

Capital Regional District

Core Area Wastewater Treatment Program

Business Case in Support of Funding from the
Province of British Columbia

Addendum - 2 September 2010



Mr. Jack Hull
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2 September 2010

Core Area Wastewater Treatment Program - Business Case Addendum

Dear Mr. Hull:

We refer to the contract between the Capital Regional District ("CRD") and Ernst & Young Orenda Corporate Finance Inc. ("EY") dated 16 June 2007 (the "Contract") and subsequent variation letter dated 27 July 2010, through which EY has been engaged to provide business advisory services to CRD on the development of the business case for the Core Area and West Shore Sewage Treatment Plant Project (the "Project").

Purpose of the Report and restrictions on its use

The business case for the Project was completed on 16 March 2010 and subjected to review by Partnerships British Columbia ("PBC") to confirm compliance with the PBC's best practices for business cases in relation to large capital investment projects. A variance report was produced by PBC that detailed where alternate solutions or assumptions should be investigated further to ensure compliance with best practices. This report summarizes the key changes the CRD agreed to implement as a result of the review process (the "Report").

This Report may only be relied upon by CRD pursuant to the terms referred to in the Contract. Any commercial decisions taken by CRD are not within the scope of our duty of care and in making such decisions you should take into account the limitations of the scope of our work and other factors, commercial and otherwise, which you should be aware of from sources other than our work.

EY disclaims all liability to any party other than CRD for all costs, loss, damage and liability that the third party may suffer or incur arising from or relating to or in any way connected with the provision of the deliverables to the third party. If others choose to rely in any way on the Report they do so entirely at their own risk.

Our role

Ernst & Young's role has been to determine the financial impact of the key assumptions and changes the CRD has agreed to and accordingly update the financial analysis previously reported on in the business case. This involved the following tasks:

- a) Update the financial analysis with the latest schedule and cost estimates provided by the CRD and its technical advisor Stantec Consulting Ltd. ("Stantec") to EY, to reflect the latest scope and configuration of the Project. The current preferred delivery model is referred to herein as Option

- 1A^{Prime2}. This includes a single wastewater treatment plant at McLoughlin, biosolids processing plant at Hartland landfill and associated conveyance and pumping upgrades;
- b) Refresh the private financing assumptions utilized for the alternative procurement options to reflect recent changes in the financial markets and update the financial analysis accordingly;
 - c) Update the financial analysis to reflect the CRD's latest thoughts on the timing of the Project development with respect to key milestone for approval requirements and timing of the procurement of the components of the Project to be procured through an alternative procurement option;
 - d) Update the risk quantification to reflect the latest scope and configuration of the Project and to capture the conclusions of the supplemental risk workshop held on 26 July 2010 with PBC present.

Basis of our work

The information contained in this Report is based on and relies on the information provided to EY by the CRD and Stantec. Specifically, we have relied upon the following information provided by both parties:

- a) Updated scope of the Project;
- b) Updated schedules for each of the Project's three procurement delivery models;
- c) Updated Key Milestone Dates list;
- d) Updated options for the procurement delivery model;
- e) Updated capital and operating costs for each delivery model;
- f) Updated cashflows for each of the three procurement delivery models; and
- g) Risk quantification assumptions from the supplemental risk workshop conducted on 26 July 2010.

Should you wish to discuss this Report please contact Gordon Dunfield-Prayero on (604) 891-8276.

Sincerely,

*Ernst & Young Orenda
Corporate Finance Inc.*

Ernst & Young Orenda Corporate Finance Inc

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1 Executive Summary

The Capital Regional District ("CRD") in conjunction with its advisers Ernst & Young Orenda Corporate Finance Inc. ("EY") and Stantec Consulting Ltd. / Brown & Caldwell ("Stantec") prepared a business case for submission to the Province of British Columbia - Ministry of Community and Rural Development ("MCD"). The business case was in support of a commitment to secure provincial funding to move forward the procurement implementation of the CRD's Core Area and West Shore Wastewater Treatment Program ("the Program"). This business case was completed and submitted on 16 March 2010 for the MCD's consideration.

Partnerships British Columbia ("PBC") on behalf of the Province was asked to review the business case submission and advise the MCD on the adequacy of the business case to support a submission by MCD to the Province of British Columbia Treasury Board for a funding request in relation to the Program.

Following this review, certain areas of the business case have been revised and updated to address a number of points raised by PBC. This addendum to the Business Case summarizes these changes and presents the updated financial analysis in support of the business case.

1.1 The Preferred Service Delivery Option

1.1.1 THE ORIGINAL SCOPE FOR OPTION 1A

The preferred delivery option described in detail in Appendix 2 of the March Business Case, Option 1A was, is summarized below:

- ▶ A liquid only treatment plant in Saanich East.
- ▶ A pumping station and wet weather treatment facility at Clover Point.
- ▶ A new secondary treatment plant at McLoughlin Point
- ▶ A central biosolids facility or "Energy Centre" located at the Hartland landfill site.
- ▶ A liquid only treatment plant in the West Shore Plant
- ▶ Associated conveyance, pumping and marine outfalls

1.1.2 THE REVISED SCOPE FOR OPTION 1A^{PRIME2}

As a result of the review and additional market sounding undertaken by PBC certain areas of the Program's scope were discussed and mutually agreed to by CRD and Stantec as appropriate amendments to the Program to reflect the latest available information. The preferred option has been re-labelled Option 1A^{Prime2}. The major revisions which have been made include the following:

- ▶ The Saanich East plant has been eliminated and the flows treated at McLoughlin Point plant. A storage tank is proposed at Saanich East to attenuate wet weather flows.
- ▶ The West Shore plant has been deferred until approximately 2030. The flows from the West Shore will be treated at the McLoughlin Plant.
- ▶ The size of the McLoughlin Plant has been increased to 107.8 MI/day which is the largest capacity that can fit on the site.
- ▶ Total treatment capacity has been reduced from 124.4 MI/day to 107.8 MI/day. Additional capacity on the West Shore will be required in the future.

