

Reference Panel Final Report on A Liquid Resource Management Plan for Metro Vancouver

Table 1 - A Recommended Policy Framework for Liquid Resource Management in Metro Vancouver

Provincial Goals:	The Province's Living Water Smart and Green Communities Project provide a policy framework for aligning efforts at three scales – provincial, regional and local – to do business differently and prepare communities for change. Infrastructure grant programs are providing an incentive for implementing The New Business As Usual - i.e. "today's expectations are tomorrow's standards".	Regional Alignment:	The desired outcome is to manage sewage and rainwater as resources, not waste. The Liquid Waste Management Plan is a powerful regulatory tool because it enables Metro Vancouver members to integrate <i>community design</i> with desired outcomes at the provincial and regional scales and individual actions at a site scale.
Recommended Action (Guiding Principle)	WHY - The Rationale for each Action (Guiding Principle)	Examples that Inform Policy	
A Healthy Natural Environment – Move from Protect to Improve	<i>The protection and improvement of the natural environment is the ultimate goal of the Liquid Resource Management Plan.</i>	Refer to page 7 for supplementary information about Recommendation #3	
1 Call the Plan A Liquid Resource Management Plan for Metro Vancouver	To start the paradigm-shift now so that liquid discharges and rainwater are managed as resources, and thereby better protect the natural environment.	Substituting <i>resource</i> for <i>waste</i> in the report/plan title is analogous to using <i>Metro Vancouver</i> in lieu of <i>Greater Vancouver Regional District</i> .	
2 Adopt the goal of moving <u>from protect to improve</u> the Natural Environment over time.	The health of our waterways and the value of our streams and our oceans to our community are of primary importance not only to our quality of life, but also to our social and economic health. By aiming to improve our environment we are aiming to undo damage already done.	This recommendation is a synthesis of Sustainability Principle #1 in the Metro Vancouver Sustainability Framework ; and is intended to draw attention to the desired outcome in doing business differently.	
3 Undertake more extensive monitoring of the long-term cumulative impacts of multiple contaminants in effluents (both from point and non-point sources).	Current senior government regulations deal with one contaminant at a time and even though levels may be below some set threshold, the presence of multiple contaminants and their interaction can have impacts on organisms in the long term that are not being considered. The current <i>Cautions, Warnings, Triggers</i> (CWT) process focuses mainly on individual contaminants.	Metro Vancouver has started to look at the cumulative impacts of multiple contaminants – for example, by funding Benthic Process, Organic Carbon Cycling and Contaminants in the Strait of Georgia , a 2008 research report published by the Institute of Ocean Science; this study found that persistent contaminants could be distributed widely.	
Built Environment - Move Beyond Pilot Projects	<i>Decisions we make on the built environment have a direct impact on the health of the natural environment. The following recommendations speak to the need to become more consciously aware of this interconnection in our planning, regulation and decision-making.</i>	Refer to page 8 for supplementary information about Recommendation #4 Refer to page 9 for supplementary information about Recommendation #5 Refer to page 14 for supplementary information about Recommendation #6 and #7	
4 Resolve the persistent and costly sanitary <i>Inflow & Infiltration</i> issue by acting on policy and legal tools that enable municipalities to implement timely and appropriate measures on private property.	Private service connections are the last <u>unmanaged</u> part of the sewer collection system. Groundwater and rainwater entering holes or gaps on private laterals contributes 40% of all wastewater collected, transported and treated. Not only is I&I a significant source of regional system overflows, it means we are repairing/replacing our pipes and pumps sooner, building treatment plants and pipe systems larger than necessary, using more treatment chemicals than necessary, and leaking raw sewage into the ground every day	A report commissioned by Metro Vancouver and titled Private Sewer Lateral Programs: A Study of Approaches and Legal Authority for Metro Vancouver Municipalities (December 2008) outlines a spectrum of actions and approaches (carrots/sticks), with corresponding legal authority and real life examples discussed in a Metro Vancouver context.	
