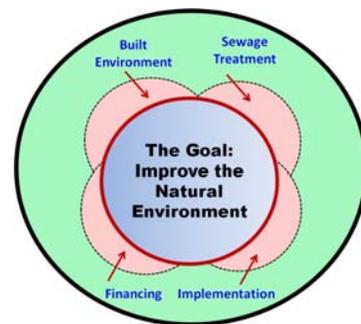


Metro Vancouver Liquid Waste Management Plan Reference Panel



TO: Metro Vancouver Finance Committee

CC: Johnny Carline, Chief Administrative Officer, Metro Vancouver

FROM: **LWMP Reference Panel:**

Shaun Carroll, P.Eng.

Garry Cooper

Elaine Golds, PhD

Ken Hall, PhD

Mark Hodgson, P.Eng., MBA

Don Mavinic, PhD., P.Eng., FCSCE, FEIC, FCAE

Simon Poole

Susan Rutherford, LLB

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

Christianne Wilhelmson, M.Sc., Co-Chair

DATE: April 9, 2010

SUBJECT: **INTEGRATED LIQUID WASTE & RESOURCE MANAGEMENT**

Financing Implications for Construction of Two Treatment Plants

Memorandum No. 2 on a Path Forward

Previously, the Reference Panel submitted a memorandum dated January 25th to help inform the Finance Committee discussion regarding the financing implications of constructing the Lions Gate and Iona Island treatment plants in parallel, versus constructing them in series. We then participated in your January 29th meeting and observed the March 18th meeting.

We appreciate the challenges that the Finance Committee and Board are facing in doing what is right for the region. Hence, the purpose of this Memorandum No. 2 is to help you find an appropriate path forward.

Context for Action

The Integrated Liquid Waste & Resource Management Plan is moving the region in the right direction to achieve the *Sustainable Region Vision*. In fact, we believe the Plan is an opportunity for Metro Vancouver to “get it right”, by promoting public and local government leadership.

Desired Outcome: The strategies and actions in the Plan will have an impact on Metro Vancouver's sustainability for generations to come. For this reason, it is important to link those actions to a picture of a desired outcome that will inspire people to strive for constant improvement - *this is what we want our region to look like, and this is how we will get there* – such that:

We will have succeeded when we have healthy urban streams, a healthy Fraser River and a healthy Georgia Strait in which salmon and whales thrive and our children and grandchildren can recreate safely.

This desired outcome can be achieved. It will start with timely replacement of the Lions Gate and Iona Island sewage treatment plants. Each has been in service for ~50 years. Both are primary plants. Both have exceeded their useful lives.

On the next page, we present five Key Messages. We respectfully suggest that these Key Messages provide a path forward, one that can evolve into a framework for action.

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Path Forward

Appointed by the Board in April 2008, the Reference Panel has been actively engaged in the liquid discharge and rainwater management discussion for two years. We have been immersed in the issues. We believe this experience provides us with an informed basis for offering advice.

Because Metro Vancouver is now at a milestone point in the decision process, we wish to draw the attention of the Finance Committee and the Board to five Key Messages:

1. The Draft *Wastewater Systems Effluent Regulations* are open to interpretation
2. A collaborative approach to cost-sharing negotiations will benefit Metro Vancouver
3. The City of Vancouver must play a leadership role in getting the Iona Island plant built
4. We all must liberate our thinking from the rigidity imposed by the '2020/2030 mindset'
5. Metro Vancouver must seriously consider the risk of achieving simultaneous project delivery by 2020

A rationale for each Key Message is summarized in Attachment A. They can also be viewed as Guiding Principles.

Implementation

After due consideration, the Reference Panel recommends that Metro Vancouver resolve to:

- A. Complete Lions Gate by 2020
- B. Complete Iona Island at the earliest possible time after completion of Lions Gate.

Furthermore, the region needs to start now to complete front-end tasks that will ultimately expedite completion of Iona Island.

Attachment A – Rationale for Key Messages

Key Message #1: The Draft Wastewater Systems Effluent Regulations are open to interpretation

- 1.1 The Wastewater Systems Effluent Regulations provide a methodology for calculating the environmental risk associated with the timeframe to install secondary treatment plants across Canada.
- 1.2 The timeframe is calculated from a System of Points – Final Discharge Point (Schedule 3) which determines the relative risk determined by the total score. It has three risk categories related to construction timeframes, namely:
 - High Risk – requires construction by 2020
 - Medium Risk – requires construction by 2030
 - Low Risk – requires construction by 2040
- 1.3 Calculation of the risk by this point system depends upon treatment plant effluent volumes, quality characteristics (i.e. BOD, suspended solids, unionized ammonia and, total residual chlorine), and habitat where the effluent is discharged.
- 1.4 These calculations place Lion Gates sewage treatment plant upgrade in the HIGH risk category (construction by 2020) since it discharges into an “enclosed bay”.
- 1.5 The risk category calculated for the Iona Island sewage treatment plant comes down to how one defines the habitat where the effluent is discharged (i.e. the Strait of Georgia).
 - a. If one defines it as “**open marine waters**” – which the schedule defines as salt waters in an area defined by an arc of 135° extending 20 km from the discharge point, with no land within that area” – then Iona falls within the “MEDIUM risk” category (construction by 2030).

However, the Iona outfall is only 22 km from land. Thus, it can be reasonably argued that Iona does fully satisfy the spirit of the regulations, which is to mitigate the pollution of the waterways, such as the Georgia Strait, from wastewater discharges.
 - b. On the other hand, if one defines the Strait of Georgia as a “**marine estuary**”⁽¹⁾ or “**enclosed bay - where there is limited water exchange**”⁽²⁾ from the strait to the open ocean” then this habitat receives 20 points which moves Iona to the “HIGH risk” category (construction by 2020), where:

⁽¹⁾An estuary is defined as “one in which sea water is substantially diluted with fresh water entering from land drainage” (Reference: Burton, J.D. and P.S. Liss. 1976. *Estuarine Chemistry* p.1). The Strait of Georgia can have a salinity in the area of 22-28 ppt while full sea water has a salinity of 35 ppt.