Details of the changes to the preferred delivery option are set out in section 2 of this report. In summary, Option 1A^{Prime2} includes:

- ▶ Attenuation tanks in East Saanich / North Oak Bay for storage of wet weather flow;
- ▶ A pumping station and headworks at Clover Point;
- ▶ A pumping station and headworks at Macaulay Point;
- ▶ A new secondary treatment plant at McLoughlin Point;
- ▶ A central biosolids facility or “Energy Centre” located at the Hartland landfill site;
- ▶ A future treatment plant on the West Shore (not part of the current funding application), and
- ▶ Associated conveyance, pumping and a new marine outfall.

1.1.3 AMENDMENTS TO THE DEVELOPMENT COSTS

The table below presents a summary of the estimated development costs provided by Stantec under Option 1A^{prime2} (the Development Cost Sub-Total) together with the risk adjustment and non-recoverable HST. The table presents a comparison with the estimated development costs reported for Option 1A in the March Business Case.

Development Costs	Option 1A ^{prime2} (Nominal)	Option 1A (Nominal)
Conveyance and Pumping	60,109	51,867
West Shore	0	71,099
Saanich East	14,455	107,084
McLoughlin Point WWTP	283,224	234,126
Clover Point Headworks and Conveyance ¹	68,048	28,722
Energy Ctr / Biosolids / Resource Recovery ²	281,006	273,317
Tunnels and Outfalls ³	30,434	100,381
Land Purchase	13,000	13,512
Development Cost Sub-Total	750,277	880,108
Approvals and Construction Period Risk	65,800	61,702
Non-Recoverable HST	14,281	-
Total	830,359	941,810

Notes

The packaging of development costs has been realigned to better reflect the anticipated procurement packages as follows:

1. Conveyance from Clover Point to McLoughlin Point was previously excluded from this line and included in the Tunnels and Outfalls line under Option 1A
2. Energy Centre now includes conveyance from the McLoughlin Point WWTP. This cost was previously presented within Conveyance and Pumping
3. Cost for Outfalls and Tunnels includes only the McLoughlin Point Outfall under Option 1A^{prime2}.

1.1.4 PROGRAM IMPLEMENTATION TIMING

The Program implementation timing has also been reviewed and amended to include the establishment of a governance structure for the Program on the basis of a Commission empowered by the CRD to move this Program forward. The revised Program schedule now contemplates approval of funding from the

Province and the Government of Canada by October 2010 with a target to have the Program operational by December 2016.

1.2 Procurement Options

Taking account of the revisions to the Program scope and schedule, CRD, in consultation with Stantec have reviewed and revised the procurement delivery models under consideration for the major components of Option 1A^{Prime2}. The short-list of three procurement packaging plans which have been analysed in this addendum is:

- a) **Option A: Traditional:** assumes all components of the Program are procured using the design-bid-build procurement model (“DBB”), with the exception of the McLoughlin Point Outfall which would be procured as a design-build (“DB”);
- b) **Option B: Mixed:** assumes a design-build-finance-operate procurement model (“DBFO”) for the Biosolids / Energy / Resource Recovery Facility, and a combination of separate DBB or DB contracts for the other components; and
- c) **Option C: Alternative Procurement:** assumes a DBFO procurement model for the Biosolids / Energy / Resource Recovery Facility together with the McLoughlin Plant and Outfall and a combination of separate DBB or DB contracts for the other components.

The table below presents the estimated development costs provided by Stantec for each procurement option (the Development Cost Sub-Total) taking into consideration the same general approach to efficiency analysis as was included in the March 2010 business case submission. It also presents the approvals and construction period risk adjustment (see section 6 of this Addendum) and the non-recoverable HST for each procurement option.

Development Costs	Option A: Traditional (Nominal)	Option B: Mixed (Nominal)	Option C: Alternative Procurement (Nominal)
Conveyance and Pumping	60,109	60,109	54,531
Saanich East	14,455	14,455	14,455
McLoughlin Point WWTP	283,224	267,402	560,554
Clover Point Headworks and Conveyance	68,048	57,386	57,386
Energy Ctr / Biosolids / Resource Recovery	281,006	262,847	-
McLoughlin Point Outfall	30,434	28,327	-
Land Purchase	13,000	13,000	13,000
Development Cost Sub-Total	750,277	703,525	699,926
Approvals and Construction Period Risk	65,800	54,879	49,387
Non-Recoverable HST	14,281	13,272	13,113
Total	830,359	771,677	762,425
<i>Difference (from Traditional)</i>	-%	(7.07%)	(8.18%)

1.3 Summary of Value for Money Assessment

The financial analysis which forms the basis of the value for money analysis has been updated to take into account the following:

- ▶ Updated cost plans for delivery Option 1A^{Prime2} under each of the three procurement options provided by Stantec;

- ▶ Updated scheduling assumptions provided by Stantec;
- ▶ Updated risk analysis following a supplementary risk workshop held on 26th July 2010; and
- ▶ Revised private financing assumptions for the DBFO packages under the Mixed and Alternative Procurement models provided by EY and agreed with PBC. The March Business Case assumed private financing being sourced from the start of the development phase for the DBFO components. It is now assumed that private finance will be sourced only from the start of construction. This reduces the cost of financing under both the Mixed and Alternative Procurement options, having a greater impact on the Alternative Procurement Option.

The table below presents a summary of the net present cost (NPC) of the Project estimated for each of the three procurement model options. All Net present costs are discounted at 7.5% (in accordance with direction from PBC) to 31 December 2009.

Value for Money Summary <i>(all figures in \$ thousands unless stated otherwise)</i>	Option A: Traditional <i>(NPC)</i>	Option B: Mixed <i>(NPC)</i>	Option C: Alternative Procurement <i>(NPC)</i>
Total capital portion of costs	557,192	544,015	541,104
Total operations & maintenance costs	146,722	143,608	140,434
TOTAL NPC of costs	703,913	687,622	681,538
Competitive Neutrality Adjustment ¹	2,100	1,123	-
TOTAL NET PRESENT COST	706,013	688,745	681,538

Note 1: The competitive Neutrality adjustment removes the net competitive advantages that accrue to Government by virtue of the public sector ownership. This allows a like-with-like value for money assessment between the publicly funded options and privately financed DBFO components, by removing the effects of public ownership and including equivalent costs that would otherwise be incurred by the private sector (i.e. corporate taxes which flow back to government).

