



City of Richmond

Report to Committee

To: Public Works & Transportation Committee *To Public Works & Transportation*
From: Robert Gonzalez, P.Eng. *Date: July 4, 2007* *Sept 19, 2007*
Director, Engineering *File: 10-6400-01/2007-Vol 01*
Re: Inspection and Cleaning of the Metro Vancouver Gilbert Road Trunk Sewer

Staff Recommendation

1. That a letter be written to Metro Vancouver recommending that they complete their Gilbert Road Trunk Sewer Main inspection and cleaning program by the end of 2011.
2. That the funding for an annual increase of \$500,000 to the Metro Vancouver operating expense budget from 2008 to 2011 (total \$2 million) to complete the Gilbert Road Trunk Sewer Main inspection and cleaning program by year 2011, be taken from the Sewer Rate Stabilization account.

Robert Gonzalez, P.Eng.
Director, Engineering
(4150)

Att: 1

FOR ORIGINATING DEPARTMENT USE ONLY			
ROUTED TO:		CONCURRENCE	
Sewerage & Drainage.....		Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
Budgets		Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
REVIEWED BY TAG		YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
		CONCURRENCE OF GENERAL MANAGER	
		REVIEWED BY CAO	
		YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>

Staff Report

Origin

At the March 26, 2007 meeting, Council adopted the staff recommendation that a letter be sent to Metro Vancouver (formerly GVRD) requesting that they complete their sewer inspection and cleaning program by 2009 (Attachment 1). Through collaborative correspondence with Metro Vancouver following the March 26, 2007 Council meeting, options were developed to complete an accelerated program.

The purpose of this report is to outline the costs associated with an accelerated GVRD sewer cleaning program and seek Council approval to proceed with the work.

Background

Metro Vancouver provides wastewater collection and treatment services to 21 member municipalities throughout the region. The City collects wastewater through our own sewer pipe network and it is pumped from one of 163 wastewater pump stations to Metro Vancouver's trunk sewer system.

Metro Vancouver's wastewater collection system is approximately 15 kilometres in length and conveys most of the City's wastewater to the Lulu Island Wastewater Treatment Plant. Most of Metro Vancouver's system is located on City arterial or collector streets with the main part of the system being the Gilbert Road Trunk Main.

While Metro Vancouver system has been designed to accommodate flows according to the City's current OCP build-out population, Metro Vancouver has advised staff that their system capacity may be compromised due to grease accumulations. A particularly significant and extreme consequence of grease causing a reduction in hydraulic capacity is the potential to be subject to periodic sewer overflows, ultimately leading to a possible development moratorium.

Metro Vancouver commenced an inspection and cleaning program of their collection system in 2005 and are proceeding based on an annual funding level of \$250,000. Based on this level of funding, Metro Vancouver's work will be a multi-year program of between 12 to 20 years depending upon the findings. Staff has found however, that this level of service is inadequate given the continued sewer overflows in part as a result of their reduced system capacity attributed to grease accumulation. With the current pace of development, under Metro Vancouver operating status quo it is highly likely that sewer overflow incidences will increase.

The City has taken the initiative to review the opportunity to accelerate the cleaning and inspection of the Gilbert Road Trunk Sewer Main. This initiative is in concert with other City grease related initiatives underway including updating of grease discharge enforcement bylaws, approval to hire an enforcement officer upon completion of the bylaw updates, a communication program specific to grease discharges and a feasibility review to include grease collection at the City's recycling depot. These items are all anticipated to be in place within the same schedule as Metro Vancouver's accelerated sewer inspection and cleaning program.

Analysis

Metro Vancouver has advised that their total cost to complete their sewer inspection and cleaning program is estimated to be \$3 to \$5 million. Metro Vancouver's current program is to complete inspection and cleaning as a multi-year program at a spending rate of \$250,000 annually.

In order to complete the work in an accelerated timeframe, Metro Vancouver has advised that additional funding will be required in their budget. In addition, the logistics of completing the work on an accelerated schedule were reviewed with Metro Vancouver and the following options developed.

Option 1 – No changes to current program. Based upon the current level of service of \$250,000 annual spending and the estimated total cost of \$3 to \$5 Million as provided by Metro Vancouver, the cleaning and inspection work would be completed over a period of 12 to 20 years. At the current pace of development and cleaning/inspection program, it is probable that the frequency of sewage overflows will continue to rise possibly requiring a development moratorium should overflows become prominent.

Option 2 – Complete cleaning and inspection by 2009. Completing the work by 2009 would be an acceptable level of service but has the following logistical issues. Metro Vancouver's schedule to complete the work would be such that they would be required to work during periods that typically have higher levels of rainfall – this would reduce productivity as well as increase bypass pumping costs and traffic impacts. Overall, staff believe this option to be logistically cumbersome.

