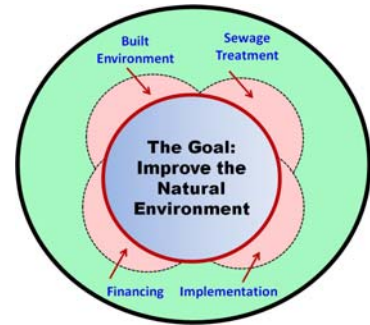


Metro Vancouver Liquid Waste Management Plan Reference Panel



TO: Metro Vancouver Finance Committee

CC: Johnny Carline, Chief Administrative Officer, Metro Vancouver

FROM: **LWMP Reference Panel:**

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Kim Stephens, M.Eng., P.Eng., Chair

Christianne Wilhelmson, M.Sc., Co-Chair

DATE: January 25, 2010

SUBJECT: INTEGRATED LIQUID WASTE & RESOURCE MANAGEMENT
Financing Implications for Construction of Two Treatment Plants

Members of the Reference Panel attended the Metro Vancouver Board Meeting on November 27th, during which the Board asked the Finance Committee to provide input regarding the financing implications of constructing the Lions Gate and Iona Island treatment plants in parallel versus constructing them in series.

Our purpose in submitting this memorandum is to help inform the deliberations of the Finance Committee in responding to the Board's request for your input.

Our emphasis in this memorandum is on the challenge of HOW to pay for the two plants. In our view, implementation of the **Canada-wide Strategy for the Management of Municipal Wastewater Effluent** creates an obligation on the part of the senior governments to step up to the plate financially and fulfil their social and environmental responsibilities.

Context

Appointed by the Board in April 2008, the Reference Panel met with the Waste Management Committee five times between July 2008 and November 2009.

Our Final Report is built around ***A Recommended Policy Framework for Liquid Resource Management in Metro Vancouver (Table 1)***. This table succinctly captured how the region can continue to transition from the current path to achieving the Sustainable Region Initiative vision. Table 1 comprises nineteen recommendations that inform policy development under five themes:

- **Natural Environment** – *move from protect to improve*
- **Built Environment** – *move beyond pilot projects*
- **Sewage Treatment** – *move from waste to resource*
- **Financing** – *move to a total system approach*
- **Implementation** – *move from commitment to action*

When we last met with the Waste Management Committee, we asked that the Reference Panel Final Report (July 2009) and the Metro Vancouver Final Plan (November 2009) go forward as a combined package because our Final Report provides necessary context for the Final Plan.

What the Finance Committee Needs to Know

The Lions Gate and Iona Island treatment plants have each been in service for ~50 years. Both have exceeded their useful lives.

The Reference Panel believes that both are **high risk** facilities with attendant **environmental and legal risks** for Metro Vancouver. This conclusion is based on the existing treatment level combined with the nature of the respective receiving environments.

The Financing section of the Reference Panel Final Report has four recommendations. In addition, Attachment A elaborates on three matters of concern that have financial implications:

- Marine Environment Definition
- Full-Cost Accounting
- Amortization Period

Reference Panel Recommendation #9 urged that both plants be upgraded by 2020. We also point out that in the region's current LWMP (approved in 2002), the region committed to upgrade Iona Island by 2020.

Responsibility and Affordability:

The issue is HOW to finance the two plants at the same time so that both can be operational by 2020. Context for a conversation about responsibility and affordability is provided as follows:

1. The **Canada-wide Strategy for the Management of Municipal Wastewater Effluent** is imposing a national minimum standard of secondary treatment for liquid discharges.
2. Natural assets will be damaged if replacement of Iona is delayed beyond 2020.
3. There is only one taxpayer.
4. Local government receives a mere 8% of total tax revenues.
5. Senior governments have a shared responsibility to protect natural assets, including the critical habitat of species at risk, in particular those designated as 'endangered'.
6. When senior governments do not pay their fair share, this creates risks for Metro Vancouver and beyond.
7. Pay now to save on future cleanup, restoration and construction costs.