The NPC of Option B: Mixed presents a potential saving of 2.4% compared with Option A: Traditional, and Option C: Alternative Procurement presents a potential saving of 3.5% compared with Option A: Traditional. The NPC of Option C: Alternative Procurement presents a potential saving of 1.0% compared with Option B: Mixed.

2 Amendment to the Preferred Service Delivery Option

2.1 The Preferred Service Delivery Option

PBC has reviewed the delivery plan for the March 2010 Business Case and provided comments to CRD for consideration in the business plan update. The preferred service delivery option has been identified by CRD as Option 1A^{Prime2}. Amendments made since the March 2010 Business Case are summarised below.

Program Component	Amendment to Business Case
Representative Technology	Membrane Bioreactor technology was removed from the entire Program and the revised capital cost budgets are now based on Biological Aerated Filter (BAF) technology.
Single treatment facilities for liquids and solids	Option 1A ^{Prime2} consolidates treatment of liquid at McLoughlin and biosolids at Hartland. Other than grit removal provided at Clover Point and Macaulay Point pump stations, no other treatment facilities are included in the revised preferred option. All the high flow rate treatment at Clover and elsewhere has been removed, with up to 3 times Average Dry Weather Flow ("AWDF") primary treatment provided at McLoughlin for Clover Point flows.
Outfall	Option 1A ^{Prime2} proposes the use of a larger outfall (1,500mm diameter) from McLoughlin Point rather than twinning the outfall from Macaulay Point.
Tunnel	Option 1A ^{Prime2} assumes a tunnel from Ogden Point to McLoughlin Point and will use land conveyance from Clover Point to Ogden Point.
Macaulay Point	Option 1A ^{Prime2} now assumes one pump station at Macaulay Point with two sets of pumps; one pump to convey raw sewage to McLoughlin Point for flow up to 4x AWDF and the other pump to convey screened raw sewage to the outfall for flows larger than 4x AWDF.
Energy Centre	Option 1A ^{Prime2} now contemplates collection of Source Separated Organics ("SSO") and the capital costs for an SSO receiving station and mixing facility are not included in the overall cost of the Project. The costs of the SSO processing and pumping facility would be covered under a separate budget. The operating cost for the SSO is under review while the tipping fees have been included. Costs of the Fats Oils and Grease (FOG) receiving station and digester capacity to accept FOG are included.
Sludge disposal	Assumption that the disposal of processed sludge residuals is through use as an energy source for cement kilns. Estimate of 14.5 cubic meters per day of dried sludge is anticipated to be produced at the Biosolids Energy Center

Program Component	Agreed Amendment to Business Case
Saanich East and North Oak Bay (SENOB) attenuation tanks	Option 1A ^{Prime2} now assumes attenuation tanks at the Saanich East site. These tanks will allow flexible management of peak flows and inflow and infiltration. Importantly this will allow CRD to control and “smooth” the flow rates reaching the McLoughlin Point facility.
West Shore	West Shore is no longer considered in Option 1A ^{Prime2} but will be needed in the future (approx. 2030).

As a result of the above amendments, the preferred option, Option 1A^{Prime2}, included in the amended business case is described in greater detail below.

2.2 Preferred Service Delivery Option - Option 1A^{Prime2}

The CRD’s technical consultants completed a number of studies related to the June 2, 2009 request by the CRD’s Core Area Liquid Waste Management Committee (“CALWMC”). Following review of these studies the CALWMC subsequently selected Option 1A^{Prime2} as the preferred service delivery option.

Option 1A^{Prime2} is summarized below:

- ▶ Attenuation tanks in East Saanich for storage of wet weather flow;
- ▶ A pumping station and headworks at Clover Point. Up to 3 times of average dry weather flow (“ADWF”) will be pumped to the treatment plant located at McLoughlin Point;
- ▶ A pumping station and headworks at Macaulay Point. Up to 4 times ADWF will be pumped to the treatment plant located at McLoughlin Point;
- ▶ A new secondary treatment plant at McLoughlin Point;
- ▶ A central biosolids facility or “Energy Centre” located at the Hartland landfill site;
- ▶ A future treatment plant on the West Shore, and
- ▶ Associated conveyance, pumping and a new marine outfall.

The CRD identified Option 1A^{Prime2} as the low cost option that best meets the needs of the community and achieves all the project objectives.

2.2.1 SUMMARY OF THE CORE AREA PROGRAM

The CRD commits to providing, by the end of 2016, a wastewater management system that will include the following major components in the Core Area:

Major Core Area Component	CRD Commitments
Saanich East Attenuation Tank	Storage tank with a capacity of approximately 12,000 m3 for attenuation of wet weather flow
McLoughlin Point Secondary Treatment Facility	A new 107.8 Ml/d McLoughlin Point secondary treatment plant serving the Macaulay and Clover sewerage catchment areas for flows up to two times ADWF and primary treatment for flows up to four times ADWF for the Macaulay catchment area and up to three times ADWF for the Clover catchment area.

Major Core Area Component	CRD Commitments
Clover Point Pumping Station and Headworks	<p>Treated effluent from the new McLoughlin treatment facility will be discharged through a new outfall.</p> <p>A pump station at Clover Point that will pump three times the ADWF to McLoughlin Point for secondary treatment.</p> <p>Addition of grit removal at Clover Point adjacent to the existing 6 mm screens.</p> <p>Wet weather flows over three times ADWF shall be screened and discharged.</p> <p>A new forcemain to transfer flow from the Clover pump station to McLoughlin WWTP including a tunnel under Victoria Harbour.</p>
Macaulay Point Pump Station	<p>Upgrade and expansion of Macaulay Point Pump station to transfer flows to the McLoughlin Point plant.</p> <p>Addition of grit removal adjacent to the existing 6 mm screens</p> <p>A new forcemain to transfer flows from Macaulay pump station to McLoughlin WWTP.</p>
Biosolids Treatment Facility	<p>The current biosolids management plan (BMP) contemplates a biosolids facility at the Hartland Landfill site. The plan includes a sludge conveyance pipe from the McLoughlin Point WWTP to the Hartland Landfill biosolids facility. (As noted elsewhere in this business case, an alternate biosolids processing and resource recovery facility site is still under consideration).</p> <p>The CRD has conducted an extensive analysis of alternatives for the BMP. The CRD's biosolids facility will process the biosolids generated by primary and secondary treatment in a manner that will optimize opportunities for beneficial use by:</p> <ul style="list-style-type: none">▶ using thermophilic anaerobic digestion to stabilize and reduce solids, kill pathogens and generate methane gas (biogas) for use onsite or offsite in the natural gas distribution system;▶ drying all of the digested biosolids and selling it as a fuel for cement kilns, paper mills or other energy facilities; and▶ Extraction of Struvite (phosphate) from dewatering centrate for use as fertilizer. <p>The biosolids facility will treat sludge to produce equivalent United States Environmental Protection Agency ("USEPA") Class "A" standard. The BMP uses year 2030 as the design horizon.</p>

