



Corporate Report

NO: R084

COUNCIL DATE: May 25, 2009

REGULAR COUNCIL

TO: **Mayor & Council** DATE: **May 21, 2009**
FROM: **General Manager, Engineering** FILE: **0485-20(LWMP)**
SUBJECT: **Comments on the Current Draft of the New Metro Vancouver Liquid Waste Management Plan (LWMP)**

RECOMMENDATION

The Engineering Department recommends that Council:

1. Receive this report for information;
2. Direct staff to forward a copy of this report to Metro Vancouver as the City's comments regarding the current draft of the new Liquid Waste Management Plan and request that these comments be taken into consideration in preparing the final draft of the Liquid Waste Management Plan; and
3. Request that Metro Vancouver forward the final draft of the new Liquid Waste Management Plan to Regional municipalities including Surrey for review and comments prior to forwarding it to the Metro Vancouver Board for approval.

INTENT

The purpose of this report is to:

- Provide an overview of the most recent draft of the proposed Metro Vancouver (MV) Liquid Waste Management Plan (LWMP) which has been forwarded to member MV municipalities for review and comments and to the public for input; and
- Identify key concerns with respect to the LWMP from the perspective of the City of Surrey for submission to Metro Vancouver staff for consideration in preparing the final draft of the LWMP.

BACKGROUND

Under Provincial legislation, Metro Vancouver, more specifically, the Greater Vancouver Sewerage & Drainage District (GVS&DD) is required to have a LWMP to operate regional treatment plants and trunk sewers. The LWMP contains a series of operational requirements approved by the Province for Metro Vancouver and its member municipalities that include:

- Level of wastewater treatment and quality of the discharge;
- Conditions under which sanitary sewer and combined sewer overflows can occur and actions to be taken to reduce these overflows;
- Source control by-laws which set standards of discharge for industrial users;
- Actions that the member municipalities commit to take to manage storm water; and
- Actions that the member municipalities commit to take to maintain in functional condition their respective sanitary sewer systems, including private sewer service connections.

The Provincial Minister of Environment approved the current LWMP in 2002. This Plan included a commitment that it would be updated after 5 years.

In 2008, Metro Vancouver initiated a process to update the LWMP. The updated draft LWMP, a copy of which is attached to this report (Appendix I) has taken into consideration the municipal and public input received during a consultation process in 2008 and 2009 related to its strategic content and direction. GVS&DD staff in collaboration with the staff of member municipalities developed it.

The draft LWMP has been reviewed by and recommended for public consultation by the Regional Engineers Advisory Committee (REAC) and the Regional Administrative Advisory Committee (RAAC). The Metro Vancouver Board approved the draft LWMP to proceed to public consultation on March 27, 2009.

DISCUSSION

The primary changes in the current draft of the LWMP in comparison to the 2002 LWMP include the removal of action items that have been completed and the addition of new actions to align the LWMP with current Provincial, Metro Vancouver, and member municipality policies and directions. The draft LWMP has been aligned with Provincial plans and policies that have been introduced since 2002 including the BC Climate Action Plan, the BC Energy Plan, Living Water Smart, A Guide to Green Choices, and the Ministry of Community Development's objectives on Integrated Resource Management.

The three main actions in the LWMP are the upgrading of the Vancouver and North Shore Sewerage Areas to have secondary treatment, the ongoing commitment to reinvest

in aging infrastructure and a requirement related to the repair or replacement of private sewer laterals.

Upgrading of Treatment Plants:

The following timelines for secondary treatment were set by the Ministry of Environment as a condition of approving the 2002 LWMP:

- 2020 for Vancouver (Iona Wastewater Treatment Plant); and
- 2030 for the North Shore (Lions Gate Wastewater Treatment Plant).

Ongoing environmental monitoring of the effluent discharge at these two treatment plants has not identified any environmental concerns that would necessitate the acceleration of the upgrading of these facilities. Given this fact, secondary treatment upgrades should be delayed as long as possible. However, new federal guidelines established by the Canadian Council of Ministry of Environment (CCME) require the treatment plants to be upgraded sooner than envisioned in the original 2002 LWMP. As a result, Metro Vancouver is reviewing the timing of the treatment plant upgrades and has included the following three timeline scenarios in the draft LWMP:

1. Vancouver by 2020 and North Shore by 2030 (original timeline);
2. North Shore by 2020 and Vancouver by 2030; and
3. Both Vancouver and North Shore by 2020.

Given the significant cost of these projects (estimated at \$1.4 billion in 2008 dollars) and regional importance of the work, Metro Vancouver and regional municipalities will seek provincial and federal cost sharing for these projects. Without Federal and Provincial funding, the upgrades should be implemented no sooner than the original timeline.