5 Re-focus Integrated RAINwater/Stormwater Management Plans on watershed targets and outcomes so that there are clear linkages with the land use planning and development approval process.	ISMPs are needed to develop affordable and effective land use strategies that both green the urban landscape and improve watershed health; however, they must be effectively developed and there must be financial and legal tools in place to ensure their implementation in the land development process. Currently, plans that do not integrate land use and drainage planning are therefore resulting in unaffordable infrastructure budget items that become liabilities, without providing offsetting stream health benefits.	The City of Surrey's Fergus Creek Integrated Plan is the provincial pilot for Beyond the Guidebook: Rainwater Management & Green Infrastructure in BC . This plan included a <i>Neighbourhood Concept Plan</i> as a feedback loop for testing the acceptability of watershed strategies; and was the genesis for a <i>stream health methodology</i> that correlates green infrastructure effectiveness with land use decisions.	
6 Mandate a renamed and 'new SILG' (<i>Stormwater Interagency Liaison Group</i>) to spearhead a regional team approach to develop policy, legal and technical tools that will enable 'integrated solutions' for rainwater management, green infrastructure and integrated resource recovery.	SILG is a regulatory requirement under the current LWMP. In the early 2000s, SILG was the driving force behind the development of approaches and tools that have made BC a leader in the field of rainwater management and green infrastructure, and it could do the same for the components of this plan. The ingredients for success were: corporate support, a clear vision, champions, funding, staff resources and projects. Under Recommendation #17, a 'new SILG' would be a critically important technical sub-group.	Initiated by SILG, the Water Balance Model is a decision support tool that demonstrates what can be accomplished by an outcome-oriented group that has resources. The model has received international recognition, a 2009 Premier's Award for Innovation & Excellence ; and this has led to an inter-provincial partnership.	
7 Implement a consistent region-wide approach to neighbourhood (re)development and building design that integrates rainwater management, green infrastructure and integrated resource recovery.	These linkages must be made as early in the planning and development process as possible, so that feasibility is maximized. Municipalities will have to provide developers and property owners with guidance as to how watershed-specific targets established through Integrated RAINwater/Stormwater Management Plans and Integrated Resource Recovery (IRR) targets identified in IRR audits and business casing can be met at the development scale. A desired outcome is to strengthen the relationship with the Metro Vancouver Sustainability Framework and the Regional Growth Strategy.	Metro Vancouver and other regions are learning from each other and moving in the same direction – for example, Getting Ahead of the Wave: The 2009 Comox Valley Learning Lunch Seminar Series is the provincial pilot for integrating and implementing regional sustainability, growth and infrastructure plans through a <i>regional team approach</i> ; this reinforces the approach to integration embraced by Metro Vancouver.	

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<p>Sewage Treatment – Move from Waste to Resource</p>	<p><i>Historically, we have managed sewage treatment by focusing on what comes out of the pipe. This plan needs to focus on better protection of the marine environment and addressing climate change – by using Integrated Resource Recovery (IRR) approaches and technologies to get there. The plan must describe new approaches to sewage management and make stronger linkages to land-use planning at the community and regional levels when planning for sewage treatment facilities.</i></p>	<p><i>Refer to page 11 for supplementary information about Recommendation #11 Refer to page 12 for supplementary information about Recommendation #12</i></p>
<p>8 Adopt the following four objectives as the guiding framework so that the Plan ensures a flexible and adaptable approach to regional sewage treatment that strives for continuous improvement over time:</p> <ul style="list-style-type: none"> a. Manage liquid discharges as a resource b. Minimize discharges c. Minimize financial risk d. Maximize the quality of the discharges 	<p>If these objectives are met, all else will fall into place because the best treatment will be provided for the region today and in the future. Just meeting the regulatory requirements is not enough. Achieving the vision requires a commitment beyond regulations.</p> <p>The four objectives can serve as a screening tool to assess the acceptability and effectiveness of proposed actions.</p>	
<p>9 Commit to constructing advanced treatment plants in the North Shore and Vancouver Sewerage Areas no later than 2020.</p>	<p>Ensuring the health of Burrard Inlet, the Fraser River and the Georgia Strait is important to our quality of life, and to our social and economic health. Further delay will only result in a failure to achieve the plan's vision. Metro Vancouver members accept the need for timely implementation and are looking to senior governments to demonstrate their shared responsibility and commitment by providing fair and equitable cost-sharing.</p>	
