



**REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE
MEETING OF WEDNESDAY 26 NOVEMBER 2008**

**SUBJECT CORE AREA AND WEST SHORE WASTEWATER TREATMENT PROJECT –
DECEMBER 2008 PROGRESS REPORT TO THE MINISTER OF ENVIRONMENT**

PURPOSE

To obtain approval of the proposed submission to the Minister of Environment in December 2008 of a progress report on the Core Area and West Shore wastewater treatment project.

BACKGROUND

The Minister of Environment, in his letter dated 08 July 2008, extended the deadline for submitting a major Liquid Waste Management Plan amendment to 31 December 2009. This extension was subject to the submission of a progress report on or before 31 December 2008 and a second progress report on or before 30 June 2009.

The draft December 2008 progress report is attached. It consists of the following documents:

- **Draft cover letter to the Honourable Barry Penner, Minister of Environment**
- **Amendment No. 7 to the Core Area Liquid Waste Management Plan (Appendix A)**
This is an interim amendment required to update the language in two chapters of the Plan, Chapter 4 (Existing Wastewater Infrastructure) and Chapter 15 (Onsite Sewage Systems). The amendment incorporates changes in regulations and clarifies language (Chapter 4) and describes the recently developed onsite sewage system program for the municipalities of Saanich, View Royal, Colwood and Langford (Chapter 15).
- **Summary of Work Completed from June to December 2008 and Work Proposed for 2009 (Appendix B)**
 - (1) Program development phase – conceptual planning (completed discussion papers with executive summaries are attached as appendices C and D respectively)
 - (2) Site identification and evaluation
 - (3) Peer review process
 - (4) Business case development
 - (5) Update on First Nations consultation/engagement
 - (6) Marine environmental impact study and wastewater characterization
 - (7) Project schedule
 - (8) 2009 project budget
- **Discussion Papers (Appendix C)**
- **Discussion Paper Summaries (Appendix D)**

ALTERNATIVES

1. That the committee recommend to the Board that the attached draft progress report be approved and forwarded to the Minister of Environment.
2. That the committee amend the draft progress report prior to forwarding it to the Board for approval.

FINANCIAL IMPLICATIONS

A new bylaw will be required to fund most of the proposed 2009 work. This will be presented to the committee for approval in early 2009.

SUMMARY/CONCLUSIONS

The required December 2008 progress report to the Minister of Environment on the Core Area and West Shore wastewater treatment project is attached.

RECOMMENDATION

That the Core Area Liquid Waste Management committee recommend to the Board:

- that the attached draft progress report on the Core Area and West Shore wastewater treatment project be approved and forwarded to the Minister of Environment.

Seamus B. McDonnell, PEng
Senior Manager, Engineering Services

Dwayne Kalynchuk, PEng
General Manager, Environmental Services
Concurrence

Kelly Daniels
CAO Concurrence

COMMENTS

SMcD:cl
Attachments: 5

___ December 2008

The Honourable Barry Penner
Minister of Environment
PO Box 9047 Stn Prov Govt
Victoria, BC V9W 9E2

Dear Minister Penner:

RE: CAPITAL REGIONAL DISTRICT – CORE AREA AND WEST SHORE WASTEWATER TREATMENT PROJECT – DECEMBER 2008 PROGRESS REPORT

The Capital Regional District (CRD) is pleased to submit the December 2008 progress report you requested in your letter dated 08 July 2008.

Since July 2008, when you granted a one-year extension to the required date for submission of the Core Area Liquid Waste Management Plan amendment, the CRD has made substantial progress in planning for wastewater treatment. This includes developing a distributed treatment plant model and resource recovery options such as biogas generation, water reuse, biosolids and heat recovery. This information is being presented in a series of discussion papers, which will prove indispensable in the decision-making process in the coming months. Recently, the CRD decided to commission a peer review of the options available for wastewater treatment. The peer review findings will be an invaluable aid in making upcoming decisions.

The last four months have also given CRD the opportunity to engage in several public education efforts. An opinion editorial was published in local papers in August 2008, along with a number of advertising features. In the summer of 2008, the CRD also launched a new website dedicated to the wastewater treatment issue. The site, based on discussion papers, reports and scientific research, will spearhead the CRD's public education and consultation campaigns and act as an up-to-date resource during the tenure of the project.

The CRD has also prepared plain language summaries of many of the discussion papers, which will be used for media and for information dissemination with the public. The summaries will be particularly useful during the CRD's planned public consultation scheduled for spring 2009. Consultation is an integral part of the planning process for wastewater treatment in the core area; with the addition of the peer review's findings, the CRD will bring a series of well-researched, viable options to the table for consideration. Consultation will involve public open houses, meetings and education, using a variety of media.

The December 2008 progress report is attached. It consists of the following documents:

- **Amendment No. 7 to the Core Area Liquid Waste Management Plan (Appendix A)**
This is an interim amendment required to update the language in two chapters of the Plan, Chapter 4 (Existing Wastewater Infrastructure) and Chapter 15 (Onsite Sewage Systems). The amendment incorporates changes in regulations and clarifies language (Chapter 4) and describes the recently developed onsite sewage system program for the municipalities of Saanich, View Royal, Colwood and Langford (Chapter 15)

- **Summary of Work Completed from June to December 2008 and Work Proposed for 2009 (Appendix B)**
 - (1) Program development phase – conceptual planning (completed discussion papers with executive summaries are attached as Appendices C and D respectively)
 - (2) Site identification and evaluation
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 - (8) 2009 project budget
- **Discussion Papers (Appendix C)**
- **Discussion Paper Summaries (Appendix D)**

The CRD remains committed to finding the best solution for wastewater treatment in the core area and west shore, one which satisfies the triple bottom line criteria of social, economic and environmental responsibility.