Reinvestment in Existing Infrastructure:

Reinvestment in existing sewerage infrastructure is crucial to providing affordable and reliable wastewater services. The draft LWMP reaffirms the need for municipalities to maintain the integrity of their sewer systems, thereby avoiding the deferral of costs to future generations.

As a component of reinvestment in existing sewerage infrastructure, the draft LWMP formalizes the need for municipalities to develop and implement inflow and infiltration management plans so that wet weather inflow and infiltration are less than Metro Vancouver's inflow and infiltration allowance, currently set at 11,200 l/ha/day for the 5-year return 24-hour design event. Furthermore, as part of these management plans, the draft LWMP requires that local governments consider the inspection and replacement of private sewer laterals if necessary to achieve compliance with Metro Vancouver's inflow and infiltration allowance.

Local Context

There are a number of action items within the current draft LWMP that have implications for the City of Surrey. In general, the Engineering Department agrees with the need for the Metro Vancouver action items as well as the municipal action items. In addition, the Surrey Engineering Department is already in process of completing many of the required or recommended municipal action items through various City programs and initiatives, which are also consistent with the City's Sustainability Charter.

However, the Engineering Department does have a concern with a number of municipal action items including the following:

- Action 3.2 – *Prevent Rainwater and groundwater from entering sanitary sewer systems;*
- Action 10.1 – *Improve liquid waste management programs in response to environmental monitoring results;* and
- Action 28.4 – *Monitor and assess the effects of liquid waste management on the receiving environment.*

A detailed summary of these concerns and other comments on the current draft LWMP is provided in Appendix II.

In addition to staff providing comments to Metro Vancouver through this report, staff will be forwarding these comments to the various technical committees that are also commenting on the draft LWMP, which include the Stormwater Inter-agency Liaison Group (SILG), the Environmental Monitoring Committee (EMC) and the Fraser Sewerage Area Technical Committee.

Financial Impact

The Metro Vancouver action items, as proposed in the plan, will cost approximately \$2 billion over the life of the plan. The majority of these costs are associated with the upgrades to secondary treatment for the Vancouver and North Shore sewage treatment plants (estimated at \$1.4 billion in 2008 dollars).

Given the cost and regional benefits of upgrading the Vancouver and North Shore sewerage areas to secondary treatment, Metro Vancouver is seeking a 1/3,1/3,1/3 cost-sharing agreement with the Provincial and Federal governments through the Building Canada Fund or other funding program. At this time, Metro Vancouver is not expecting consideration of their request until 2012 or 2013 given other existing Provincial and Federal priorities, which include the introduction of sewage treatment for the Capital Regional District on Vancouver Island.

Depending on the level of cost sharing achieved, Metro Vancouver has estimated the following increases to regional sewer levy over the term from 2020 to 2030 as compared to our current levy (in 2008 dollars):

Table 1: Estimated Regional Sewer Levy Increases (2020 to 2030)

| Cost Sharing Arrangement | Fraser Sewerage Area (including the City of Surrey) | Vancouver Sewerage Area | North Shore Sewerage Area | Lulu Island Sewerage Area |
|------------------------------------|--|--------------------------------|----------------------------------|----------------------------------|
| 2/3 rd External funding | 10% | 72% | 92% | 8% |
| 1/3 External funding | 20% | 138% | 173% | 16% |
| No External funding | 30% | 203% | 254% | 24% |

If Metro Vancouver is successful in receiving 1/3rd external funding, the region will be responsible for funding the remaining 2/3rd's, and the average regional sewer levy for the City of Surrey, based on a variety of moderate assumptions, will increase from \$150 per household to an estimated \$180 per household in 2020, an increase of \$30 (in 2008 dollars), or 20%. Sewer levies for properties in the Vancouver and North Shore sewerage areas will increase from \$150 to \$207 and \$260 per household, respectively, (in 2008 dollars) over the same time period.

Currently Metro Vancouver's total regional expenditures (including Metro Vancouver and TransLink) account for approximately 8.3% of the average household income, and based on a variety of moderate assumptions, Metro Vancouver's total regional expenditures are estimated to account for approximately 8.6% of the average household income in 2020 and 2030.

Of the upgrade costs to secondary treatment at the Vancouver and North Shore WWTPs 30% are borne by the Vancouver and North Shore catchment areas. The remaining 70% of the upgrade costs are equally shared between all catchment areas, including the Fraser and Lulu Island Sewerage Areas. This cost-sharing principle is the same methodology that was applied for the secondary treatment upgrades that were completed at the Annacis Island and Lulu Island WWTPs in 1994.

