed with the issues regarding Main Street Markham. Robb Ogilvie has now been retained to act as a facilitator to assist with the communication strategy for the businesses, property owners and residents during the final detailed design and construction stages of this project.

A preliminary meeting with representatives of the BIA, the Community Advisory Group, the Ward Councillors, the retained facilitator Robb Ogilvie and Town staff was held on December 15th, 2011. At this meeting the following items were discussed:

- Creation of Project Liaison Committees;
- Need to review options for full or partial closure of road;
- Impacts on businesses;
- Need to finalize the construction schedule and advise businesses;

It was agreed to create three Project Liaison Committees to participate in the review of the Engineering Design and Construction of the Main Street Markham Corridor as follows:

- Phase 1 – Main Street Markham from Highway 7 to Bullock Drive;
- Phase 2 – Main Street Markham from Bullock Drive to 16th Avenue;
- Phase 3 – Main Street Markham from Highway 407 to Highway 7;

Each of the Project Liaison Committees will include between 15 to 20 members. It was noted that the section of Main Street Markham from 16th Avenue to Major Mackenzie Drive would not require a Project Liaison Committee but staff would consult with the butting property owners.

FINANCIAL CONSIDERATIONS:

The following is an update on the accounts and costs associated with this project:

MAIN STREET MARKHAM – HIGHWAY 7 TO BULLOCK DRIVE

Infrastructure	Account Numbers	Budget (HST inclusive)	Notes
Phase 1 (Hwy 7 to Bullock) Road Reconstruction (Estimate - \$1,300,000.00)	083-5350-12048-005 083-5350-11079-005	\$899,000.00 <u>\$507,000.00</u> \$1,406,000.00	2012 Approved Budget 2011 Approved Budget
Watermain Replacement	053-6150-12328-005	\$1,000,000.00	Waterworks 2012 Approved Budget
Sanitary Sewer Repairs	053-6150-12334-005	\$50,000.00 Estimate	Waterworks 2012 Approved Budget
Storm Sewer Enhancement	Investments in Ontario Act Grant	\$565,000.00	New 2012 Capital Project
Total Budget for Phase 1		\$3,021,000.00	

The 2012 Capital Budget will be amended for the following:

The scope and cost for project 12328 Watermain Construction and Replacement Program will be amended to include the watermain replacement on Main Street Markham from Highway 7 to Bullock Drive at an estimated cost of \$1,000,000 inclusive of HST, and the deferral of the watermain replacement on Grandview Avenue, between Yonge Street and Henderson Avenue in the amount of \$2,294,000 inclusive of HST, to 2013.

A new 2012 Asset Management – Right of Way capital project will be created for the proposed upgrade of the existing storm sewer system on Main Street Markham from Highway 7 to Bullock Drive in the amount of \$565,000 inclusive of HST, to be funded from the remaining balance of the Investing in Ontario Act Grant.

ALIGNMENT WITH STRATEGIC PRIORITIES:

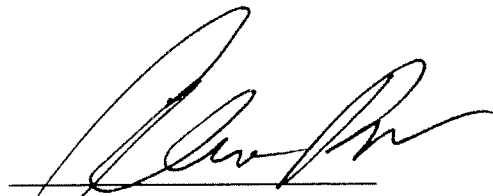
The reconstruction of Main Street Markham from Highway 7 to 16th Avenue has long been contemplated as a strategic priority. The project provides the necessary upgrades to the existing infrastructure, and the opportunity to enhance the existing streetscape, to promote pedestrian traffic and showcase this heritage area.

This project is in line with the Town of Markham's strategic focus relating to Growth Management, Transportation/Transit, Safety, the Environment and Municipal Services.

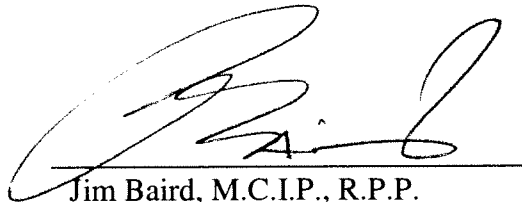
BUSINESS UNITS CONSULTED AND AFFECTED:

The Environmental Services, Asset Management and Finance Departments have been consulted and their comments have been incorporated.

