



To: Public Works and Transportation Committee **Date:** May 30, 2007
From: Robert Gonzalez, P.Eng.
Director, Engineering **File:** 10-6060-02-01/2007-Vol
01
Re: **Canada Line Construction and Temporary Closures of the Cambie Richmond Main**

Staff Recommendations

That staff request the Greater Vancouver Water District (GVWD) to:

- a) Include the design and construction of an east-west water main that connects the GVWD Nelson Road water main to the GVWD Shell Road water main in their three year work program; and
- b) Include the feasibility study and design and construction of a new north-south water main in their five year work program to provide redundancy to the Cambie Richmond Main.

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

Att.

FOR ORIGINATING DEPARTMENT USE ONLY		
CONCURRENCE OF GENERAL MANAGER		
REVIEWED BY TAG	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
REVIEWED BY CAO	YES 	NO <input type="checkbox"/>

Staff Report

Origin

Canada Line construction along the Cambie Street corridor in Vancouver required the relocation and temporary closure of the Greater Vancouver Water District (GVWD) water supply line to Richmond called the Cambie Richmond Main (CRM). The CRM feeds all of West Richmond as well as parts of Vancouver and Delta. Figure 1 shows a map of the GVWD water supply lines to Richmond.

The purpose of this report is to provide Council with an update on the results of the temporary closures of the GVWD water supply lines and resultant recommended GVWD water network improvements.

Analysis

Through Canada Line Rapid Transit Inc., the stakeholders, GVWD, City of Vancouver (CoV) and the City of Richmond (CoR), met to determine the impact of the temporary CRM closure. Following detailed analysis using computer water models, the stakeholder group agreed to Canada Line Rapid Transit Inc.'s request for the temporary closures of the CRM. As staff advised Council at the Public Works and Transportation Committee meeting on February 21, 2007 the water supply closures included GVWD reversing the water supply to Richmond by re-directing water from Delta while the CoV supplied water to the CRM to supply Richmond with adequate potable water and fire protection.

Subsequently, over the past 8 months, one controlled field test and four closures of the CRM were successfully concluded. As anticipated, the flow reversal in the GVWD system resulted in cloudy water being supplied to Richmond's water distribution network. Richmond staff carried out an extensive flushing program to address the cloudy water. The GVWD has indicated that no further closures of the CRM will be required to facilitate the Canada Line construction.

Through these closures, staff recognized that Richmond is highly reliant on the CRM for water supply and that our water supply system would greatly benefit from some supply redundancy. The two major improvements to increase the redundancy in the GVWD water supply system are as follows:

1. The GVWD underwater crossing at the south end of the Richmond (shown on Figure 1) has limited flow capacity and acts as a restriction. In addition, this crossing can only handle a reduced pressure because of its age and material type. It would be in Richmond's best interest for the GVWD to advance the design and construction into their three year work program of an east-west water main that connects their Nelson Road water main to their Shell Road water main. In the event that the crossing fails, the Shell Road water main will still be fully pressurized to supply water to parts of West Richmond.
2. The CRM supplies West Richmond, including YVR, with almost all of its potable water. Although we have numerous crossings of the Fraser River on the northwest side of Richmond, all of these crossing are fed from the CRM. Staff recommends that the GVRD incorporate into their five year work program the feasibility study, and design and construction of a new water main that will provide redundancy to the CRM in the event that the CRM fails or scheduled maintenance of the CRM requires its closure.

Financial Impact

There is no financial impact at this time. The east-west water main (item 1) is currently in the GVWD ten year work program. The new north-south water main (item 2) would be a new item in the GVWD work program. Costs associated with the GVWD's major upgrades are shared amongst the member municipalities through the regional water rates, which are based upon each municipality's proportionate water consumption.

Conclusion

Through the CRM closures, staff recognized that West Richmond relies almost exclusively on the CRM for water supply. By including the foregoing improvements to the GVWD system, Richmond will benefit from added system redundancy thereby enabling potable water and fire protection should a GVWD water supply line need temporary shut down for repair or maintenance purposes.

A handwritten signature in blue ink, appearing to read 'Siu Tse', with a stylized flourish at the end.

Siu Tse, M.Eng., P.Eng.
Manager, Engineering Planning
(4075)


ST:st

GVWD Water Main - Figure 1

- Legend**
- GVWD Water Main
 - Proposed GVWD East - West Water Main

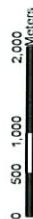
Data Snapshot Date: June 4, 2007
 Map Created By: spang
 Print Date: June 4, 2007
 Printed By: spang

Note: The information shown on this map is compiled from various sources, and the City makes no warranties, expressed or implied, as to the accuracy or completeness of the information. Users are reminded that lot sizes and legal descriptions must be confirmed at the Land Title office in New Westminster. This is NOT a legal document, and is published for information and convenience only. © City of Richmond, 2007. All rights reserved. Not to be reproduced or distributed without permission.



City of Richmond

1:90,000



0 500 1,000 2,000 Meters

