
TO: CITY MANAGER **DATE:** 2006 July 18
FROM: DIRECTOR ENGINEERING **FILE:** 39500-12
SUBJECT: GVWD DRINKING WATER MANAGEMENT PLAN
PURPOSE: To seek Council's endorsement and approval to implement the municipal actions in the regional Drinking Water Management Plan.

RECOMMENDATIONS:

1. **THAT** Council endorse the Greater Vancouver Water District's Drinking Water Management Plan.
2. **THAT** Council direct staff to implement the municipal actions in the Drinking Water Management Plan as outlined in this report.

REPORT**1.0 BACKGROUND**

The Drinking Water Management Plan (DWMP) was initiated and prepared by the Greater Vancouver Water District (GVWD) and the member municipalities. The draft plan was completed and submitted to GVWD Board in 2005 February. Consultation on the draft plan included workshops and discussion with the Regional Water Advisory Committee, municipal Mayors and Councillors at the Council of Councils, Provincial and Federal agencies, and eight public consultation events. The plan was revised based on the input received.

The final DWMP was adopted by the GVWD on 2005 September 23. It is an action oriented plan that provides the direction and priority for drinking water initiatives in the region in order to have an affordable and sustainable water supply for at least the next 25 years. This will be achieved through the plan's goals, strategies and actions.

The plan has the following three primary goals:

- Goal 1: Provide Clean, Safe Drinking Water
Goal 2: Ensure the Sustainable Use of Water
Goal 3: Ensure the Efficient Supply of Water

There are detailed strategies and actions in the DWMP in order to achieve each of the primary goals. These actions are outlined in the discussion below.

However, the plan, through its actions, will add cost to the GVWD. The GVWD water rate is projected to increase by 2 cents per cubic meter to pay for the initiatives under the DWMP.

2.0 DISCUSSION

The successful implementation of the plan will rely on the joint actions of the GVWD and the member municipalities. The plan outlines actions that are required by both the GVWD and member municipalities. The details of the strategies and actions by the GVWD are provided in Appendix A.

The following outlines the municipal actions suggested under the plan, the current status of Burnaby's action, and its impact to Burnaby if the plan is fully implemented.

Goal 1: Provide Clean, Safe Drinking Water

The first goal is to provide clean and safe drinking water. The strategy is to use a Risk Management Multi-Barrier approach from source to tap to manage the source watersheds, complete the Seymour-Capilano Filtration Project, and upgrade the primary disinfection treatment at the Coquitlam source. Water quality will be maintained throughout the transmission and distribution system by primary disinfection, chlorination, and rechlorination, water quality monitoring programs, proactive maintenance programs, and backflow prevention and cross-connection control programs.

1. **Water Quality Monitoring:** The GVWD will work with municipalities to establish water quality monitoring systems in the municipal distribution system and at the tap and use this information to optimize water quality through operation of the municipal water system.

Burnaby Status: The City of Burnaby and the GVWD already have a joint water quality monitoring program and will continue to work together through proper monitoring.

2. **Maintenance Program:** The GVWD will work with municipalities to preserve water quality in the distribution system through proactive maintenance programs.

Burnaby Status: The City already undertakes an infrastructure maintenance program that targets the preservation of water quality, eg. watermain unidirectional flushing, reservoir cleaning and reducing the number of dead end water pipes.

- 3. Secondary Disinfection:** The GVWD and its member municipalities will reassess the secondary disinfection system after completion of the Seymour-Capilano Filtration Project.

Burnaby Status: The City monitors the chlorine residual in the water system and will review the performance of the secondary disinfection system.

- 4. Cross Connection Control:** The member municipalities and the GVWD will, over the next five years, examine the feasibility of implementing, administering and maintaining backflow prevention and cross-connection control programs to protect the public water system from hazards originating on the customers premises or from temporary connections.

Burnaby Status: The City already has active backflow prevention and cross-connection control programs in place to protect the water system. Staff welcome the opportunity to work with the GVWD to improve this program and will report to Council if significant additional resources are required to satisfy regional standards.

Goal 2: Ensure the Sustainable Use of Water

The second goal of the plan is to ensure the sustainable use of water. GVWD and its member municipalities are committed to pursuing Demand Side Management strategies to promote using water more sustainably.

- 1. Water Pricing:** The GVWD will set its water rate structure to reflect the long-run marginal cost of regional water supply.

Burnaby Status: The City's Water Utility Five Year Financial Plan incorporates the GVWD's predicted rate schedule. To fully embrace this philosophy in the future, the City and other municipalities may have to consider introducing a seasonal rate structure (more expensive in the summer) and an escalating block rate structure (more expensive for high volume users) at the retail level.