Major Core Area Component	CRD Commitments
Other Conveyance & Trunk Sewer Upgrades	<p>Upgrading of Currie pump station</p> <p>Conveyance upgrade between the Currie pump station and Clover Point</p>
Outfall	<p>Replacement of the Craigflower pumping station. Treated wastewater from the McLoughlin Point WWTP will be discharged to the marine environment through a new outfall.</p>
Resource Recovery & Sustainability Initiatives	<p>Generation of methane gas at the biosolids facility for use onsite or offsite in the natural gas distribution system.</p> <p>Biosolids digesters will have a 10% increase in capacity to allow acceptance of fats, oil and greases and/or preprocessed food waste to enhance production of biomethane by up to 50%.</p> <p>Will recover waste heat from the digesters to pre-heat sludge feed (reducing heat required by digesters).</p> <p>Reuse of digested biosolids for sale as fuel for cement kilns, paper mills, or other energy facilities, Extraction of Struvite (phosphate) from waste streams for use as fertilizer.</p> <p>Implement heat pumps and exchangers to recover heat from effluent for supplemental building heat. Opportunities to expand the system for future district heating systems will be included.</p> <p>Capability for secondary effluent reuse will be provided at a later date if feasible and if there is a market for the water.</p>
Operations	<p>CRD will provide ongoing operations of the attenuation tank, pump stations, conveyance, outfall and wastewater treatment plant at McLoughlin Point</p> <p>The biosolids facility and the resource recovery associated with methane generation, reuse of digested biosolids, extraction of struvite and heat recovery from the digesters will be operated by the successful proponent of the design/build/operate/finance contract for these facilities.</p>

2.3 Amendment to the Implementation Schedule

The Program implementation timing has been reviewed and amended to include the establishment of a governance structure for the Program on the basis of a Commission empowered by the Capital Regional District to move this Program forward. In addition, with further due diligence, greater clarity was

included around the timing of the funding requirements and implementation of the multiple procurement processes required for each of the Program's core components under different procurement delivery methods.

The revised Program schedule now contemplates approval of funding from the Province and the Government of Canada by October 2010 with a target to have the Program operational by December 2016. The amended Program schedule along with the key milestones is included below:

Key Milestone	Traditional	Mixed	Alternative Procurement
Commission Formation:			
▶ Agreement from Province on Commission Model	15 Sep 2010	15 Sep 2010	15 Sep 2010
▶ Prepare Draft by-law for Commission	15 Oct 2010	15 Oct 2010	15 Oct 2010
▶ Final Commission by-law complete & review by CRD Board	10 Nov 2010	10 Nov 2010	10 Nov 2010
▶ Recruit Commission team members	Dec 2010 to Feb 2011	Dec 2010 to Feb 2011	Dec 2010 to Feb 2011
▶ Commission established	Mar 2011	Mar 2011	Mar 2011
▶ Recruit Project Director	Jun 2011	Jun 2011	Jun 2011
Approval in Principal (FUNDING)	15 Oct 2010	15 Oct 2010	15 Oct 2010
Start Detailed Planning	Oct 2010	Oct 2010	Oct 2010
Finalization of Fed/Provincial/CRD Contribution Agreement	Dec 2010	Dec 2010	Dec 2010
Funding Agreement (LOCKED DOWN)	Dec 2010	Dec 2012	Nov 2012
PMO Office established	Oct 2010	Oct 2010	Oct 2010
CEAA Approval	Nov 2012	Nov 2012	Nov 2012
EIS Approval	Apr 2011	Apr 2011	Apr 2011
McLoughlin Point Site Remediation Complete	Dec 2012	Dec 2012	Dec 2012
RFP / Tender Issue			
▶ Conveyance & Pumping Stations	May 2012	May 2012	May 2012
▶ Clover Point Conveyance & Headworks and Tunnel	Sep 2012	Sep 2011	Oct 2011
▶ SENOB Attenuation Tanks	May 2014	May 2014	May 2014
▶ McLoughlin Point Outfall	Oct 2013	May 2012	Jul 2011
▶ Biosolids/Energy/Resource Recovery Facility at Hartland	Jan 2013	Jun 2011 ¹	Jul 2011
▶ McLoughlin Plant	Aug 2012	Mar 2012	Jul 2011
Contract Award:			
▶ Conveyance & Pumping Stations	Jun 2013	Jun 2013	Jun 2013
▶ Clover Point Conveyance & Headworks and Tunnel	Mar 2013	Jun 2012	July 2012
▶ SENOB Attenuation Tanks	Sep 2014	Sep 2014	Sep 2014
▶ McLoughlin Point Outfall	Jun 2014	Dec 2012	Dec 2012(FC)
▶ Biosolids/Energy/Resource Recovery Facility at Hartland	Jul 2013	Jul 2012 (FC)	Dec 2012(FC)

¹ In the Mixed model, the schedule indicates that construction for both Energy Centre and McLoughlin WWTP commences about the same time in Jan 2013. However the procurement process of the Energy Centre would actually commence earlier (Jun 2011) than that for the McLoughlin WWTP. Stantec has planned this such that the unsuccessful DBFO contractors on the Energy Centre can participate in the DB call on the McLoughlin WWTP. Construction at McLoughlin cannot proceed until site remediation is complete