Besides relying on the existing residents of the various Sewerage Areas to finance the costs for the upgrading of the Vancouver and North Shore waste water treatment plants (WWTPs) to secondary treatment, the Engineering Department recommends that Metro Vancouver add into their Vancouver and North Shore Sewerage Area Development Cost Charges the costs of upsizing these secondary treatment facilities to accommodate future growth.

Although the financial implications related to the Metro Vancouver action items are significant, the total financial impact for all of the municipal action items to the City's sewer and drainage utility rates are considered to be manageable given that the Engineering Department is already undertaking or has budgeted for the majority of actions, excluding those contained in Action 3.2, and any additional monitoring that may

result from Actions 10.1 and 28.4, as the scope of these action items has yet to be determined.

Public Consultation

In addition to comments contained within this report, Metro Vancouver is also receiving input from a public consultation process, technical committees and other member municipalities as outlined in the 2009 consultation program, a copy of which is attached as Appendix III.

On April 23, 2009, Metro Vancouver hosted a public consultation meeting in Surrey on the current draft LWMP for the South of the Fraser Sewerage Area (Surrey, Delta, White Rock, and the Township of Langley). At this meeting staff from Metro Vancouver provided a regional overview of the draft LWMP, a copy of which is attached to this report as Appendix IV. City staff provided a brief overview of some of the local innovations in liquid waste management.

Although attendance for the event was relatively low (16 attendees), the meeting was very productive given the broad range of interests and experiences of the attendees, who included representation from Semiahmoo First Nations, the David Suzuki Foundation, engineering consultants, contractors, sewage treatment equipment suppliers and interested citizens.

The prominent comments voiced at this meeting were:

- The need for expanded stormwater quality monitoring and treatment at discharge points, as little attention has been given to the impact of heavy metals on our watercourse systems;
- Concerns regarding private/public partnerships in completing the WWTP upgrades, and any potential privatization of our WWTPs;
- Ensuring that development does not alter the natural flow regime of our watercourses;
- The need to explore the reusing of grey water (cascading) in order to reduce water demands and thereby reduce the need for treatment; and
- Concerns that the commitments made under this plan may be delayed, and that many of the commitments seem to fall short of some of the successes and applications in treatment that members of the European Union appear to be experiencing.

In addition to the public discussion, attendees were also provided a questionnaire for further follow-up, a copy of which is attached to this report as Appendix V.

Next Steps

Following receipt of input from the public consultation process, technical committees, and member municipalities as outlined in the 2009 consultation program, a final Plan will be developed and presented to the Metro Vancouver Board in July 2009. Upon approval by the Metro Vancouver Board, each member municipality will be asked to also consider

the final plan for approval relative to the municipal commitments. Subsequently, the approved LWMP will be submitted to the Minister of Environment for approval.

This schedule is considered to be overly ambitious as there are no opportunities for the City to review the final draft of the LWMP that incorporates comments from the consultation process prior to consideration of approval by the Metro Vancouver Board. The Engineering Department recommends that Surrey request that Metro Vancouver provide a copy of the final draft to member municipalities for final comments prior to consideration of the Plan by the Metro Vancouver Board so as to ensure that the City's concerns have been addressed and that other comments that have been received and subsequently incorporated into the final draft are acceptable to the City.

CONCLUSION

Based on the above discussion, it is recommended that Council:

- direct staff to forward a copy of this report to Metro Vancouver as the City's comments regarding the current draft of the new Liquid Waste Management Plan and request that these comments be taken into consideration in preparing the final draft of the Liquid Waste Management Plan; and
- request that Metro Vancouver forward the final draft of the new Liquid Waste Management Plan to Regional municipalities including Surrey for review and comments prior to forwarding it to the Metro Vancouver Board for approval.

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General Manager, Engineering

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- Appendix I - Draft Liquid Waste Management Plan (March 2009)
- Appendix II - City of Surrey comments on Actions Items included in the draft LWMP
- Appendix III - 2009 LWMP Consultation Program
- Appendix IV - Metro Vancouver Presentation: The LWMP "Why does this plan matter?"
- Appendix V - Deciding our Future Community Meeting Questionnaire

City of Surrey Comments on Specific Actions Included in the Draft LWMP

Specific Action Items of Concern

Goal 1 – Strategy 1 - Action 3.2

The Engineering Department has completed numerous projects related to the repair of municipal infrastructure (mains, manholes, and sewer laterals) in an attempt to achieve Metro Vancouver's inflow and infiltration allowance. Despite our efforts, the City has been unable to reduce the inflow and infiltration in many catchment areas to a level at or below Metro Vancouver's prescribed inflow and infiltration allowance of 11,200 l/ha/day.