- 2. Water Efficient Fixtures:** The GVWD will facilitate collective development of consistent municipal bylaws to eliminate once-through cooling water, and require water efficient fixtures in new construction and renovations. Some changes such as low flow toilets are already occurring.

Burnaby Status: The BC Water Conservation Plumbing Regulation now requires the use of low flush (6 litre per flush) toilets in all new construction in the region. Staff will continue to work with the GVWD on the development of consistent bylaws.

- 3. Sprinkling Restrictions:** The GVWD will facilitate the collective development of consistent municipal bylaws to improve implementation and enforcement of the Water Shortage Response Plan.

Burnaby Status: Council already has endorsed the Water Shortage Response Plan and the City has implemented the sprinkling regulations contained therein. Additional resources could be required if more stringent enforcement efforts are found necessary.

- 4. Water Audits for Large Water Users:** In partnership with member municipalities, the GVWD will assess the merits of standardized industrial, commercial and institutional water audits for the largest 25% of business water users as the basis for initiating water conservation improvements.

Burnaby Status: Staff will work with the GVWD to assess the merits of such water audits. Reducing water consumption through conservation initiatives with the region's largest water consumers could significantly reduce consumption in the Industrial Commercial and Institutional (ICI) sector. Such reductions could help to defer the need for capital intensive regional supply projects.

- 5. Water Metering:** The member municipalities will assess the merits of developing residential water metering programs, and municipal rebate programs for water efficient fixtures and appliances.

Burnaby Status: Recent studies have indicated that residential water metering as a stand alone conservation measure is not cost beneficial. Staff will assess the overall merits of demand side management programs and report out to Council as appropriate.

Goal 3: Ensure the Efficient Supply of Water

The third goal of the plan is to ensure the efficient supply of water. The strategy is to manage infrastructure proactively, which will ensure a cost-effective, reliable and sustainable water supply. This will include renewing and replacing aging infrastructure, improving leak identification and repair programs, and implementing emergency and security program improvements. The GVWD will establish an asset management program for its own infrastructure and a reserve fund to ensure appropriate levels of funds are either spent on asset management or set aside in the reserve every year.

- 1. Leak Detection:** Municipalities will continue leak identification and repair programs and implement operational programs to reduce leakage (such as pressure reduction / management).

Burnaby Status: The City is in the process of developing a pressure management program which is part of the initial steps of a leak identification program. Staff will examine an overall strategy for leak identification and repair programs.

2. **Infrastructure Replacement:** Municipalities will need to renew and replace aging infrastructure to provide appropriate levels of services and to assist in leak reduction.

Burnaby Status: The City has incorporated an escalating asset replacement program in its Financial Plan for the Water Utility. The program is designed to reduce overall costs by replacing aging components prior to failure.

3. **Operating Agreements:** The GVWD is to establish operating agreements with municipalities to ensure facilities are operated for mutual benefit under normal and emergency conditions and in a fashion that reflects the Regional Growth Management Plan.

Burnaby Status: Staff support the concept establishing operating agreements with the GVWD as it will provide certainty and consistency on the level of service throughout the region.

3.0 FINANCIAL IMPLICATIONS

The City has already implemented or commenced several of the strategies and actions and these will have minimal impacts on our water utility. Financial impacts primarily relating to future GVWD water supply costs and infrastructure replacement will be dealt with under 5 Year Financial Plan for the Water Utility as considered by Council annually.

The impact on the GVWD water rate from implementing DWMP actions could occur in two ways:

1. Actions that increase GVWD expenditures;
2. Actions that reduce demand for GVWD water would contribute to increases in the GVWD water rate (cents per cubic metre) as the GVWD budget must be recovered from lower water sales.

These two factors have roughly equal impact on the projected GVWD water rate.

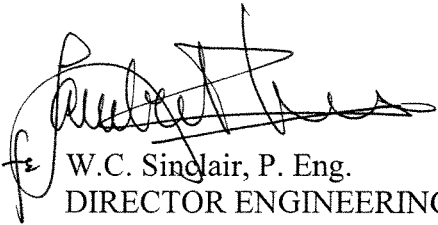
The GVWD projects that the combined impact of these two factors would be a 2 cent / cubic metre increase in the GVWD water rate by 2009.

To: City Manager
From: Director Engineering
Re: GVWD Drinking Water Management Plan
2006 July 18..... Page 6

4.0 CONCLUSION

The Drinking Water Management Plan is an action oriented plan which provides the direction and priority for drinking water initiatives in the region. The plan ensures that the water needs of the region will be met in an affordable and sustainable fashion for at least the next 25 years.