Key Milestone	Traditional	Mixed	Alternative Procurement
▶ McLoughlin Plant	Jan 2013	Jan 2013	Dec 2012(FC)
Construction Start:			
▶ McLoughlin Point Plant	Jan 2013	Jan 2013	Jan 2013
▶ Biosolids/Energy/Resource Recovery Facility at Hartland	Jul 2013	Jan 2013	Jun 2013
▶ Construction Complete:			
▶ McLoughlin Point Plant	Jun 2016	Jun 2016	Jun 2016
▶ Biosolids/Energy/Resource Recovery Facility at Hartland	Jun 2016	Jan 2016	Jun 2016
Commissioning Start	Jun 2016	Jun 2016	Jun 2016
Program Operational	Dec 2016	Dec 2016	Dec 2016

FC: Financial Close

The above dates may change pending completion of detailed implementation plan and outcomes of ongoing investigations.

3 Revised Procurement Delivery Methods

Taking account of the revisions to the Program scope and schedule, CRD, in consultation with Stantec, have reviewed and revised the procurement delivery method for the major components of Option 1A^{Prime2} as contained within each of the procurement packaging options.

The CRD maintains the same short-list of three procurement packaging plans being:

- a) **Option A: Traditional:** assumes all components of the Program are procured using the design-bid-build procurement mode, with the exception of the McLoughlin Point Outfall which would be procured as a Design Build;
- b) **Option B: Mixed:** assumes a design-build-finance-operate procurement model for the Biosolids / Energy / Resource Recovery Facility, and a combination of separate design-bid-build or design-build contracts for the other components; and
- c) **Option C: Alternative Procurement:** assumes a design-build-finance-operate procurement model for the Biosolids / Energy / Resource Recovery Facility together with the McLoughlin Plant and Outfall, and a combination of separate design-bid-build or design-build contracts for the other components.

CRD has maintained that under all three procurement packaging options, the conveyance system is to be procured using a design-bid-build (“Traditional”) procurement model and operations of these components are to remain with the CRD. The CRD considers that they have successfully delivered many such projects using the traditional approach.

The table below summarizes the current procurement delivery methods for each of the major components of the Program within each of the procurement packaging plans:

Major Program Component	Option A: Traditional	Option B: Mixed	Option C: Alternative Procurement
Saanich East attenuation tanks	DBB	DBB	DBB
Clover Point – Headworks and Conveyance including Tunnel to McLoughlin WWTP	DBB	DB ¹	DB ¹
McLoughlin Plant	DBB	DB ²	DBFO
Biosolids/Energy/Resource Recovery Facility at Hartland including conveyance from McLoughlin WWTP ³	DBB	DBFO	DBFO
Balance of Conveyance & Pumping including Currie, Craigflower and Macaulay Point Pumping Stations	DBB	DBB	DBB
McLoughlin Point Outfall	DB	DB	DBFO

DBB: design-bid-build; **DB:** design-build; **DBFO:** design-build-finance-operate

Notes:

¹ With the consolidation of the treatment to the McLoughlin site, the Clover Point works and the tunnel are in reality a part of the “conveyance” system under the revised scope of the Program developed by Stantec. This portion of the conveyance (Clover to Waste Water Treatment Plant (“WWTP”)) could consist of a combination of land, water and tunnel construction. The extent of each (land, water and tunnel) will be subject to designs prepared in a competitive market. These works require unique construction expertise and may benefit from specialized teams focusing on innovation for this component of the work. As such, rather than assume a DBB procurement as per CRD’s requirements for conveyance a DB procurement has been assumed.

² CRD anticipate that the tender process for the McLoughlin plant design build contract will involve preparation of performance specifications which will allow the design/constructor to innovate in their tender responses. Design and operations criteria which are important to the CRD will be identified in these performance criteria.

³ Sludge conveyance from WWTP to the Energy Centre in this instance has been included as a part of the DBFO as it is considered to be part of bio-solids management process. Once product leaves the WWTP, CRD considers that it is best left to the DBFO proponent to handle and manage pipeline design, size of pipe, size and number of pumping stations, adjusting alignment within the right of way and operating issues with respect to the pumping stations and pipeline.

The following considerations informed the formulation of the mixed procurement option, Option B:

- ▶ The CRD has selected the biosolids / energy centre for DBFO procurement under Option B as it is considered that this component offers the most opportunity for innovation. There are a number of technologies which could be considered for treatment of biosolids and many of these innovative technologies are proprietary. There are opportunities for beneficial reuse and sale of end products such as biogas, waste to energy fuels and soil amendment which CRD consider may be best handled by a private sector proponent. The CRD also does not currently operate biosolids treatment or resource recovery facilities as these are outside the core utility services provided by the CRD at this time.
- ▶ Under Option B, the CRD has not included the Mc Loughlin WWTP within the DBFO package, and the plant would be operated by the CRD. The CRD has core expertise in operating wastewater treatment plants and there will be no issues hiring additional staff to run the new Mc Loughlin Plant. The CRD currently operates the conveyance, pumping, storage, outfalls and screening systems which will be upstream of the Mc Loughlin plant. The operation of the plant and coordination with major pump stations and flow attenuation tanks upstream are integral to the performance of the downstream McLoughlin plant so CRD consider that it is important for them to continue on with the operation of the facilities.
- ▶ CRD selected design build as the delivery method for the Mc Loughlin WWTP site under the Mixed Option because the Mc Loughlin site is a construction driven site where having the contractor and designer working together as an integrated team will bring benefits to the overall project. Most of the innovation will be gained by overall design and construction optimization on a site with limited access and difficult construction conditions.

4 Revised Procurement Package Costs

Taking account of the revised scope, schedule and procurement delivery method / procurement packaging for the Program's main components, Stantec undertook to revise the cost estimates for each of the three procurement package plans. The cost estimates continue to be classified as a Class C Estimate (Indicative) and will be updated as due diligence continues on the major components of the Program.