Environmental and Legal Risks:

Further to #6 above, a 10-year postponement of the Iona Island upgrade beyond 2020 to 2030 risks currently uncalculated environmental damage/costs in areas that are federal responsibility:

- a. Southern Resident Killer Whales (an endangered species listed under the federal Species at Risk Act and a responsibility of Fisheries and Oceans, Canada) and related tourism industry.
- b. Salmon health and abundance, and related First Nations, commercial and recreational fisheries, food security, etc.
- c. Ocean health and related ocean-dependent industries

The undermining of these valuable natural assets and their key relationship to traditional activities and industries (and impacts on other assets like these) create attendant social, legal and financial risks for **every** level of government.

The Federal government is responsible for the protection of at-risk species on Crown land and in marine environments through its *Species at Risk Act*, in particular the protection of habitat critical to a species survival (legally known as "critical habitat"). The continued discharge of undertreated sewage into the critical habitat of an endangered species could be defined as destroying Southern Resident Killer Whale habitat under new definitions of "habitat destruction".

What the Finance Committee Can Do

In view of the foregoing synopsis of what the Finance Committee needs to know, the Reference Panel asks that the Finance Committee:

1. Acknowledge that there are as yet uncalculated environmental and other public (legal, social, financial) risks associated with NOT upgrading both facilities by 2020 (including the breach of a prior LWMP commitment to upgrade Iona by 2020).
2. Recommend to the Metro Vancouver Board that it bolster its requests to senior levels of government with a targeted appeal to those governments' **respective responsibilities** and **ultimate self-interest** in maintaining species, resource and societal health within their areas of jurisdiction.
3. Focus attention on the need for balanced tax-sharing so that local government receives more than 8%.

Attachment A - Why Early Action is Necessary

Context

After the Reference Panel reflected on the outcome of the November 2009 Board Meeting, the Reference Panel concluded that three aspects would benefit from input of pertinent information that would go to the heart of the discussion at the Board Meeting. Briefly, the three aspects are listed in order of priority and emphasis as follows:

1. **Marine Environment Definition:** We note that the recent change to a 2030 timeline for Iona Island resulted from application of the risk assessment criteria in the *Canada-wide Strategy*, and question whether the criteria properly reflect the Georgia Strait situation.
2. **Full-Cost Accounting:** In providing a rationale for *Reference Panel Recommendation #13*, we emphasized the need for a capital investment decision process that reflects the direction provided in the Sustainable Region Initiative.
3. **Amortization Period:** In providing a rationale for *Reference Panel Recommendation #14*, we highlighted that going from a 15-year to a 30-year amortization period would enable implementation of Lions Gate and Iona Island in parallel.

Below, we elaborate on each of the above. Our objective is to provide a clear picture of the relevance and importance of each. We also wish to draw attention to the fact that the *Marine Environment Definition* influences choices that have a material impact on the Metro Vancouver decision process and outcomes.

Commentary on Marine Environment Definition

- Under the current *Canada-wide Strategy for the Management of Municipal Wastewater Effluent*, the definitions of the receiving environment used in the draft risk assessment table do not adequately represent the complexity of the marine environment. This criticism was made by some participants during the creation of the national wastewater strategy
- Currently, there are only two definitions for ocean receiving environments: **open marine** and **bay/estuary**. Because of this limitation, the Strait of Georgia is deemed to be 'open marine', a definition that the Reference Panel believes is inappropriate for the nature of the Strait, and results in the Iona Island treatment plan being assessed as a medium risk facility.
- Further support for a different category for the Strait can be found in the recent **Georgia Basin Action Plan: Five year Update** which stated that "the Southern Resident Killer Whale population had the unwelcome distinction of being the world's most contaminated marine mammals". Southern Resident Killer Whales spend most of their summer months in the Strait of Georgia and are exposed to the pollution, such as sewage effluent, discharged into these waters. Also, Iona discharges at the mouth of the Fraser River, where so many of our salmon travel.
- If the Georgia Strait was assessed as a receiving environment that is more greatly affected by sewage discharges than one that is truly 'open marine', and if the Iona Island plant was reclassified as one that discharges into a **bay/estuary/strait**, then the Iona Island plant would gain more risk points and could be assessed as high risk such that it would have to be upgraded by 2020.
- With each day that passes, Metro Vancouver is discharging an increasing complex array of toxic chemicals into our oceans, underscoring the need for early action.
- The Reference Panel believes that Iona Island and Lions Gate are both high risk facilities.