<p>10 Conduct business case assessments for <i>Integrated Resource Recovery</i> (IRR) before proceeding with the engineering for replacement treatment plants in the North Shore and Vancouver Sewerage Areas, and still meet the 2020 commitment.</p>	<p>If the region is to truly achieve the Sustainable Region vision, then the IRR philosophy must be at the heart of the system/facility planning process, not an add-on. By placing the assessment of IRR opportunities as the first step of planning new treatment options – including energy, nutrient and other resources – along with more extensive source control planning and implementation, the result will be more effective protection of the environment through advanced sewage treatment (possibly beyond secondary). An additional benefit will be with the identification of significant resources that could lower longer terms costs of managing the system.</p>	<p>Look to Sweden for regional-scale examples that demonstrate what can be accomplished by a paradigm-shift.</p> <p>Other examples can be found in California and Australia.</p>
<p>11 Strive to achieve Integrated Resource Recovery progress incrementally by committing to business casing (using life cycle accounting approach) through community-scale opportunities such as the UBC Living Laboratory: Integrated Water and Energy Project.</p>	<p>IRR offers the region many opportunities but not all can be acted upon at once. By looking for opportunities as they arise, the region can more effectively achieve its overall vision.</p>	<p>Three Metro Vancouver examples demonstrate a progression in scale:</p> <ul style="list-style-type: none"> ▪ Lulu Island Treatment Plant - nutrient recovery (fertilizer) technology developed at UBC has been implemented in Alberta and Oregon ▪ Olympic Village at Southeast False Creek has shown how to implement IRR at the neighbourhood scale. ▪ By disconnecting UBC from the Iona plant, the UBC 'closed loop' vision will demonstrate how to implement IRR at the community scale (55,000 people)
<p>12 Ensure effective source control in the industrial-commercial-institutional sector, and ultimately in the residential sector too, by providing additional financial incentives, enforcement resources and automated monitoring technologies.</p>	<p>The region can begin to protect the environment by preventing the introduction of endocrine disruptors as well as persistent bioaccumulating contaminants; and reduce sewer system costs by intercepting fats, oils and greases.</p> <p>The total cost of allowing substances to become part of the sewage system – treatment, pipe maintenance and replacement, impacts of toxins in the environment – is far greater than investing in effective source control implementation (i.e. save the region more in the long term).</p>	<p>For Fats-Oils-Grease (FOG) source control, the cost of software-based enforcement tools (i.e. \$5 per cleaning) would be paid directly by the generator of the resource to the cleaning company. Enforcement by municipalities could be funded through a fee (at time of business licence) per grease trap/interceptor installation.</p>
<p>Financing – Move to a Total System Approach</p>	<p><i>The Draft Plan identifies the many investments that need to be made in our region (including treatment plants, new pipes, etc.) in general terms, and provides some very high level cost estimates, options for timing and suggestions for municipal, provincial, federal cost sharing. However, the Draft Plan does not provide a road map for how these significant capital investments will be funded or delivered.</i></p>	
<p>13 Move from a facility-specific approach to a total system way-of-thinking about financing, constructing, operating and maintaining regional conveyance and treatment infrastructure.</p>	<p>In accordance with the approach endorsed by the Sustainable Region Initiative, the Plan needs to explicitly endorse investment decisions on long-term thinking plus broader economic issues; and adhere to “green value” approaches that embed full-cost and life-cycle accounting (i.e. including the need to put a price on the environment and the services it provides).</p>	<p>Decisions on the corridor and timing for the Canada Line project were based on a multi-criteria analysis that used a social discount rate and 50-yr time horizon. The analysis captured environmental impacts, time travel savings, bus reductions, project costs and project revenues.</p>

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Financing – Move to a Total System Approach		
14 Increase the amortization period for treatment plant financing from 15 years to 30 years to achieve inter-generation equitability.	Financing over a longer period will reduce the annual cost borne by current taxpayers and better reflect the long life of these investments and their long-term environmental benefits. A 30-year amortization period would enable implementation of the Lions Gate and Iona plants in parallel.	All major projects undertaken by the Province have 30-yr financing; most large projects across Canada are financed with long-term debt.