Based on the substantial progress made in 2008, and the work planned for 2009, I am confident that the CRD will provide you, on schedule, with the Liquid Waste Management Plan amendment you requested by the end of 2009.

Should you or your ministry staff have any questions about the attached documents, please have your staff contact Dwayne Kalynchuk, General Manager, Environmental Services, by telephone at 250-360-3092 or by e-mail at dkalynchuk@crd.bc.ca.

Yours sincerely,

Denise Blackwell
Board Chair:

Attachments: 4

cc: CRD Board of Directors
Randy Alexander, Regional Environmental Protection Manager, Ministry of Environment
Kelly Daniels, Chief Administrative Officer, CRD
Dwayne Kalynchuk, General Manager, Environmental Services, CRD

**AMENDMENT NO. 7
TO
CAPITAL REGIONAL DISTRICT
CORE AREA LIQUID WASTE MANAGEMENT PLAN**

As Approved by Minister on _____, 2008
(On approval, this amendment will amend Chapter 4 and Chapter 15)

SUBJECT: WASTEWATER TREATMENT AND DISPOSAL

TYPE OF AMENDMENT: CRD INITIATED

PURPOSE

The purpose of this amendment is to update descriptions in Chapter 4 of the Core Area Liquid Waste Management Plan to reflect the current legal framework under which the Capital Regional District provides trunk sewer and wastewater treatment and disposal services within the boundaries of the Core Area Liquid Waste Management Plan and to further address the implementation of wastewater treatment in response to the letter from the Minister of Environment of July 21, 2006 regarding wastewater treatment.

To update Chapter 15 to reflect the current development of the onsite sewage system program.

AMENDMENT

Chapter 4 “EXISTING WASTEWATER INFRASTRUCTURE” is amended as follows:

The section entitled “Municipal and Regional Responsibility” is deleted and replaced with the following:

“Municipal and Regional Responsibility

The roles of the Capital Regional District and its municipalities in relation to liquid waste management are complementary. The function of sewage collection and conveyance to a Capital Regional District trunk line is a municipal responsibility. Responsibility for trunk sewers and sewage disposal facilities was assigned to the Capital Regional District through the original Supplementary Letters Patent issued to the Capital Regional District by the Province on October 24, 1975. The Letters Patent had the effect of conferring exclusive jurisdiction on the Capital Regional District to construct, operate and manage trunk sewers and sewage disposal facilities within the area now included as the service area under Liquid Waste Management Core Area and Western Communities Service Establishment Bylaw No. 1, 1995 (“Bylaw 2312”). The authority of the Capital Regional District to operate the trunk sewers and sewage disposal facilities, including the responsibility to acquire, design, construct, operate, maintain, renew and administer trunk sewers and sewage disposal facilities was a function under the 1975 Supplementary Letters Patent and was converted to a service operated under a bylaw through the adoption of Bylaw 2312 on August 14, 2002.

The service operated under Bylaw 2312 would encompass energy and resource recovery options arising from sewage treatment and disposal, together with all sewage treatment and biosolids management processes.

The Capital Regional District does not intend to preclude the potential for partnering agreements between the Capital Regional District and one or more public authorities or private sector partners where the Capital Regional District considers this to be in the public interest to contribute to the proper and successful implementation of a plan for sewage treatment and disposal. Any such agreements will be addressed by way of separate amendment to Chapter 14 of this Plan to accommodate these projects. It further is envisaged that the Capital Regional District will continue to fulfill this responsibility within the boundaries of the Capital Regional District in accordance generally with the principles set out in the Capital Regional District Core Area Wastewater Management Program report by Associated Engineering (B.C.) Ltd., CH2M Hill and Kerr Wood Leidal Associates Limited dated June 12, 2008 ("2008 Associated Report"), with modifications as developed.

Through Supplementary Letters Patent issued to the Capital Regional District on June 1, 1978, the Capital Regional District was granted the function of septage disposal."

The title and content of **Chapter 15 "WATERWATER TREATMENT AND DISPOSAL IN AREAS NOT SERVED BY MUNICIPAL COLLECTION SYSTEMS"** is deleted and replaced with the following:

"CHAPTER 15 ONSITE SEWAGE SYSTEMS

GOAL

To successfully implement a management program for onsite sewage systems in a manner that will substantially reduce or prevent environmental degradation and public health risks associated with poorly maintained systems.

COMMITMENT

The **Capital Regional District** (CRD) commits to maintaining a successful management program for onsite sewage systems in the District of Saanich, the Town of View Royal, the City of Colwood and the City of Langford.

BACKGROUND

Within the Liquid Waste Management Plan (LWMP) area, the municipalities of Saanich, View Royal, Colwood and Langford contain areas that are not serviced by a municipal sewerage system and that rely on small treatment and disposal systems serving individual residences, or several residences collectively, for wastewater treatment and disposal. Residents in these areas generally employ onsite systems consisting of septic tanks or small package treatment plants with subsurface wastewater infiltration systems.

For over two decades, the CRD has provided facilities for the disposal of septage and treatment plant sludge from residential and commercial on-site systems. This service continues to be provided by the private sector under the authority of the CRD.

In the CRD, the Vancouver Island Health Authority (VIHA) has the responsibility for administering the Sewerage System Regulation under the Health Act by means of filings describing construction of onsite treatment and disposal systems and for enforcing the Regulation that became effective on May 31, 2005. Under the Regulation, an owner of an onsite system installed since May 31, 2005 must ensure that the system is maintained in accordance with the maintenance plan provided for the system.

Many systems are currently not adequately maintained. Failing onsite systems are known to cause several problems, including contamination of surface water and groundwater supplies and shellfish beds, health impacts and nuisance to neighbours, and nutrient enrichment of sensitive water bodies.