Option 3 – Complete cleaning and inspection by 2011 (recommended). Completion of the work by 2011 would allow activities to take place during the favourable weather months on a schedule that would be acceptable based upon the current pace of development. This option would require an increase to the GVRD operating budget to \$750,000 for this work for a period of 4 years. Upon completion of the work by the GVRD, the opportunity to reduce the budget may be considered accordingly by Council.

Staff would work closely with Metro Vancouver to deal with the various logistical issues of completing the work including items such as traffic control, hours of work, etc. In addition, as the City is the only Metro Vancouver member municipality that uses their sewer infrastructure that is serviced by the Lulu Island Wastewater Treatment Plant, staff will also explore with them the possibility of the City assuming responsibility of this infrastructure.

Financial Impact

Metro Vancouver has advised the cost to complete cleaning and inspection of the remaining portions of the Gilbert Road Trunk Sewer Main is estimated to be \$3 to \$5 million. Based on the recommended 2011 completion option, an increase to \$750,000 to Metro Vancouver's operating budget is required in 2008 and would be carried until 2011. This estimate provided by Metro Vancouver is based on costs to complete inspection in 2005 and 2006 and the level of funding may need to be increased (or possibly decreased) depending upon the findings of the current program.

The annual spending level of \$750,000 would require an increase of \$500,000 per annum to Metro Vancouver's current annual budget of \$250,000. The City will fund this increase over the 4 years from 2008 to 2011 to a total of \$2 million from its Sewer Rate Stabilisation account. Tax payer's sewer rates will not be increased as a result of this additional funding.

Conclusion

Metro Vancouver indicated additional funding will be required to complete the proposed accelerated GVRD sewer inspection and cleaning program. It is important that this program be completed on an accelerated schedule in order to accommodate the increased sewer flows associated with current and future development.

A handwritten signature in black ink, appearing to read 'J. Young', with a stylized, flowing script.

Jim V. Young, P. Eng.
Manager Engineering Design and Construction
(4610)

JVY:jvy



City of Richmond

Report to Committee

To Public Works + Transportation -

To: Public Works and Transportation Committee Date: February 22, 2007 *Mar 21, 2007*

From: Robert Gonzalez, P.Eng. File: 10-6400-01/2007-Vol 01

xc 12-8060 20-7551/1321,

Re: Enforcement of Grease Discharges to City Sewers 05-1810-01

Staff Recommendation

1. That Council adopt the recommended Option 2 and direct staff to:
 - a) Amend Sanitary Sewer System and Drainage System Bylaw No. 7551 to specifically identify the discharge of grease into the sewer system as being illegal and subject to fines under the Municipal Ticket Information Authorization Bylaw 7321.
 - b) Amend Municipal Ticket Information (MTI) Authorization Bylaw 7321 to specifically identify a fine associated with a violation of a bylaw requirement to dispose of grease other than into a sewer system;
 - c) Hire a part time bylaw enforcement staff person to complete grease discharge enforcement of the updated Bylaws 7551 and 7321 including business inspections, issuing of fines and coordination with Business Licences;
 - d) Complete a communication program.
2. That staff be directed to send a letter to the GVRD requesting that they complete their sewer inspection and cleaning program in the City by the end of 2009.

RG

Robert Gonzalez, P.Eng.
Director, Engineering
(4150)

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ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER	
Business Licences	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
Environmental Programs	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
Sewerage & Drainage	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
Law	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
Bylaws	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
REVIEWED BY TAG	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	REVIEWED BY CAO	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>

Staff Report

Origin

The GVRD's Sewer Use Bylaw No. 164 prohibits the discharge of deleterious substances including grease into the sewer system. Grease accumulation in sewers remains a problem despite this regulation.

The purpose of this report is to recommend a grease discharge enforcement program to Council.

Analysis

Grease impacting the City's sanitary sewer system is thought to be largely derived from cooking of food products. There is considerable field evidence that suggests that the grease is disposed of in the sanitary sewer system particularly in the vicinity of restaurants. The liquid grease enters the sewer system, cools and solidifies in the sewer pipe producing the following main consequences:

- a reduced hydraulic capacity, i.e., it can no longer carry the flow for which it was designed.
- it attaches to the pipe wall and requires considerable effort and cost (the City's cost is estimated to be \$311,000 annually) to remove as part of an operations and maintenance program.
- the sewer system becomes more prone to blockages resulting in flooding and the associated health impacts.

While the GVRD system has been designed to accommodate flows according to the City's current OCP build-out population, the GVRD has advised staff that their system capacity may have been significantly compromised due to grease accumulations. A particularly significant and extreme consequence of grease causing a reduction in hydraulic capacity is the potential to require a development moratorium.