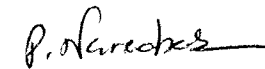
RECOMMENDED BY:



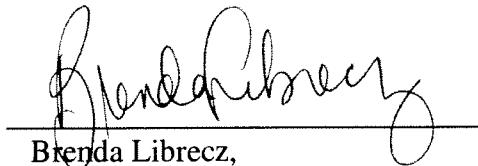
Alan Brown, C.E.T.
Director of Engineering



Jim Baird, M.C.I.P., R.P.P.
Commissioner, Development Services



Gary Adamkowski, P. Eng.
Director of Asset Management



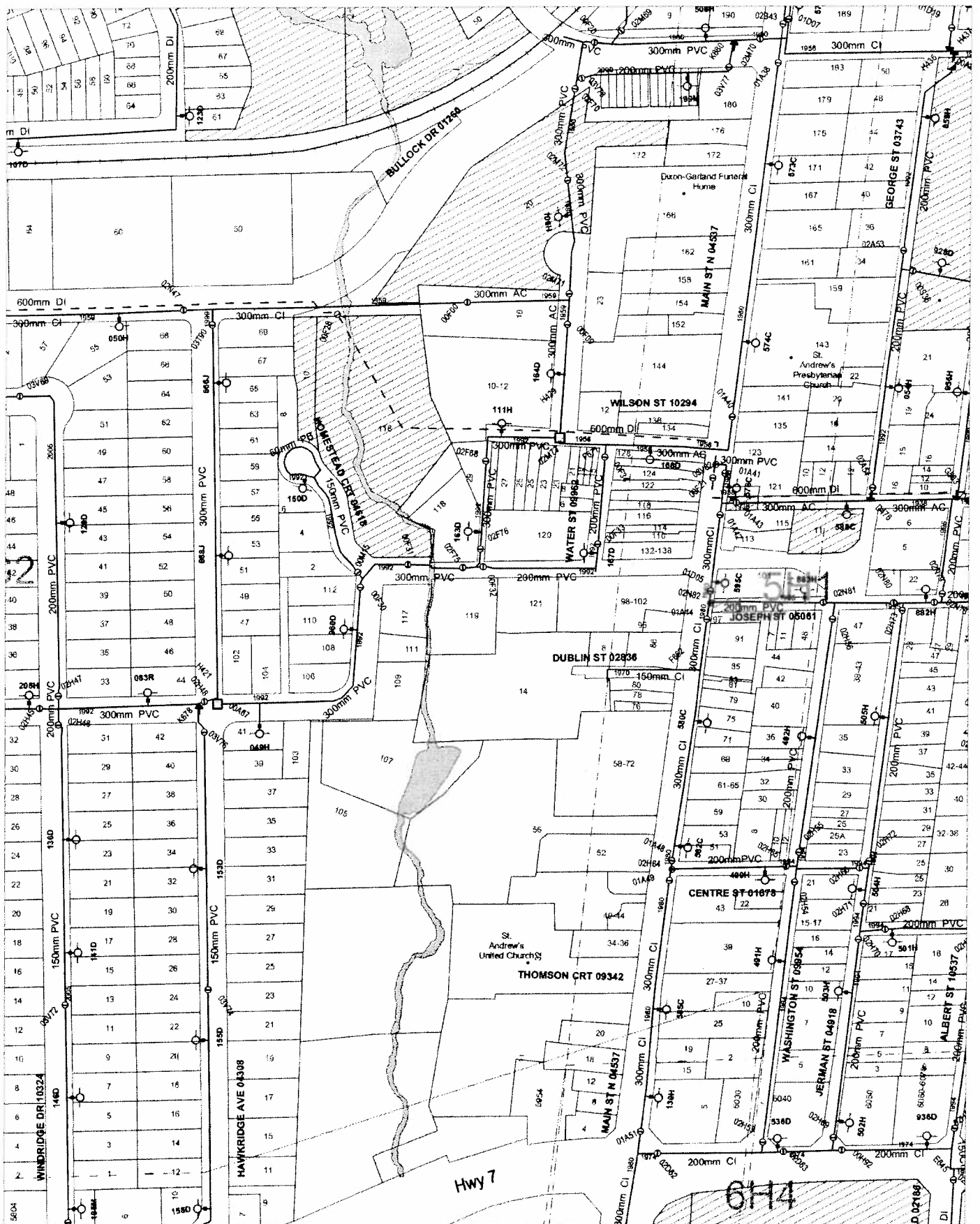
Brenda Librecz,
Commissioner, Community and Fire Services



Peter Loukes, P. Eng.
Director of Environmental Services

ATTACHMENTS:

- Attachment "A" – Watermain Drawing
- Attachment "B" – Sanitary Sewer Drawing
- Attachment "C" – Storm Sewer Drawing



ATTACHMENT A

Main St. Markham Watermain (Hwy 7 to Bullock Dr.)

Drainage Area