Onsite systems may fail for reasons which can be broadly grouped into the following categories:

- high flow and organic loading
- physical damage to the system
- site conditions
- high water table
- soil conditions
- poor maintenance
- faulty installation

Shortcomings with the existing provincial regulatory situation include:

- The new sewerage system regulation increases maintenance requirements; however there is no method of enforcement and the regulation only applies to systems installed since May 31, 2005.
- The new provincial regulation limits public health inspector's roles to receiving system registrations and filing them, responding to complaints and issuing orders and fines under the Health Act and Offences Act. Regular inspections are no longer a routine part of the inspector's duties.
- Failures may not be detected unless there are physical signs of a failure, at which point an impact to health or the environment may have already occurred.

ADVISORY COMMITTEE

An Onsite Management Advisory Committee (OMAC) worked on developing an onsite management system from 2001 to 2005. The CRD Board subsequently adopted one of the options recommended by OMAC.

MAINTENANCE MANAGEMENT PROGRAM

A maintenance management program that is expected to successfully address the onsite system problems referred to above has now been developed and implemented for the estimated 10,100 systems in the four participating municipalities. On 26 March 2008, the CRD Board adopted Bylaw No. 3478, which establishes a service to develop and implement a management program for onsite sewage systems. On 09 April 2008, the Board approved Bylaw No. 3479, which is a bylaw to regulate the maintenance of onsite sewage systems in the CRD. The program is expected to address most problems associated with onsite system failures.

The program includes:

- requirement to pump out Type 1 onsite systems (septic tanks) every five years
- requirement to maintain a Type 2 or Type 3 onsite system (package treatment plant) according to the maintenance plan by an authorized person at least once a year
- requirement for owners to retain records of all maintenance carried out on onsite systems
- enforcement protocols and procedures
- public education

Public education will be a key component of the program.

MANAGEMENT OF SLUDGES FROM ON-SITE SYSTEMS

Under its Supplementary Letters Patent, the CRD retains the authority for the disposal of septage within the region. Disposal facilities for septage and treatment plant sludges from on-site systems will continue to be provided by the private sector under the authority of the CRD."

AMENDMENT APPROVALS

Capital Regional District Board Approval _____ day of _____ 2004

Ministry of Water, Land and Air Protection Approval _____ day of _____ 2004

**CORE AREA AND WEST SHORE WASTEWATER TREATMENT
PROGRAM DEVELOPMENT PHASE – CONCEPTUAL PLANNING**

ACTIVITY STATUS AS OF DECEMBER 31, 2008

1. BACKGROUND

The report entitled *The Core Area Wastewater Management Program – Program Development Phase – Report to the Minister of Environment*, dated June 12, 2008 documented the progress that had been made in planning the Core Area Wastewater Management Program. The report also highlighted the proposed activities to complete the conceptual planning phase, based on an extended schedule. In his letter dated July 8, 2008, the Minister accepted the proposed schedule change, subject to the submission of a progress report on or before December 31, 2008 and a second progress report on or before June 30, 2009.

This report provides the status of the conceptual planning being carried out by the consultant team of Associated Engineering, CH2M Hill and Kerr Wood Leidal Associates, based on the deliverables and milestones contained in the June 2008 report.

2. STATUS OF ACTIVITIES TO DECEMBER 31, 2008

The primary activity that was to be carried out between June 2008 and the end of 2008 was the development of a series of discussion papers. These discussion papers are intended to inform the CRD Core Area Liquid Waste Management Committee (CALWMC) on critical program issues, technical information and possible wastewater management strategies. The information developed will feed into a decision making process by the CALWMC during the spring of 2009.

The discussion papers are listed in Table 1. The series of discussion papers from Activity 030 to 035, inclusive, are intended to provide the background data for the major activity, 036, the development of distributed wastewater management strategy options.

Table 2 shows the expected status of the activities by December 31, 2008, relative to originally expected component status. All activities are ahead of or on schedule, with the exception of one discussion paper. *Discussion Paper 036-DP-2 – Development of Distributed Wastewater Management Scenarios* was originally anticipated to be completed by December 31, 2008. Due to a more comprehensive analysis on integrated resource management opportunities (036-DP-1), completion of DP-2 has been delayed until mid-January.

Under *Discussion Paper 036-DP-2 – Development of Distributed Wastewater Management Scenarios*, three option “series” are being developed. These are:

- Option 1 Series** - Resource Recovery on a Regional Basis – the Fewest Plants
- Option 2 Series** - Resource Recovery based on a Combined Regional – Local Basis
- Option 3 Series** - Resource Recovery a Local Scale – the Largest Number of Plants

All option series have the potential to fully utilize the available heat energy and energy from organic solids and to provide opportunities for water reuse; the only difference is how the options achieve these end points.

It is expected that all of the discussion papers completed to date will be circulated to Ministry of Environment and Ministry of Community Development staff by the end of December 2008 and posted on the CRD project website.

3. PROPOSED ACTIVITIES IN 2009

The conceptual planning portion of the program development phase is expected to be completed by June 30, 2009, as per the schedule proposed in the June 12, 2008 report to the Minister. This will be accomplished through a structured decision making process.

A series of meetings with the CALWMC are proposed in the early spring of 2009. The proposed meeting dates and objectives are as follows:

MEETING DATE	MEETING OBJECTIVE
February 11	Approval of the proposed decision-making process
March 11	Review of the discussion papers
March 25	Presentation of the distributed wastewater management options
April 8	Discussion of the triple bottom line analysis of the options and selection of a preferred direction

Based on the outcome of the April meeting, the consultant team will develop the preferred distributed wastewater management strategy and refine the cost estimates. This work will be presented in a draft summary report in mid-May. Final meetings with the CALWMC and the CRD Board are proposed for late May and early June, respectively, to approve the selected distributed wastewater management strategy.