Implications of National Regulations

- Cost-sharing with Metro Vancouver to reduce effluent discharges into the marine environment would enable the Federal government to meet regulatory requirements resulting from current and/or pending federal legislation.
- The new National Wastewater Regulations (commonly referred to as the 'CCME regulations') will be Gazetted shortly, and will impose a national standard of secondary treatment for all communities.

It would seem incumbent on the Federal government to support those communities which will be meeting the new standards, and stand behind those communities which would like to exceed them by upgrading facilities sooner than might otherwise be prescribed.

- In addition to the National Wastewater Regulations, the Federal government is responsible for the Species at Risk Act. According to the Act provisions, and a recent federal court ruling has reinforced, habitat critical to a species survival is to be identified when its recovery strategy is developed

In the case of the endangered Southern Resident Killer Whale, its critical habitat has been identified and includes the area where the Lions Gate and Iona sewage treatment plants currently discharge. One of the key threats identified by scientists is pollution and toxins.

On this basis, the Federal government would seem to have an implicit obligation to cost-share efforts to reduce toxic loading in the critical habitat of the Southern Resident Killer Whales and other species at risk in the Strait of Georgia.

- The Federal government is responsible for the health of fish stocks, including BC's unique salmon stocks, and a national inquiry (the Cohn Inquiry) has been called to look at the reasons for the recent Fraser salmon collapse. This provides the Federal government with an opportunity to demonstrate leadership in cost-sharing action to improve the health of Metro Vancouver's coastal waters.
- *Build Canada*, the most recent infrastructure funding program, made a clear link between investing in environmental infrastructure and maintaining a healthy and sustainable environment.

Commentary on Full-Cost Accounting

- Full cost accounting describes how goods and services such as wastewater treatment should be priced to reflect their true costs including social and environmental costs.
- Since costs and advantages are usually considered in terms of economic, social and environmental, full or true cost efforts are collectively called the 'triple bottom line'. This approach accounts for hidden costs and externalities such as environmental degradation related to inadequate wastewater investments and life-cycle costs including future recapitalization of the wastewater investments both of which are not normally considered in traditional infrastructure investment decision making.
- Such an analysis may be used to demonstrate that the full cost of constructing Lions Gate and Iona Island in series is much higher than the full cost of constructing them in parallel.

Commentary on Amortization Period

- Metro Vancouver historically has constructed and financed major capital projects at roughly 15-year intervals so that there is no overlapping debt load.
- The *Guide to the Amortization of Tangible Capital Assets* produced by the BC Ministry of Community and Rural Development suggests that the useful life of treatment facilities should be 30 years.
- The ability of the region to secure provincial funding could be contingent on Metro Vancouver re-examining the choice of amortization period in combination with a range of project delivery options.
- To dampen the rate shock resulting from construction of two plants in parallel, increasing the debt amortization period (e.g. to between 20-years and 30-years) in combination with senior government cost-sharing would ease the financial impact on regional taxpayers.

Metro Vancouver appoints Reference Panel to provide input to Liquid Waste Management Plan

APRIL 18, 2008: In January 2008, Metro Vancouver drafted discussion documents for updating its Solid Waste and Liquid Waste Management Plans. In April 2008, the Metro Vancouver Board appointed the Metro Vancouver Solid and Liquid Waste Management Reference Panels. According to **Board Chair Lois Jackson**, the Reference Panels will provide input on the discussion documents and on the subsequent Draft Plans.



Reference Panel Concept

The Reference Panels will report directly to the Metro Vancouver Waste Management Committee during the consultation process. "The Reference Panels will provide comments and advice on the strategies for updating each plan," explained **Councillor Marvin Hunt** (City of Surrey), Chair of the Waste Management Committee. "Each panel is comprised of community members who bring a variety of perspectives to solid and liquid waste issues, including technical experts, solid and liquid waste management specialists, business representatives and citizens with an interest in solid and liquid waste topics."



According to **Mayor Pam Goldsmith-Jones** (West Vancouver), Vice-Chair of the Waste Management



Committee, the Reference Panel concept is modeled on the Working Group approach which has been successfully implemented in her municipality. The essence of the West

Vancouver experience is that the community benefits when there is collaboration and a true partnership between local government staff and community members in a working group. A critical success factor is the creation of a collegial and cooperative atmosphere.