4.1 Total Combined Program Costs for Each Program Component

The table below provides a break out of estimated risk adjusted capital costs for each major component of the Program under the three different procurement package options. As with the business case, costs differ for each component under each option due to assumptions regarding efficiencies during construction under each option. No revisions were made to the assumptions underlying the efficiencies adopted under each option. Appendix 1 to this report contains a more detailed breakout of the capital costs for each major component of the Program by procurement package and procurement delivery method.

	Option A: Traditional	Option B: Mixed	Option C: Alternative Procurement
Development Costs	(Nominal)	(Nominal)	(Nominal)
<i>(all figures in \$ thousands unless stated otherwise)</i>			
Conveyance and Pumping	60,109	60,109	54,531
Saanich East attenuation tanks	14,455	14,455	14,455
McLoughlin Point WWTP	283,224	267,402	560,554
Clover Point Headworks and Conveyance	68,048	57,386	57,386
Energy Ctr / Biosolids / Resource Recovery	281,006	262,847	-
McLoughlin Point Outfall	30,434	28,327	-
Land Purchase	13,000	13,000	13,000
Development Cost Sub-Total	750,277	703,525	699,926
Approvals and Construction Period Risk	65,800	54,879	49,387
Non-Recoverable HST	14,281	13,272	13,113
Total	830,359	771,677	762,425
<i>Difference (from Traditional)</i>	-%	(7.07%)	(8.18%)

The cost estimates above include an estimate for the non-recoverable portion of the Harmonized Sales Tax ("HST") that the CRD may be subject to under the various procurement package options. The estimates are in nominal dollars and include an allowance for inflation during the build out period to 2016. The nominal development costs for Option B are 7.1% less than Option A. There is a 1.2% difference between the nominal development costs for Options B & C.

4.2 Annual Operating Costs

The table below provides a summary of the estimated annual operating costs that will be incurred by the CRD under each revised procurement package. As with the business case submission, components in Option C that are procured using a DBFO approach have been consolidated into a single amount paid to the proponent.

Appendix 2 to this report contains a more detailed breakout of the estimated annual operating costs for each major component of the Program by procurement package and procurement delivery method.

Annual Operating Costs	Option A: Traditional	Option B: Hybrid	Option C: Alternative Procurement
<i>31 December 2009 base dollars</i>	(Real)	(Real)	(Real)
Conveyance and Pumping	881	881	881
Saanich East	341	341	341
McLoughlin Point WWTP	6,814	6,814	11,867
Clover Point Headworks and Conveyance	942	942	942
Energy Ctr / Biosolids / Resource Recovery	5,482	5,192	-
Resource Recovery (Biogas, Heat, Water, Struvite, Disposal)	-	-	-
McLoughlin Point Outfall	111	111	-
Revenue Offset	(1,012)	(1,012)	(1,012)
Operations Insurance	600	600	600
SPV Costs	-	1,000	1,000
Operating Cost Sub-Total	14,159	14,869	14,619
Operating Period Risk (Retained)	692	496	295
Non-Recoverable HST	224	221	217
Total	14,439	15,365	14,914
Difference (from Traditional)	-%	3.46%	0.42%

4.3 Major Capital Repairs and Replacement

The analysis maintains the assumption that a basic reserve for major capital repairs and replace of 1.10% of capital costs is used under each option.

4.4 Annual Cash Requirements during Construction Phase for Each Option

Appendix 3 of this report includes a detailed break-out of the estimated annual cash flow requirements assumed for this analysis on a semi-annual basis through the construction phase of the Program.

5 Refreshed Financing Analysis

A review of the financial analysis and financing assumptions was undertaken following the submission of the business case and the following tables summarize the assumptions utilized for the revised financial analysis in this revision to the business case.

Key Financial Analysis Factors	Assumption
Construction Phase Inflation	Current capital cost plan assumes basic 10% inflation allowance (which approximates to 2% per annum without compounding).
Operations & Maintenance Inflation	Current Assumption is 2.0% consistent with Stantec advice. (It is noted that PBC standard assumption is 2.5% p.a.)
Major Capital Repair & Replacement Inflation	Current Assumption is 2.0% consistent with Stantec advice. (It is noted that PBC standard assumption is 2.5% p.a.)
HST	<p>CRD is entitled to a 100% rebate of the 5% federal portion of the BC HST, but only a 75% rebate of the 7% provincial portion of the BC HST. Therefore, the CRD is unable to recover 25% of 7% (or 1.75%) of the total of its GST/HST taxable costs relating to this project. This will be the case regardless of the procurement option chosen for the project.</p> <p>Certain costs will not be subject to the HST, such as financing costs incurred directly by the CRD and labour costs incurred directly by the CRD.</p> <p>Non-recoverable HST of 1.75% is therefore assumed on all capital costs and non-labor based operating costs paid for directly by CRD.</p> <p>Under the DBFO scenarios, non-recoverable HST on the capital value of the DBFO asset has been assumed payable at the time of completion. Non-recoverable HST has been assumed payable on the full operating component of the service payments.</p>
PMO and honorarium costs	Stantec advised that the current cost plan includes full costs of managing the procurement process in each option, including the Project Management Office ("PMO") and honorarium costs. Option C: Alternative Procurement and Option B: Mixed contemplate three short-listed proponents with an honorarium paid to the two unsuccessful bidders.
Land acquisition costs	Budget includes \$13-million for acquisition of land, assumed to be paid by the CRD.
CRD funding assumptions	CRD will continue to use Municipal Financing Authority ("MFA") financings for its one-third contribution toward eligible costs plus all ineligible costs. Appendix 4 contains a summary of how funding from each level of government is allocated to the components of the Program by procurement delivery method.
Federal Funding Contributions	The amended analysis continues to assume the Government of Canada contributes one-third of eligible costs during the construction phase of the Program. Appendix 4 contains a summary of how funding from each level of government is allocated to the components of the Program by procurement delivery method.
Provincial Funding	The amended analysis continues to assume the Province takes responsibility for one-third of eligible costs. Provincial funding is assumed to be contributed evenly across all components of the Program (similar to the March 2010 business case). Specifically, the business case does not assume the Provincial portion of funding will be allocated toward the DBFO