SBM:cl
Attachment: 1

Table 1
Core Area Wastewater Management Program
Program Development Phase - Conceptual Planning
Proposed Discussion Papers

ACTIVITY CODE	ACTIVITY	PAPER NUMBER	DISCUSSION PAPER TITLE
030	Project Management	030-DP-1	Program Development and Implementation
031	Integrated Resource Management Strategy	031-DP-1 031-DP-2 031-DP-3 031-DP-4 031-DP-5 031-DP-6 031-DP-7 031-DP-8 031-DP-9	A Decision-Making Framework for the Wastewater Biosolids Management Program Investigation of IRM in Sweden Biosolids Management / Organic Residuals Energy and Resource Recovery Flow Energy Management and Pressure Energy Recovery Phosphorus Recovery Heat Recovery Water Reuse Urine Separation Biosolids / Organic Residuals Strategy Evaluation
032	Greenhouse Gas Management Strategy	032-DP-1	Methodology to Assess GHG Management Performance
033	Wastewater Flow Management Strategy	033-DP-1 033-DP-2 033-DP-3 033-DP-4 033-DP-5	Existing and Future Scenarios: Populations, ICI Equivalents, and I&I Design Flow Tables Dynamic Simulation: Estimation of Frequency, Duration, and Volumes of SSO's Short-Term Treatment Options for SSO Locations Wet Weather Flow Management Strategy: Ultimate Elimination of CSO/SSO Sites
034	Macaulay Point / McLoughlin Point WWTP	034-DP-1 034-DP-2 034-DP-3	Liquid Process Alternatives Evaluation Solids Processing Alternatives Evaluation Facilities Siting Alternatives
035	Clover Point Wet Weather Management Plant	035-DP-1 035-DP-2 035-DP-3	Wet Weather Management Strategies for Clover Point Wet Weather Plant Conceptual Alternatives for Clover Point Wet Weather Plant Development Strategies for Clover Point Wet Weather Plant
036	Distributed Wastewater Management	036-DP-1 036-DP-2 036-DP-3	Identification and Evaluation of Resource Recovery Opportunities Development of Distributed Wastewater Management Scenarios Proposed Distributed Wastewater Management Strategy
037	Biosolids / Resource Management Facility	037-DP-1	Biosolids Management - Facility Planning and Implementation
038	Cost Estimates	038-DP-1	Capital and Annual Operating and Maintenance Costs

**Table 2
Core Area Wastewater Management Program
Program Development Phase Proposed Schedule**

**Conceptual Planning
Expected Status as of December 31, 2008**

ORIGINALLY EXPECTED COMPONENT STATUS AS OF DECEMBER 31, 2008	ORIGINALLY PROPOSED 2009 MILESTONES	EXPECTED STATUS AS OF DECEMBER 31, 2008
<ul style="list-style-type: none"> • <i>Integrated Resource Management Strategy</i> This overview strategy will be completed by September 2008. A series of Discussion Papers will be submitted to MoE staff. • <i>Greenhouse Gas Management Strategy</i> Continue to work with the Climate Change Secretariat to develop the methodology for comparing alternative wastewater management strategies. This will be completed by September 2008. A Discussion Paper will be submitted to MoE staff. • <i>Wastewater Flow Management Strategy</i> A Discussion Paper on this activity will be completed by August 2008 and submitted to MoE staff. Discussions will be held with MoE staff in the early fall of 2008 on the wet weather flow management strategy. • <i>Macaulay / McLoughlin Point Wastewater Treatment Plant</i> Preliminary conceptual alternatives will be completed in July 2008. Meetings with the property owners will continue into the fall of 2008. By December 31, 2008, we would anticipate being able to identify which of the sites is the preferred direction. This will then be built into the decision making on the overall distributed wastewater management strategy. • <i>Clover Point Wet Weather Flow Management Plant</i> Preliminary conceptual alternatives will be completed by September 2009. A Discussion Paper will be submitted to MoE staff. This will form part of the discussions with MoE staff on the wet weather management strategy in the fall of 2008. • <i>Distributed Wastewater Management Strategy</i> Utilize the conclusions in the IRM Strategy discussed above to evaluate and build alternate scenarios for the distributed management strategy. The development of the alternative strategies will be completed by December 2008. A Discussion Paper will be submitted to MoE staff. • <i>Biosolids / Resource Management</i> This activity will commence once the Integrated Resource Management Strategy, discussed above, is near completion. This is scheduled for September 2008. This activity will provide information into the development of the distributed wastewater management strategies. • <i>Cost Estimates</i> Conceptual level costing will be part of the distributed wastewater management alternative strategy development. This part of the activity will be complete by December 2008. 	<p>Completed in 2008.</p> <p>Comparisons will be developed as part of the TBL analysis for evaluation of distributed wastewater management strategies. This is expected to be completed in January 2009.</p> <p>This will form part of the distributed wastewater management strategy alternative scenarios. A decision is expected in June 2009.</p> <p>Confirm the role and function of this plant in the overall distributed wastewater management strategy by June 2009. Continue discussions with the property owner on acquiring the site. Anticipated completion of agreement by September 2009.</p> <p>Confirm the role and function of this plant in the overall strategy by June 2009. Complete site use agreement with the City of Victoria by September 2009.</p> <p>Workshops will be held in February and March 2009 with CRD staff and politicians. A decision on the selected distributed wastewater management strategy is expected in June 2009.</p> <p>Confirm the biosolids and resource management direction as part of the selected distributed wastewater management strategy in June 2009.</p> <p>A final refinement of capital and annual O&M costs will be carried out in June 2009, following adoption of the selected distributed wastewater management strategy.</p>	<p>All discussions papers (031-DP-1 through 9) have been completed and will be posted of the CRD web site by December 1.</p> <p>Discussion Paper 032-DP-1 – Methodology to Assess GHG Management Performance has been completed and is under review by the Climate Change Secretariat.</p> <p>Discussion Papers 033-DP-1 and 2 have been completed. This is the sewerage system hydraulic flow model that is being used to forecast wastewater flows under the various options. DP's on SSO strategies will be completed by the end of 2008.</p> <p>Discussion Papers 034-DP-1 through 3 have been completed. This work is being used to build the distributed wastewater management options.</p> <p>Discussion Papers 035-DP-1 through 3 have been completed.</p> <p>Discussion Paper 036-DP-1 – Identification and Evaluation of Resource Recovery Opportunities has been completed. Work is underway on the major discussion paper – 036-DP-2 – <i>Development of Distributed Wastewater Management Scenarios</i>. This is scheduled for completion in early 2009.</p> <p>The planning work around the integration of biosolids and solid waste management has been completed and is incorporated in Activity 031 – <i>Integrated Resource Management Strategy</i>. The conclusions of this work are being used in the development of distributed wastewater management options. Discussion Paper 037-DP-1 is scheduled for April 2009.</p> <p>The first part of this work has been completed, as part of the Discussion Paper 036-DP-2. The refinement of the costs and completion of the DP is scheduled for April 2009.</p>