⁽²⁾The Strait of Georgia has a summer basin flushing rate of 50-75 days and a winter basin flushing rate of 100-200 days (Reference: Table 1 in Burd, B.J. et al. 2008. *A review of subtidal benthic habitats and invertebrate biota of the Strait of Georgia, British Columbia*. Marine Environmental Research 66: S3-S38).
- 1.6 The significance of the foregoing commentary is this: the Wastewater Systems Effluent Regulations are open to interpretation and do not provide Metro Vancouver with a clear path to follow.
- 1.7 In view of the uncertainties inherent in the definitions, the prudent approach is to interpret the ‘risk’ of the current effluent discharge to the Strait of Georgia in the most precautionary way possible. The precautionary approach is to expedite completion of Iona Island soon after Lions Gate is completed.

Key Message #2: A collaborative approach to cost-sharing negotiations will benefit Metro Vancouver

- 2.1. Leaders can create the ‘buzz, the interest and the energy to imagine what the future could look like and then make it happen.
- 2.2. Find a way to start the conversation about HOW the three levels of government can work together for the *common good*. Tell the Metro Vancouver story. Inform, educate and inspire.
- 2.3. Be positive. Take the high road in negotiating with senior governments. Shine the spotlight on the desired outcome in replacing Lions Gate and Iona Island.
- 2.4. Inter-governmental collaboration and alignment will be a powerful force for action once there is a shared vision for timely replacement of Lions Gate and Iona Island.



Key Message #3: The City of Vancouver must play a leadership role in getting the Iona Island plant built

- 3.1 The Iona Island plant provides treatment for liquid discharges originating from the **Vancouver Sewerage Area**. The City of Vancouver accounts for ~90% of the catchment area, and the City will be footing most of the bill for the replacement plant.
- 3.2 In the document *Vancouver 2020: A bright green future*, the City expressly supports “advocacy for expedited upgrades to the Iona and Lion’s Gate wastewater treatment plants, and incorporating integrated resource recovery into those projects.”
- 3.3 With the Iona timing decision now before the region, there is a window of opportunity for elected representatives from Vancouver to become more visible in advocating for expedited completion.
- 3.4 Because completing Iona as soon as possible is the right thing to do and is necessary to protect our local marine environment, the region would benefit from the Mayor of Vancouver committing to a leadership role much as the three North Shore Mayors have done vis-à-vis Lions Gate.

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Key Message #4: We all must liberate our thinking from the rigidity imposed by the '2020/2030 mindset'

- 4.1 The language in the Wastewater Systems Effluent Regulations has established a '2020/2030 mindset'. We have become ensnared in a binary discussion of '2020 or 2030'. This is distracting decision-makers from the over-arching goal of a region with clean water and healthy waters.
- 4.2 If Iona Island is not completed by 2020, this does not mean Metro Vancouver should automatically default to a 2030 target. Rather, the Reference Panel suggests that the Metro Vancouver position should be *'what can we be doing starting right now'*...so that construction of Iona Island can proceed smoothly once funding is in place and project delivery issues are resolved (see Key Message #5).
- 4.3 Metro Vancouver has options. Iona Island could be constructed in sequence with Lions Gate. It also could be in parallel (albeit a lagged start), with an Iona completion date shortly after Lions Gate.
- 4.4 There are front-end tasks that need to be initiated in 2010 so that construction of Iona Island can in fact proceed smoothly once Lions Gate is completed.
- 4.5 These front-end tasks could take a decade to complete. Hence, Board approval is necessary in 2010 to provide Metro Vancouver staff with the mandate that they need to get on with the job.
- 4.6 To liberate our thinking, use language along the lines of: "complete Lions Gate as soon as possible, no later than 2020, and complete Iona Island soon after that."

Key Message #5: Metro Vancouver must seriously consider the risk of achieving simultaneous project delivery by 2020

- 5.1 There are risks involved in committing to delivery of both the Lions Gate and Iona Island sewage treatment plants by 2020 (simultaneous projects). Key risks include:
 - a. **Affordability Risk** – Risk that ratepayers cannot afford the rate increases required to finance both projects at the same time, particularly if senior levels of government do not share in the cost of the projects. This risk is considered HIGH at this stage without firm costs, funding commitments from senior levels of government, a delivery model decision, etc.
 - b. **Land Assembly Risk** – Iona Island requires additional Crown land that is subject to First Nation claims. This risk is also considered HIGH given the time it takes to resolve such issues.
 - c. **Project Management Risks** – There are challenges associated with Metro Vancouver's capability to deliver two large projects in parallel, particularly under traditional delivery models. Again, this is considered a HIGH risk, but one that could potentially be mitigated through non-traditional delivery models.
 - d. **Market Capacity Risks** – The boom-and-bust cycle creates uncertainties, especially should these projects enter the construction market during an overheated period such as experienced in 2005 – 2007. This risk is not considered high at this point in time, but may change over the next 10 years.
- 5.2 In summary, the overall risk associated with delivering simultaneous projects by 2020 is considered HIGH – in other words, there is risk that Metro Vancouver cannot hold to such a commitment.
- 5.3 The Reference Panel believes that the overall risk is REDUCED if Metro Vancouver committed to delivery of Lions Gate no later than 2020, with Iona Island delivered as soon as possible thereafter. Creating flexibility in the Iona Island timeline in of itself is a risk mitigation measure.