In addition to Surrey's experience, Metro Vancouver, through a variety of studies, has found that private sewer laterals account for as much as 70% of the total amount of inflow and infiltration. As a result, with the adoption of Action 3.2, it appears that local governments will have no alternative but to begin inspecting and requiring the replacement of private sewer laterals, given that this action appears to be the only solution to achieve the current inflow and infiltration allowance.

The inspection and replacement of private sewer laterals is an expensive proposition for private property owners, and is administratively intensive for the City given that there are over 70,000 private sewer laterals within the City. Inspection and replacement of a typical single-family residential private sewer lateral is approximately \$5,000. It is estimated that each private sewer lateral has a service life of approximately 40 to 75 years depending on its construction material, and that it does not become a source of above average infiltration until it is at least 30 years old.

Before Metro Vancouver requires member municipalities to consider the inspection of private sewers, and requires the repair or replacement of private sewers that are identified as being in poor condition as included in Actions 3.2. ii and 3.2 iii, the Engineering Department recommends that:

- Metro Vancouver review, and revise if appropriate, its average inflow and infiltration allowance of 11,200 l/ha/day (Action Item 15.2);
- Metro Vancouver complete a cost/benefit analysis to determine if requiring the repair or replacement of private sewer laterals is the most cost effective alternative to addressing infiltration;
- Require member municipalities to introduce as part of their Sanitary Sewer By-laws, as the City of Surrey has already done, a requirement that for every significant building permit application or property redevelopment, the existing private sewer lateral be inspected to ensure that it is in satisfactory condition for service and that it be replaced if found to be unsatisfactory.

This approach is less onerous than those prescribed in Actions 3.2 ii and 3.2 iii and meets the overall intent of these actions given that most properties experience some

form of significant development or redevelopment after 40 to 50 years, which is in the general timeframe that private sewer laterals start contributing significant amounts of infiltration.

Goal 1 – Strategy 3 - Action 10.1 and Goal 2 – Strategy 7 - Action 28.4

These actions are linked and must be clearly defined through the Environmental Monitoring Committee (EMC) and the Storm Water Interagency Liaison Group (SILG). The type of monitoring, frequency, result submission, monitoring targets and representative watersheds must be defined. EMC and SILG are the most logical groups to discuss the merits and value of specific monitoring methodology, locations and reporting based on current local and international experience. The scope of this type of monitoring could have a significant impact on Surrey's monitoring program costs. Through its current programs, the City of Surrey undertakes significant monitoring including rainfall, stream flow, water level, benthics and water quality. Water quality monitoring can be particularly expensive depending on the types of contaminants and pollutants that are to be captured. In many cases, a more cost effective approach would be to use proxies to evaluate water quality in a scientifically defensible manner.

Until discussions related to these issues are undertaken with the technical committees, which include representatives from senior regulatory agencies, costs associated with an expanded monitoring program cannot be reasonably estimated and should not be included as a commitment within the LWMP.

General Comments

- Metro Vancouver should add into their Vancouver and North Shore sewerage areas Development Cost Charges the costs of upsizing the secondary treatment facilities to accommodate future growth.
- Metro Vancouver needs to ensure that adequate funding is provided to EMC and SILG for these groups to meet their mandates as suggested in the LWMP.
- Section A – does not recognize other legislation that plays a role in the LWMP such as Species at Risk (Federal), Fish Protection Act (Provincial) and the Water Act (Provincial).
- Section C – Goal 1 – The sentence should be changed to read “The principal objectives of rainwater management are preventing localized flooding from rainwater runoff and protecting urban streams from polluted runoff and damaging storm flows to *maintain stream health and fisheries values.*”
- There is a need to monitor how rainwater is infiltrated. A recent increasing problem is groundwater travelling down utility trenches and then emerging and causing flooding problems in low lying areas creating problems with infrastructure and private properties (pooling at bottom of hills or in basements or eroding backfill).

Metro Vancouver Action Items

- Goal 1 - Strategy 2 - Action 7 – This item should also include Metro Vancouver’s infrastructure, as MV’s system in some places is undersized based on upstream development even with appropriate I&I consideration.
- Goal 2 - Strategy 7 - Action 25.1 – EMC should be involved in this action item.
- Goal 2 - Strategy 7 - Action 29.2 – Metro Vancouver should link needs with already established local systems so as not to overlap functions. Surrey currently operates 6 rainfall stations (real time) and has over 16 flow stations and approximately 20 river level stations (real time). Many other local governments have automated systems in the jurisdiction. Sharing the data or having joint agreements on these sites should be considered by Metro Vancouver.
- Goal 2 - Strategy 8 - Action 35.3 – should also ensure new service areas do not overtax limited or deficient MV trunk systems that exist downstream until the downstream infrastructure is capable of servicing the catchment area without the undue risk of significant trunk failures or frequent overflow events.