**CORE AREA AND WEST SHORE WASTEWATER TREATMENT
SITE IDENTIFICATION AND EVALUATION**December 2008

1. FACILITY SITING AND EVALUATION – 2008 WORK PROGRAM

Continuing the work begun in 2007, substantial land use, environmental, and cultural information was collected for areas where wastewater and resource recovery facilities could be located in the West Shore and Saanich East-North Oak Bay neighbourhoods of the core area. Meetings were held with municipal staff and councils, First Nations, and managers of institutions, and developers of large land parcels. Information was collected and analyzed on a variety of topics, including:

- land use and community characteristics
- soils and geotechnical features
- archaeology and heritage; and
- ecological features, conditions and sensitive areas.

The topography of the study areas was assessed to determine locations that would minimize energy requirements for pumping wastewater and effluent. The potential for energy and water reuse also was assessed, based on planned land uses.

The Songhees, Beecher Bay and Esquimalt First Nations were contacted as part of this work. First Nations members were involved in field inspections of archaeological features, and information was provided on traditional use of the study area. The CRD committed to ongoing communications with the First Nations as the project proceeds.

Expanding on the examination of the West Shore and Saanich East-North Oak Bay areas, the entire Core Area was investigated to develop a database for evaluating distributed plant feasibility and siting. The work in the seven Core Area municipalities involved collecting and analyzing geotechnical, ecological, archaeology, heritage and planned land use information. Because of the size of the Core Area, the information was more general than that obtained for the West Shore and Saanich East-North Oak Bay areas.

Substantial effort was expended to identify the potential demand for energy recovered from wastewater in the Core Area. This research was based on forecasting development in the years 2020 and 2065, using adopted and draft Official Community Plans, the Regional Growth Strategy and information collected from municipal and regional planners, developers and institutional managers.

Floor areas of residential, commercial, institutional and other buildings were estimated, using plans and information from the British Columbia Assessment Authority, and floor area ratios developed in consultation with local planners. Using these energy consumption figures, combined with locations of hot water boiler heating systems provided by CRD team engineers, the future demand for energy was estimated and mapped in the Core Area.

Using the maps of future energy demand, the study team identified 39 Energy Recovery Opportunity Areas with the potential to use energy from wastewater to supply a portion of their space and water heat. These areas were subject to further review and assessment as part of the distributed plant study.

Areas having the potential to use treated effluent to supply non-potable water needs were identified. Major water users in the Core Area – golf courses, playfields, large institutions – were mapped. This information was used to support the analysis of water reuse potential.

Finally, in 2008, more detailed land use, community, ecological, geotechnical, archaeological, and heritage information is being collected on the South Esquimalt and James Bay communities. This investigation will provide detailed information to support the assessment processes in these areas. This information will be valuable in determining resource recovery opportunities, to support siting and design, and to provide data for environmental assessments to be conducted in 2009.

2. FACILITY SITING AND ASSESSMENT – 2009 WORK PROGRAM

Much of the work program in 2009 will focus on the refinement of wastewater facility locations and the conduct of environmental assessments. Following the CALWMC review of distributed facility scenarios, the project team will move from “areas” to “sites” where the facilities will be located. This refinement is necessary to allow more detailed designs and cost estimates to be prepared, information that also will be used to support the preparation of increasingly detailed environmental assessments.

Initial Environmental and Social Reviews (ESRs) will be prepared as part of the review of areas for wastewater treatment and resource recovery facilities. Once the conceptual plan has been selected, and specific facility locations are identified, a more detailed ESR will be prepared for each facility. The British Columbia Ministry of Environment requires preparation of an Environmental Impact Statement under terms of the Municipal Sewage Regulation. The Government of Canada will require a screening report (at a minimum) under the Canadian Environmental Assessment Act. The data collection and preparation of these three Environmental Assessment documents will be coordinated and the processes harmonized to the extent feasible under the requirements of the regulatory agencies.

An extensive public and First Nations involvement program will accompany the preparation of the environmental assessments. Information will be shared with the public, and their comments sought during the conduct of the assessments. Consultation with First Nations, begun in 2007 and 2008, will continue in 2009. First Nations input will be necessary parts of the archaeological and traditional use information elements of the project, ensuring that First Nations interests are identified in the assessment process. The public involvement program will describe the site selection process and the results of the analysis. Through a variety of communications and involvement methods, public input will be sought on the siting and environmental assessment elements of the project.

CORE AREA AND WEST SHORE WASTEWATER TREATMENT

PEER REVIEW PROCESS

December 2008

In early 2009, the Core Area Liquid Waste Management committee ("the committee") will be considering a number of submissions prepared by its consultant team regarding the proposed configuration of the core area and west shore wastewater treatment project. It is expected that the committee will have a number of questions regarding the many complex issues under consideration. To assist in answering these questions, the committee is engaging the services of a panel of recognized experts in the various areas under consideration.