While the City and the GVRD have grease control related bylaws in place, they have been relatively ineffective in the context of prevention. Accordingly, operations staff has taken a proactive approach through focusing of efforts to remove the grease in the areas known to be prone to this problem.

The GVRD commenced their inspection and cleaning program of trunk mains in 2003 based upon an annual funding level of \$200,000. Staff has found however, that this level of service is inadequate given the continued sewer overflows in part as a result of their reduced system capacity attributable to grease accumulations. The GVRD also incurs an additional estimated annual cost of \$40,000 to \$50,000 to remove grease that ends up at their wastewater treatment plant.

The main source of grease discharge into the sanitary sewer system is thought to be from many of the approximately 750 restaurants in the City. This conclusion has been reached based upon the observation of significant grease accumulations in the areas of the City where restaurants are located.

Solution

While both the City and the GVRD have bylaws in place regulating discharge of grease into sanitary sewers, the level of enforcement to date has been largely ineffective. Both the City and the GVRD have no dedicated resources for this activity.

The following were considered as options to deal with grease discharge into sewers.

Option 1 – Status quo. Under this option the City would continue to provide an operational response to the accumulations of grease in sanitary sewers. The consequences of continuing in this manner are continued sewer overflows, increased operational costs and the possibility of requiring a development moratorium.

Option 2 – Increase enforcement (recommended). The process to provide increased enforcement of illegal discharges of grease to sanitary sewers is recommended as follows.

- Amend Sanitary Sewer System and Drainage System Bylaw No. 7551 to specifically identify the discharge of grease into the sewer system as being illegal and subject to fines under the Municipal Ticket Information Authorization Bylaw 7321. Staff would prepare a draft amendment bylaw for Council approval.
- Amend Municipal Ticket Information (MTI) Authorization Bylaw 7321 to specifically identify a fine associated with a violation of a bylaw requirement to dispose of grease other than into a sewer system. Staff would prepare a draft amendment bylaw for Council approval.
- Hire a part time bylaw enforcement staff person to complete grease discharge enforcement of the updated Bylaws 7551 and 7321. This is anticipated to include business inspections, education on the need for grease trap cleaning, issuing of fines and coordination with the Business Licences department. The initial focus would be on restaurants. The Business Licence division has the ability to have businesses that are repeat offenders, appear before the Chief Licence Inspector for a Show Cause Hearing which could result in a recommendation to suspend or cancel their Business License. The cost of this position (\$49,120.95) would be quickly offset by reductions in the annual operating costs associated with grease.
- Complete a communication program, which includes the following: educational brochure; a letter to individual City restaurants; communication through the business licence application process; and completion of advertising through the local newspapers. Restaurants are to be advised of the revised Bylaws 7551 and 7321 a minimum of 3 months in advance of implementation.

Option 3 – Awareness Campaign. Staff would contact residents and businesses through various means to increase awareness of the consequences of discharging grease into sanitary sewers.

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The effectiveness of this option would rely upon the individual business residents interest in the City's corporate well being.

The level of effort estimated to have a positive impact on grease reduction under the recommended Option 2 is estimated to be 130 working days per year, i.e., 1/2-year. Staff would review the effectiveness of this process as well as any legal costs that may be incurred after the first year and any adjustments will be made accordingly.

While the City has been proactive from an operations viewpoint with regard to the grease accumulations in the sanitary sewers, the GVRD did not commence such a program until three years ago. Accordingly, there remains a considerable length of their system that has not been inspected, cleaned and according to their present program (approximately 800 metres annually) they may not have their work complete in time to accommodate the City's present rate of growth. To continue the City's proactive approach, it is recommended that the GVRD be encouraged to accelerate their program for completion by 2009.

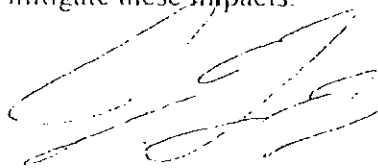
The implementation of Option 2 also has the potential advantage to realize the sustainable practice of collecting grease at the source before it is contaminated and converting it into bio-diesel fuel should the opportunity arise.

Financial Impact

It is estimated that annual funding of \$39,352.95 for a staff person plus \$9,768 for a vehicle based upon 2007 rates from the Sanitary Utility would be required to retain a staff person as recommended under Option 2. Funding would be included for Council consideration in the 2008 Sanitary Utility budget.

Conclusion

While there are presently bylaws in place that make it illegal to discharge grease into the sanitary sewer system, these discharges continue to proceed largely unabated. The consequences of this are an increased opportunity of sewer overflows and flooding (and the associated health impacts) and in the extreme case the potential for a development moratorium. Better control of grease discharges through enforcement of updated grease discharge related bylaws are expected to mitigate these impacts.



Jim V. Young, P. Eng.
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(4610)

JVY:jvy