The City of Burnaby has already implemented or started several of the strategies and actions and these will have minimal impacts on our water utility. Financial impacts primarily relating to future GVWD water supply costs and infrastructure replacement will be dealt with under the 5 Year Financial Plan for the Water Utility. These will be brought forward for Council's consideration at the appropriate time.



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DIRECTOR ENGINEERING

WCS:jb

**APPENDIX A:
Goals and Strategies of Drinking Water Management Plan
Actions by Greater Vancouver Water District**

GOAL 1: PROVIDE CLEAN, SAFE DRINKING WATER

Strategy #1: Use a risk management multi-barrier approach from source to tap.

1. The GVWD will continue to protect source water quality by managing watersheds in accordance with the Watershed Management Plan.
2. The GVWD will complete the Seymour-Capilano Filtration Project.
3. The GVWD will monitor water quality source to tap and use this information to optimize source water disinfection, operation of the GVWD water system, and rechlorination programs.
4. The GVWD will continue to preserve water quality in the GVWD system through proactive maintenance programs.
5. The GVWD will improve the primary disinfection treatment of Coquitlam source water for Cryptosporidium.
6. The GVWD will implement works to improve water quality, including completion of the Seymour-Capilano Filtration Project, the new Coquitlam intake and other improvements in the 10 year Capital Plan.

Strategy #2: Identify and secure additional water supplies for the region.

1. The GVWD to provide for additional capacity by securing full access to the Coquitlam source under the Coquitlam Water Use Plan, and then expanding storage capacity in Seymour and Capilano watersheds.
2. As new information on the potential impacts of climate change becomes available, the GVWD will provide updates in the DWMP progress reports.

GOAL 2: ENSURE THE SUSTAINABLE USE OF WATER

Strategy #1: Use drinking water sustainably.

1. In partnership with member municipalities and non-government organizations, the GVWD will deliver an education program promoting behaviour change and sustainable use of water.

**APPENDIX A:
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Strategy #2: Match water quality to usage requirements.

1. The GVWD will complete the Annacis Waste Water Treatment Plant pilot reclamation project and assess the potential for its expansion.
2. The GVWD will work with Health Authorities to request changes to the Provincial health regulations to allow specific residential and commercial uses of non-potable water (grey water and rainwater).
3. In partnership with business association and/or non-government organizations, the GVWD will facilitate networking for the reuse of process wastewaters.
4. The GVWD will investigate the feasibility of substituting alternatives to drinking water for specific applications (eg. use of rainwater stored in rooftop cisterns for irrigation) and locations (eg. river water or sea water for use of waterfront businesses).

GOAL 3: ENSURE THE EFFICIENT SUPPLY OF WATER

Strategy #1: Manage infrastructure proactively.

1. GVWD Operating Plan to include:
 - a. Consolidation of asset management databases to optimize decision making on maintenance and funding of assets.
 - b. Renewal and replacement of aging infrastructure to provide appropriate levels of service and assist in leak reduction.
 - c. Leak identification and repair programs and implementation of operational programs to reduce leakage (such as pressure reduction/management).
2. The GVWD will continue to conduct hazard assessments and implement emergency and security program improvements.
3. Given the water system is aging and infrastructure renewal and replacement costs are projected to increase, the GVWD to use the full life cycle cost of assets to determine infrastructure funding requirements and ensure sustainable infrastructure funding is in place.
4. GVWD to establish a GVWD asset management reserve fund to ensure appropriate levels of funds are either spent on asset management or set aside in the reserve every year (to help ensure sustainable asset management).

**APPENDIX A:
Goals and Strategies of Drinking Water Management Plan
Actions by Greater Vancouver Water District**

5. The GVWD will follow sustainability principles in planning and implementing processes, programs and projects.
6. The GVWD to ascertain the costs and benefits of leak reduction programs specific to the GVWD water system and cost structure, and reassess whenever there are significant changes in the economic value of water or to the costs of leak reduction initiatives.

Strategy #2: Optimize capacity through effective partnerships.

1. GVWD Operating Plan to include:
 - a. Planning and construction of GVWD facilities to meet the projected growth in population and economic activity in the approved Regional Growth Management Plan.
 - b. A program to identify and implement improvements to the GVWD wholesale water metering system to ensure appropriate levels of services.
2. To facilitate the efficient planning of the future water system, the GVWD and member municipalities will follow the principles defining what facilities should be owned and operated by the GVWD and what facilities by the municipalities in Appendix 2 of the DWMP supporting document.
3. The GVWD will implement seasonal pricing on its wholesale water sales over a three year period beginning in the 2006 budget year. In 2008, the summer season price will be 1.25 times the price during the remainder of the year (fall/winter/spring).
4. The GVWD to increase its operating reserve to 15% of its annual operating budget with a phase in period.