The peer review process will include the following:

- The peer review panel chair is appointed by the committee at its meeting of 26 November 2008.
- The committee approves a list of questions to be addressed by the panel.
- The panel chair identifies and selects suitable panel members with the required expertise to respond to the committee's questions and also recommends an experienced peer review facilitator to manage and support the peer review process.
- The committee's list of questions will be considered by the peer review panel when it begins work in early January 2009.
- The panel will be provided with relevant documentation to assist it in responding to the committee's questions. At this time, the panel will also receive submissions from other interested parties.
- The panel, or the panel chair, will meet in Victoria in open session for three to five days and will be open to verbal and written submissions from consultants, committee members, Technical and Community Advisory committee members, provincial officials and their consultants and the general public.
- The panel will also meet with the committee, consultants and staff as required to obtain the information needed to complete the review.
- The panel will prepare a comprehensive report describing its findings in response to each of the committee's questions.
- The panel chair will present the panel's findings to the committee at an open meeting in May 2009.

**CORE AREA AND WEST SHORE WASTEWATER TREATMENT PROGRAM
BUSINESS ADVISORY SERVICES**

ACTIVITY STATUS AS OF DECEMBER 31, 2008

1. BACKGROUND

In the Ministry of Environment's letter dated December 14, 2007, the Minister outlined six objectives and provided an outline of the content of the Liquid Waste Management Plan (LWMP) amendment to be delivered by December 31, 2008. Ernst & Young was requested to focus on Objective #6: *Examine the opportunity to save money, transfer risk and add value through a public private partnership.*

On July 8, 2008, the Minister extended the deadline for submitting the LWMP amendment to December 31, 2009 subject to the submission of progress reports by December 31, 2008 and by June 30, 2009.

This brief progress report provides the status of the work being carried out by Ernst & Young as of December 31, 2008 and also provides a brief description of the work planned for 2009.

2. STATUS OF ACTIVITIES TO DECEMBER 31, 2008

As noted separately in the engineering update, work is ongoing to define the scope of the project, strategies for wastewater management (including resource recovery), capital cost estimates, and technical issues outstanding (all as described in a series of discussion papers). Until such work is substantially complete, it is difficult for the business advisors to complete the value for money and P3 assessment.

Ernst & Young is liaising with Partnerships BC to define the scope and content of the business case to be submitted by CRD to the Province in support of capital funding. A general agreement on the content of the business case has been defined and will comply with provincial guidelines for large-scale capital projects.

Risk transfer and value for money assessments will be largely influenced by the method CRD uses to package the major components of the project. Ernst & Young is working with the CRD to define such packaging options and each will be evaluated for procurement in the business case submitted to the provincial government.

3. PROCUREMENT ANALYSIS AND PLANNING

Packaging of this multi-dimensional project will be critical to successful procurement implementation. At this time, it is anticipated that the following packaging options will be considered in the business case and evaluated for market acceptance and value for money for the CRD.

- i) **Bulk Procurement of All Components.** In this option, the onshore linear infrastructure, wastewater treatment facilities, biosolids handling (including resource recovery) and offshore outfall components would be offered in a large-scale procurement offering. Delivery of the components will be phased over multiple years.

- ii) **Separate Procurement of Major Components.** Under this option, major components such as the following would be procured through separate work packages and procurement processes. The CRD will be responsible for integration of the various components.
 - a) Upstream linear infrastructure (including pumping stations and major trunk works).
 - b) Wastewater treatment facilities. The exact number of such facilities remains to be defined.
 - c) Biosolids handling facilities.
 - d) Ocean outfalls discharging treated effluent.

- iii) **Hybrid Procurement.** Separation of the onshore linear structures (pumping stations, trunk works) from other major components. The linear onshore components would be procured separately and the other components offered in a smaller procurement offering.

Each of these packaging options and components will be evaluated for procurement under the public private partnership versus more traditional approaches to procurement in order to assess the value for money implications for the CRD. It is possible some components of the program may be more suited for traditional procurement while others maximize value for money and/or transfer risk through a P3 approach. Such matters will be further documented in the final business case to be produced by the business advisors.

4. PROPOSED ACTIVITIES IN 2009

The following Business Advisor activities are planned for 2009:

Q1 2009	Ongoing financial & risk analysis
May 2009	Evaluation of procurement options
June 2009	Workshops and presentations to CALWMC on procurement options, value for money, risk transfer options.
August 2009	Business Case

**CORE AREA AND WEST SHORE WASTEWATER TREATMENT
FIRST NATIONS CONSULTATION/ENGAGEMENT**

December 2008

1. 2008 INITIATIVES

The Capital Regional District's (CRD) approach to working with First Nations on the wastewater treatment project is to create a clear understanding of roles, responsibilities and expectations at the front end of the project to ensure a strong working relationship throughout its completion. As a result, the CRD has taken the initial step of entering into a protocol with the Province (attached) to form a partnership on consultation and engagement by outlining those issues which are the responsibility of the CRD, and those that ultimately lay with senior governments.

Within that agreement, the Province retains overall responsibility for consultation with First Nations including outlining which First Nations need to be engaged and to what extent. The CRD is taking the "on the ground" responsibility for making sure First Nations are well informed about the project, have real opportunities to provide input, and can see how that input is being used, where practical, in the design and construction of the project. If issues remain, it will then be the provincial or federal government's responsibility to respond to, and, where appropriate accommodate assertions concerning potential impacts on a First Nation's existing aboriginal or treaty rights.