Members of LWMP Reference Panel

The ten members of the Liquid Waste Management Plan (LWMP) Reference Panel are listed as follows:

- Susan Rutherford
- Christianne Wilhelmson
- Elaine Golds
- Ken Hall
- Don Mavinic
- Kim Stephens
- Shaun Carroll
- Garry Cooper
- Mark Hodgson
- Simon Poole

The three categories of representation are: residents or representatives of non-governmental organizations, technical experts, and practitioners.

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Representatives of non-governmental organizations:

Susan Rutherford, *Staff Counsel, West Coast Environmental Law (WCEL)*: Susan works on WCEL's Livable and Sustainable Communities program where she specializes in local government bylaws and policy tools that support green infrastructure in communities. She is also a member of the Green Infrastructure Partnership Steering Committee. Susan is the author of the *Green Infrastructure Guide*.



Christianne Wilhelmson, *Managing Director Georgia Strait Alliance*: Christianne has worked for the Georgia Strait Alliance for over six years and is currently their Managing Director. She is an Ontario transplant who came to BC in 1995 to pursue a MSc in ecology at UBC and stayed on after graduation. She has worked as a lab technician and freelance science writer. She leads GSA's government and media relations efforts as well as coordinating its Clean Air and Water program, with a particular focus on bring innovative and advance sewage treatment to communities around the Georgia Basin region.



Elaine Golds, *Vice President, Burke Mountain Naturalists*: Elaine has conducted research in the field of cellular immunology and has previously provided input on both the Liquid Waste Management Plan, and the Drinking Water Management Plan. She is a former member of Metro Vancouver's Regional Water Advisory Committee. Elaine is a volunteer with the Noons Creek Fish Hatchery, a member of the Port Moody Ecological Society, Vice-President of the Burke Mountain Naturalists, and President of the Colony Farm Park Association.



Technical Experts:

Ken Hall, *Professor Emeritus, Westwater Research Centre, University of British Columbia (UBC)*: In addition to his work at UBC, Ken is also an active member of Metro Vancouver's Environmental Monitoring Committee. Ken has helped to organize and co-ordinate projects on water pollution research and water resources management throughout the Metro Vancouver area.



Don Mavinic, *Professor, Faculty of Applied Science, University of British Columbia*: Don is a researcher and professor of civil engineering at UBC, and an editor on several peer-reviewed journals, including *Environmental Technology*, the *Canadian Journal of Civil Engineering*, and the *Journal of Environmental Engineering and Science*.



Kim Stephens, *Program Coordinator, Water Sustainability Action Plan for British Columbia*: A principal author of [Stormwater Planning: A Guidebook for British Columbia](#), Kim is an engineer-planner who specializes in public policy and its implementation. In his current role, he is the secretariat for a half-dozen partnerships (including the Green Infrastructure Partnership) that are developing tools and providing continuing education for practitioners under the umbrella of the Action Plan.



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Practitioners:

Shaun Carroll, *Executive Director, North American Society for Trenchless Technology*

– *BC Chapter*: Shaun is an industry representative for a not-for-profit organization whose mission includes the promotion, education, training, research, and development of trenchless technologies for rehabilitation of linear infrastructure, such as sanitary sewers.



Garry Cooper, *General Manager, Organic Resource Management (BC) Inc.* OMI is

Canada's largest provider of vacuum truck services for the collection, treatment and disposal of organic and other non-hazardous liquid waste for commercial, industrial, institutional and residential customers in Ontario, Quebec, and British Columbia. ORMI is moving towards the use of Anaerobic Digesters as a way of recycling liquid waste into biogas renewable energy and fertilizer.



Mark Hodgson, *Chair, Infrastructure Delivery and Finance Committee, British Columbia Water and Waste Association (BCWWA)*: In addition to his work with BCWWA, Mark is a partner at Deloitte & Touche LLP, Vancouver, BC. He leads the Infrastructure Advisory and Project Finance group in Western Canada and has many years of experience with developing and executing public-private partnership procurements and transactions.



Simon Poole, *Plant Manager, Saputo Foods*:

Simon was formerly the Plant Manager for the fluid milk production plant (Dairyland Fluid Division Ltd) of Saputo Foods Ltd. in Burnaby, one of the permitted industries under Metro Vancouver's Liquid Waste Bylaw.