15 Direct that rate-setting will adopt and implement the principles of 'polluter pay' and equity to provide municipalities (and homeowners and businesses) with an incentive to reduce their wet-weather flow contributions to the regional conveyance and treatment system.	It is about fairness and equitability; therefore, the region must provide a meaningful incentive/disincentive to the users to take responsibility for fixing their share of the problem.	Cost-recovery for the City of Edmonton's land drainage system was moved from property taxes to a new utility structure. Property owners are charged a fee based on a formula related to land area, permeability and zoning. The charge appears on the utility bill.
16 Develop major capital projects in a manner that demonstrates value for money, including protecting ratepayers / taxpayers from the risks associated with these major projects.	Affordability and risk management.	The Province of BC Capital Asset Management Framework provides a <i>useful value for money methodology</i> for assessing project delivery models. This is a requirement for all projects of \$50 million or more.
Implementation – Move from Commitment to Action		
<i>No matter how good the Plan is, for its vision and goals to be achieved it needs to be accompanied by strong political leadership and commitment (political, financial, staff and public support).</i>		<i>Refer to page 13 for supplementary information about Recommendation #17 Refer to page 14 for supplementary information about Recommendation #19</i>
17 Establish a "stewarding committee" to steward the Plan, and ensure ongoing action implementation occurs and stays true to the vision.	There is a need for fresh, objective eyes bolstered by a strong political mandate to keep asking questions, prod Metro Vancouver and members toward the vision, and assist with the <i>waste-to-resource</i> paradigm-shift over time. The "stewarding committee" would report directly to the Waste Management Committee, and would be outside the existing agency and committee structure currently used by Metro Vancouver. An over-arching "stewarding committee" would have broad representation (e.g. community, academia, business), supported by specific government representatives. It would provide oversight for technical working groups, including the current Environmental Monitoring Committee and the 'new SILG' (Recommendation #6). The first action of the committee might be to make presentations about the Plan to all member municipalities – on the need for municipal support and action, to make the transition to the SRI Vision.	The Liquid Waste Management Plan Reference Panel has played this type of independent, expert and non-partisan role.
18 Develop and implement a proactive and innovative education and communication plan that builds broad-based public support for liquid resource and rainwater management.	People cannot appreciate what they do not understand; therefore education about our coastal ecosystems is critical to build support for improved sewage/rainwater management. It is necessary to make the linkage between actions and end vision and goals, and to gain political support for achieving and paying for visionary goals – for example, explain the link between private laterals, sewage overflows and healthy fish/clean Fraser River.	The title of the 1999 Liquid Waste Management Plan, " Caring for our Waterways ", nicely encapsulated the connection to the environment. The Seattle Aquarium has displays which illustrate the connection between sewage treatment and a healthy marine ecosystem. Websites that provide information effectively can motivate people to protect habitat (e.g. Georgia Strait Alliance and orca whales).
19 Continue to implement and strengthen inter-departmental and inter-governmental continuing education opportunities for Metro Vancouver members that align local actions with provincial and regional goals, and result in consistent expectations for region-wide implementation of Plan elements.	Experience has shown that success in implementation is maximized when you achieve broad understanding and alignment among all relevant stakeholders. A capacity-building program could be defined by this theme: <i>How we can simultaneously work together as staff within a municipality and as a region AND externally with the stewardship sector, developers and other private sector players, to ensure we implement sustainable approaches to development.</i>	Metro Vancouver and other regions are learning from each other, and the 2005 REAC Consultation Workshop was the genesis for: <ul style="list-style-type: none"> ▪ Showcasing Green Infrastructure Innovation in Metro Vancouver: The 2006 Series was the pilot for a program implemented on both sides of the Georgia Basin in 2007, and continued in the Capital Regional District in 2008. ▪ Vancouver Island Learning Lunch Seminars: The 2008 Series was the provincial pilot for linking <i>Living Water Smart</i> to green infrastructure outcomes, and led to a <i>regional team approach</i> for applying legal, policy and technical tools that result in integrated solutions. ▪ 2009 Metro Vancouver Green Infrastructure Forum hosted by the City of Surrey adapted Vancouver Island lessons learned and introduced the regional team approach so that Metro Vancouver can move beyond pilot projects to a watershed objectives approach.