In addition to the protocol with the Provincial government, the CRD has taken the following steps to engage First Nations on the wastewater treatment project:

- the CRD has seconded a senior official from the Province with a strong background in aboriginal relations to help work with First Nations on these issues;
- the CRD and the province have signed tripartite protocols (attached) with both the Songhees and Beecher Bay Nations laying out a common understanding of the consultation/engagement process;
- the CRD and the province are making good progress with the Esquimalt Nation to build a similar protocol, and where possible, the CRD is also trying to address other issues which have the potential to affect progress on a good working relationship on this project;
- the Province has provided initial capacity funding to the Songhees, Beecher Bay and Esquimalt Nations to support the consultation process.
- the CRD has met with the federal government to ensure a common understanding with regard to consultation duties with First Nations if federal decisions are required to complete the project; and
- the CRD has met with federal officials to clearly state its expectation that if federal Crown land is needed to complete the project, the federal government will deal fairly with both the CRD and affected First Nations to ensure the project can be achieved on a win-win basis.

2. 2009 GOALS

In 2009 the CRD plans to accomplish the following goals:

- sign a tripartite protocol with the Esquimalt Nation and British Columbia laying out a common understanding of the consultation/engagement process;
- begin the information sharing process in earnest with Songhees, Esquimalt and Beecher Bay Nations on project design and siting work;

- resolve issues, as possible, and refer those not resolvable within the CRD legislative mandate to the provincial or federal government; and
- provide information to other interested First Nations not directly affected by the project.

It is important to recognize that consultation and engagement with First Nations is not an endeavor that can be accomplished by simply setting a deadline. Given the complexities of the wastewater treatment project, the legal requirement and genuine desire to engage and consult with First Nations in a meaningful way, and the number of other important endeavors taxing these First Nation's capacity, this pursuit can be expected to require more effort and possibly more time than was envisioned at the inception of the project.

JB:cl

Attachments: 2

PLEASE NOTE: The two attachments are the following documents:

- *Wastewater Treatment Project Consultation Agreement between Her Majesty the Queen in Right of the Province Of British Columbia and Songhees Nation and the Capital Regional District; and*
- *Wastewater Treatment Project Consultation Agreement between Her Majesty the Queen in Right of the Province Of British Columbia and Beecher Bay Nation and the Capital Regional District.*

Due to the size of the documents they are not included on the website. If you wish to receive an electronic copy, please contact Treace Alton at the CRD by phone (250.360.3192 or by email talton@crd.bc.ca.

CORE AREA AND WEST SHORE WASTEWATER TREATMENT MARINE ENVIRONMENTAL IMPACT STUDY AND WASTEWATER CHARACTERIZATION

1. MARINE ENVIRONMENTAL IMPACT STUDY SUMMARY

The "Stage 1" Environmental Impact Studies (EIS) being undertaken for two proposed marine outfall locations (i.e., Albert Head and Finnerty Cove) are scheduled for completion in December 2008. The "Stage 1" process has generally followed the steps outlined in Section 5.1 of the Ministry of Environment's "Environmental Impact Study Guideline" and is also based on feedback from Ministry of Environment staff in Nanaimo. That is, the process is based on available data rather than data collected as part of a baseline program.

The EIS consultants (Golder Associates Ltd., Burnaby, BC) have been working closely with Capital Regional District (CRD) staff, consulting engineers, and oceanographic modelers to characterize the potential environmental conditions and effects associated with the proposed outfalls using conservative (i.e., worst-case) estimates of future effluent quality, outfall design, and seasonal current and weather patterns. Predicted effluent and environmental conditions will be compared to applicable water quality guidelines at the edges of the initial dilution zones throughout the water column. In addition, Golder and CRD staff have been compiling what information is available with respect to commercial, recreational, and First Nations fisheries and aquaculture resources in the proposed areas. Known rare and endangered species are also being documented along with non-consumptive (e.g., recreational) uses of the proposed outfall areas.

Applicable compiled data and modeling predictions will be used to provide an assessment of impact. Because this is a "Stage 1" EIS, conservative endpoints (e.g., ambient water quality guidelines) will be used for the assessment. Uncertainties will be identified and they will be used to identify and prioritize gaps in the existing knowledge, and provide recommendations for the pre-discharge baseline environmental monitoring (i.e., "Stage 2" of the EIS).

The "Stage 2" EIS will be initiated in 2009 and will include more detailed oceanographic modeling, field-based oceanographic characterization (e.g., current meters), baseline environmental and aquatic resource studies, and more refined predictions of effluent quality and outfall design. It is anticipated that the "Stage 2" EIS process will take at least two years to complete.

It should be noted that the terrestrial components outlined in the "Environmental Impact Study Guideline" are being undertaken as part of a broader study of potential treatment plant locations by a separate consulting group (Westland Resource Group Inc.). Because the precise locations of upland treatment facilities will not have been decided by December 2008, that component of the EIS will not be addressed in the "Stage 1" EIS document. However, the terrestrial locations will be identified during the preparation of the "Stage 2" EIS.

Finally, if additional outfall locations are identified in 2009, they will be considered as part of the "Stage 2" EIS. It is anticipated that ongoing dialogue with Ministry of Environment staff will resolve the most appropriate means of addressing any additional outfall locations.

2. WASTEWATER CHARACTERIZATION SUMMARY

Treatment design engineers will require detailed wastewater characterization data to determine future treatment plant capacities and process requirements. At the end of 2007, CRD staff initiated a sampling program at Macaulay and Clover points that involved dry-weather, wet-weather and storm sampling to determine loadings of various conventional wastewater parameters (e.g., nutrients, biochemical oxygen demand, chemical oxygen demand, total suspended solids, etc.) over various flow regimes. Some dry-weather data was successfully collected, but insufficient data was collected for wet-weather and storm events. The sampling program was reassessed in conjunction with the CRD's consulting engineers and reimplemented at Macaulay and Clover points late in 2008. The refined program includes the previous comprehensive dry-weather, wet-weather and storm sampling components as well as a more frequent daily sampling component. It is anticipated that these sampling programs will be undertaken for at least one year, ideally two, and the sampling will provide the daily, weekly and seasonal loading information required by the engineers. It should be noted that additional up-stream sampling will also be initiated at future decentralized treatment plant locations as they are identified by the CRD.