Municipal Action Items

- Goal 1 - Strategy 1 - Action 4 – minimizing rainwater runoff at the site level does not address the overall watershed non-point source pollution factor and may not meet all watershed based hydrological targets. There is a need for additional reference to non-point source pollution and a link back to watershed-based objectives defined in ISMPs as noted in Strategy 8.
- Goal 1 - Strategy 1 - Action 4 –focussing only on individual site measures will not necessarily serve the needs of a watershed. Site measures in combination with community facilities and sustainable infrastructure design will better serve the watershed, especially redevelopment areas.
- Goal 1 - Strategy 2 - Action 4.3 iii a) stakeholders involved in developing site-level rainwater management systems must include the development industry and builder associations such as the Greater Vancouver Home Builders Association.
- Goal 1 - Strategy 2 - Action 7 – priority locations of SSOs may not be associated with high growth areas. Often the SSOs are occurring in older downstream sections of the infrastructure, which are weak and cannot handle the hydraulic pressure during significant events. Upgrades should be prioritized in consideration of the ultimate design heads of the trunk systems and vulnerabilities. This should be separate and in addition to the I&I work. Evidence of this is the numerous breaks, surcharges, etc., in the north Surrey trunk line, which has had little new development through Surrey but more development in upstream catchments.

- Goal 1 - Strategy 3 - Action 8.3. Emergency plans must include a clear notification protocol to ensure all affected stakeholders are notified in a timely manner in the event of overflows. Stakeholders to be notified must include municipalities and land owners and in some cases irrigation districts, Ministry of Agriculture and Lands, and other relevant associations.
- Goal 1 - Strategy 3 - Action 10 – It is unclear what is expected from municipal programs (i.e., type of monitoring, frequency, result submissions, etc.). If this is in regard to non-point source pollution, then Metro Vancouver needs to work on better clarity. EMC and SILG need to play a role in this action item.
- Goal 2 - Strategy 4 - Action 14. Reference to drainage systems should be removed from this action item as it is strictly related to sanitary and combined sewer systems.
- Goal 2, Strategy 5 Action 17.4. The proposed internal audit timeline can be problematic for municipal planning. Review of opportunities for innovation to improve efficiency and effectiveness is not timeline driven. It is undertaken through the watershed planning process on an ongoing basis.
- Goal 2 - Strategy 6 - Action 22 - “promote the collection and use of rainwater for irrigation and other non-potable water uses” so long as it is not a detriment to tributary watershed creek base flows and fisheries habitat.
- Goal 2 - Strategy 6 - Action 22.1. Use of rainwater as an alternative to using potable water must be evaluated in the context of watershed limitations to ensure runoff diversions do not adversely affect historical receiving watercourses.
- Goal 2 - Strategy 7 - Action 28.4 – This item could have huge cost implications to local governments. ISMPs currently monitor benthics for watershed health. General sampling programs for non-point source pollution or storm water systems have not been defined. SILG and EMC should discuss the merits of this and work on goals.
- Goal 2 - Strategy 8 - Action 30.1 ii., viii., ix. These items can be very broad in nature, and depending on scope, can have a significant effect on research programs. The scope must be clearly defined through EMC and SILG.
- Goal 2 - Strategy 8 - Action 31.1 ii – management of rainwater runoff at the site level should be included as well as non-point source pollution considerations as other local governments must undertake. Ensure the ISMP template addresses these issues for combined and piped systems as well.
- Goal 2 - Strategy 8 - Action 32.2 ii – roads are not the only source of non point source (NPS) pollution problems and should not be highlighted separately. Land use planning does play a role; however, issues like sediment and erosion, use of metal fences and storage of materials, use of pesticides, hot tub discharges, etc., all play a large role in NPS effects beyond just those from road runoff. Often aggressive municipal street and catchbasin cleaning programs combined with stormceptors can lead to reasonable

treatment of the runoff from the road facility. This action item should read more generically to capture the broader range of influences.

- Goal 2 - Strategy 8 - Action 35 - Liquid Waste Infrastructure expansion must be coordinated with the Regional Growth Strategy only if this growth strategy is consistent with Municipal Growth strategies. If Regional and Municipal growth strategies are at odds, an appropriate servicing approach must be mutually agreed upon.