Key Financial Analysis Factors	Assumption
	<p>components in a greater share than other allocations.</p> <p>For approaches to procurement which include a private sector funding component, it is assumed that the Province takes responsibility for the long-term ongoing payment of such private funding amortization. The Province shall also fund costs associated with such funding (commitment fees, arrangement fees, interest costs) included in the bid.</p> <p>The business case assumes PMO and honorarium costs are shared between CRD, Federal and Province, and Special Purpose Vehicle (“SPV”) costs are allocated to Province through the capital component of the Service Payments.</p> <p>Appendix 4 contains a summary of how funding from each level of government is allocated to the components of the Program by procurement delivery method.</p>
Timing of funding for planning and design phase	<p>The business case assumes that funding is contributed by the CRD, Province and Federal governments during the procurement planning/design phase for each DBFO component. Private finance is only sourced in relation to the Province’s share of costs following the start of construction.</p>
Bond vs Bank Financing	<p>The private financing assumptions in the business case have been updated with both bond financing and bank financing options. Bank financing has been incorporated as the basis of the analysis presented in this addendum.</p>
Terminal Value of Facilities	<p>The business case assumes all facilities are generally returned to the CRD in a comparable state of operational performance and will each require a comparable level of rehabilitation at the end of the operating period used in the analysis.</p> <p>Thus, no adjustments for major rehabilitation are assumed across options at the end of the analysis.</p>
Analysis Period	<p>Construction is complete and facilities are operational by June 31, 2016.</p> <p>Operating period in analysis: 25 years commencing June 1, 2016. For comparison purposes, all operating costs are modeled commencing 1 July 2016 (including for assets completed in advance of this date).</p>
Efficiencies	<p>The construction cost estimate provided by Stantec includes the same general approach to efficiency analysis as was included in the March 2010 business case submission. These efficiencies have not been reviewed or revisited.</p>
Major Repair and Rehabilitation	<p>R&R Costs have been assumed to be 1.1% of capital cost per annum for all assets, with the exception of Conveyance, piping, outfall and tunnel which are 0.7% per annum.</p> <p>Stantec have confirmed that these allowances have been included in the operating cost estimates provided.</p>
Lifecycle Costs	<p>Replacement of the membrane bioreactor filters have been removed from analysis as these are no longer relevant to the technical solution.</p>
Resource Recovery	<p>Stantec have identified potential revenue offset of \$1,012,450 pending further confirmation of the markets.</p> <p>Stantec have confirmed that this revenue should be consistent under each procurement model.</p> <p>Stantec have confirmed that all costs associated with resource recovery are included in the capital cost plan and operating cost plan.</p>

Key Financing Assumptions	Assumption in March 2010 Business Case	New Assumption
Municipal Financing Authority Interest Rate	5.19%	4.94% 25 year indicative marker rate (http://www.mfa.bc.ca/marketrates.htm) (Aug 13, 2010)
Bond Finance Assumptions		
Base rate	410 bps	Underlying GOC yields: 15 year to 2023: 3.25% 30 year to 2037: 3.60% Interpolating to 2030 (20 years out): 3.43%
Bond Margin over long-term GOC Bonds	300 bps	300 bps
Tail (end of debt term to end of contract term)	1 year	1 year
Arrangement fees	300 bps	300 bps
Gearing ratio	88%	85% (based on PBC market sounding)
Minimum Debt Service Cover Ratio	1.20x	1.25x
Financial Close Date	Start of Program.	31 December 2012, immediately prior to start of construction.
Bank Finance Assumptions		
Base rate	n/a	Underlying CDOR swap rate: 20 yr swap 3.923% (Aug 13, 2010)
Credit Spread over CDOR Swap	n/a	265 bps
Tail	n/a	1.5 years
Arrangement fee	n/a	225 bps
Commitment fees	n/a	100 bps
Gearing ratio	n/a	85% (based on PBC market sounding)
Minimum DSCR	n/a	1.25
Financial Close Date	n/a	31 December 2012, immediately prior to start of construction.
Equity Bridge		
Base rate	2.25%	Underlying CDOR swap rate: 3 yr swap 1.797% (Aug 13, 2010)
Credit Spread over CDOR Swap	200bps	200 bps
Arrangement fees	300bps	225 bps
Commitment fees	100bps	100 bps

Key Financing Assumptions	Assumption in March 2010 Business Case	New Assumption
Other Financing Assumptions		
Equity return (post tax)	12%	12%
Split of Equity Contribution into Sub-Debt / Equity	66.7% / 33.3%	66.7% / 33.3%
DBFO development costs (Project Company costs)	Mixed Procurement Option: \$4.5-million	Mixed Procurement Option: \$4.5-million
	Alternative Procurement Option: \$6.5 million	Alternative Procurement Option: \$6.5 million
DBFO due diligence costs (Project Company costs)	\$3.5 million	\$3.5 million
DBFO Ongoing Special Purpose Vehicle administration costs (amount paid by project co to fund ongoing administration and office overhead).	\$1.0 million	\$1.0 million
Base Case Discount Rate	7.5%	7.5%
Combined Federal/Provincial Tax Rate on profits of P3	25%	25%

6 Revised Risk Assessment

In response to the variance report produced by PBC, a supplementary risk workshop was conducted on 26 July 2010. At this risk workshop a selection of the key project risks identified by Partnerships BC were discussed and the quantification reconsidered. The following participants attended the workshop:

CRD	PBC	Stantec (Technical advisor to CRD)	E&Y (Financial Advisor to CRD)	Victoria Consulting (Advisor to CRD)	KPMG (Commercial advisor to PBC)
<ul style="list-style-type: none"> • Jack Hull • Tony Brcic 	<ul style="list-style-type: none"> • Sue-Anne Fimrite • Nathan Soloman • Ron Burleson • Rick Steele 	<ul style="list-style-type: none"> • Dave Walker • Steve Fleck • Bob Dawson 	<ul style="list-style-type: none"> • Gary Morrison • Gordon Dunfield-Prayero 	<ul style="list-style-type: none"> • Peter Adams 	<ul style="list-style-type: none"> • Gary Webster

A summary of the conclusions from the risk workshop are included at the risk register extracts included at Appendix 5.