**CORE AREA AND WEST SHORE WASTEWATER TREATMENT PROJECT
2009 PROJECT BUDGET**

ITEM	JAN TO MARCH	APRIL TO JUNE	JULY TO SEPT	OCT TO DEC	2009 TOTAL EXPENDITURES	SOURCE OF FUNDS		
						Bylaw 3461 ⁽¹⁾⁽⁴⁾	New Bylaw ⁽²⁾	LWMP 3.750 ⁽³⁾
Consultants								
Engineering and System Planning (Associated Engineering, CH2M Hill and KWL)	300,000	200,000	100,000	50,000	650,000	300,000	350,000	0
Siting and Environmental Impacts (Westland Resource Group)	0	200,000	260,000	240,000	700,000	0	570,000	130,000
Business Case Consultant (Ernst & Young)	50,000	100,000	75,000	25,000	250,000	100,000	150,000	0
Peer Review Team	200,000	100,000	0	0	300,000	200,000	100,000	0
Outfalls Consultant (field work to obtain baseline benthic and current information)	80,000	240,000	240,000	240,000	800,000	0	720,000	80,000
Special Consultants (B. Jank, J. Huggett, Victoria Consulting, Urban Systems, Urban Aspects, National PR and others)	125,000	125,000	175,000	125,000	550,000	0	375,000	175,000
Sewage Characterizing Studies (sampling at Macaulay and Clover and lab testing)	85,000	85,000	85,000	95,000	350,000	85,000	265,000	0
Program Management Consultant	0	0	0	200,000	200,000	0	200,000	0
SUB-TOTAL - CONSULTANTS	840,000	1,050,000	935,000	975,000	3,800,000	685,000	2,730,000	385,000
Staff Costs								
Five full-time equivalents (FTEs) [includes project manager (100%), two senior engineers (75% each), GIS, drafting, property manager, First Nations specialist, engineering and scientific support (100% total), communications (50%), coordinator/admin (100%)]	200,000	200,000	200,000	200,000	800,000			800,000
Other Costs								
Land Costs	7,100,000	0	0	\$ 13,000,000	20,100,000	7,100,000	13,000,000	0
Public Consultation	50,000	50,000	50,000	50,000	200,000	0	150,000	50,000
Miscellaneous (legal, travel, meetings, photocopies, supplies, misc. expenses)	25,000	25,000	25,000	25,000	100,000			100,000
TOTAL	8,215,000	1,325,000	1,210,000	14,250,000	25,000,000	7,785,000	15,880,000	1,335,000

(1) The amount spent to date in Bylaw 3461 is \$1,482,761.

(2) A new bylaw will need to go to the CALWMC and subsequently be adopted by the Board.

(3) The 2009 budget for LWMP - Core Area and Western Communities - 3.750 is \$1,638,265.

(4) An amount of \$775,000 of unspent cash remains in Bylaw 3072 which could be transferred to Bylaw 3461.

CORE AREA AND WEST SHORE WASTEWATER TREATMENT PROJECT

DISCUSSION PAPERS

Attached are the following discussion papers prepared by Associated Engineering, CH2MHill and KWL.

Project Management

030-DP1 Program Development and Implementation

Integrated Resource Management

031-DP-1 A Decision-Making Framework for the Wastewater Biosolids Management Program
031-DP-2 Investigation of Examples of Integrated Resource Management in Sweden
031-DP-3 Biosolids Management/Organic Residuals Energy and Resource Recovery
031-DP-4 Flow Energy Management and Pressure Energy Recovery
031-DP-5 Phosphorus Recovery
031-DP-6 Heat Recovery
031-DP-7 Water Reclamation and Reuse
031-DP-8 Urine Separation

Greenhouse Gas Management Strategy

032-DP-1 Methodology to Assess Greenhouse Gas Management Performance

Wastewater Flow Management Strategy

033-DP-1 Existing and Future Scenarios: Populations, ICI Equivalents and Inflow and Infiltration
033-DP-2 Design Flow Tables

SBM/cl

Attachments: 12

Due to the size of these draft discussion papers, they are not included on the website. If you wish to receive an electronic copy, please contact Treace Alton at the CRD by phone 250.360.3192 or by email talton@crd.bc.ca.

CORE AREA AND WEST SHORE WASTEWATER TREATMENT PROJECT

DISCUSSION PAPER SUMMARIES

Attached are executive summaries prepared by Capital Regional District staff on the following discussion papers:

Integrated Resource Management Strategy

Summary of Discussion Paper 031-DP-1	A Decision-Making Framework for the Wastewater Biosolids Management Program
Summary of Discussion Paper 031-DP-2	Investigation of Examples of Integrated Resource Management in Sweden
Summary of Discussion Paper 031-DP-3	Biosolids Management/Organic Residuals Energy and Resource Recovery
Summary of Discussion Paper 031-DP-4	Flow Energy Management and Pressure Energy Recovery
Summary of Discussion Paper 031-DP-5	Phosphorus Recovery
Summary of Discussion Paper 031-DP-6	Heat Recovery
Summary of Discussion Paper 031-DP-7	Water Reclamation and Reuse

Greenhouse Gas Management Strategy

Summary of Discussion Paper 032-DP-1	Methodology to Assess GHG Management Performance
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Attachments: 8

Due to the size of these discussion paper summaries they are not included on the website. If you wish to receive an electronic copy, please contact Treace Alton at the CRD by phone 250.360.3192 or by email talton@crd.bc.ca.