6.1 Outcomes from the Revised Risk Quantification

The revisions from the risk workshop were consolidated and used to update the previous risk analysis. E&Y again utilized a Monte Carlo based modeling approach to estimate the expected impact of each of the risks. The estimated expected value output from the Monte Carlo analysis is presented below:

Type of Risk Relationship <i>(all figures in \$ thousands unless stated otherwise)</i>	Min	Expected Value	Max	5 th percentile	95 th percentile
Traditional-Transferred	-	-	-	-	-
Traditional-Retained	35,785	83,109	141,806	60,429	106,017
Traditional-Total Risk	35,785	83,109	141,806		
Mixed-Transferred	1,245	16,469	36,179	8,188	25,789
Mixed-Retained	17,134	55,096	99,805	36,579	74,665
Mixed-Total Risk	18,378	71,565	135,984		
Alt. Procurement-Transferred	9,324	30,664	60,226	19,281	42,593
Alt. Procurement-Retained	-3,108	33,630	68,958	14,808	51,602
Alt. Procurement-Total Risk	6,216	64,294	129,184		

The term "Transferred" in this context is used to identify the value of risks which are transferred to the private sector partner under a DBFO procurement model. The term "Retained" relates to the value of risks not transferred under a DBFO. Consequently, for each component procured under a DB or DBB contract, the value of all risks is captured within the "Retained" category. It is acknowledged that under DB and DBB contracts, there will be risk transfer to the contracting partners. For the purposes of the cashflow analysis carried out for this addendum, it is necessary to separately identify the expected value of risks transferred to the DBFO project company for the purposes of projecting the project company cashflows. This is consistent with the approach adopted in the March Business Case.

The Expected Value for each of the procurement options was taken for incorporation into the capital cost estimates. The following is a summary of how the estimated expected values of the risks were incorporated into the project cashflow timing:

Period	Traditional			Mixed			Alt. Procurement		
	Transferred	Retained	Total	Transferred	Retained	Total	Transferred	Retained	Total
Planning	-	13,132	13,132	241	12,885	13,126	517	13,194	13,711
Construction	-	52,669	52,669	11,953	29,801	41,753	22,624	13,052	35,676
Operating	-	17,308	17,308	4,275	12,411	16,686	7,523	7,384	14,908
Total	-	83,109	83,109	16,469	55,096	71,565	30,664	33,630	64,294

On review of the revised risk quantification Stantec determined that the general contingency of 15% should be retained in the construction cost estimates in addition to the risk estimates quantified above. The rationale for this decision was that the Project is at feasibility phase and a combined contingency/risk value of the order of 20% to 25% would be reasonable and consistent with acceptable industry practice at this early stage of project development.

7 Value for Money Assessment

Consistent with the business case and the Province's best practice in evaluating funding proposals for projects of this nature, the Value for Money ("VfM") analysis was revised to reflect the amended project scope, schedule and costing assumptions.

The following table summarizes the revised VfM estimate for each procurement package option. The estimate is based upon the revised Program scope and procurement delivery methods, capital costs, operating costs and financing assumptions along with the major repair / maintenance assumptions described in earlier sections of this report. These estimates also include efficiencies achieved during construction and operations for some options.

All net present costs ("NPC") are discounted at 7.5% to 31 December 2009.

Value for Money Summary <i>(all figures in \$ thousands unless stated otherwise)</i>	Option A: Traditional <i>(NPC)</i>	Option B: Mixed <i>(NPC)</i>	Option C: Alternative Procurement <i>(NPC)</i>
Construction costs for DB & DBB components of Program	511,817	354,567	204,954
Federal & CRD advances to DBFO components (during construction)	n/a	65,220	135,944
Land purchases	12,192	12,192	12,192
Milestone Payments (Provincial funding of DBFO pre-financial close)	n/a	5,926	11,810
Provincial ASP principal & interest payments on capital costs	n/a	83,762	161,526
Retained Approvals and Construction Period Risk	33,183	22,349	14,678
TOTAL NPC Capital portion of costs	557,192	544,015	541,104
Operations and Maintenance Costs			
CRD O&M net of resource recovery	132,330	78,824	11,238
CRD ASP components for operations and maintenance	n/a	55,069	124,704
Retained Operating Period Risk	6,757	4,845	2,883
Other Retained Costs	5,856	3,172	-
Non-recoverable HST ¹	1,779	1,699	1,609
Total Operations & maintenance costs	146,722	143,608	140,434
Total Competitive Neutrality ²	2,100	1,123	-
TOTAL NET PRESENT COST	706,013	688,745	681,538

¹ Following instruction from CRD, an allowance for non-recoverable HST has been included in the analysis. This was not included in the analysis presented in the March Business Case. Note that the non-recoverable HST has not been separated stated for capital costs in the above analysis, as it is included within the relevant cost lines.

² The competitive Neutrality adjustment removes the net competitive advantages that accrue to Government by virtue of the public sector ownership. This allows a like-with-like value for money assessment between the publicly funded options and privately financed DBFO components, by removing the effects of public ownership and including equivalent costs that would otherwise be incurred by the private sector (i.e. corporate taxes which flow back to government).

The NPC of the Option B: Mixed presents a potential saving of 2.4% compared with the Option A: Traditional, and Option C: Alternative Procurement presents a potential saving of 3.5% compared with the Option A: Traditional. The NPC of Option C: Alternative Procurement presents a potential saving of 1.0% compared with Option B: Mixed.

The following table illustrates the proportion of the NPC of the Project that each level of government would be attributed assuming the government funding contribution principles defined in the business case are applied.

Value for Money Summary <i>(all figures in \$ thousands unless stated otherwise)</i>	Option A: Traditional <i>(NPC)</i>	Option B: Mixed <i>(NPC)</i>	Option C: Alternative Procurement <i>(NPC)</i>
CRD Contributions			
ASP Operating Payments (DBFO)	-	55,069	124,704
Retained Operating Period Costs (Net of Resource Recovery Revenue)	144,943	86,841	14,121
Debt Service on CRD MFA Loan	166,790	156,701	152,893
Non-Recoverable HST (on operating costs) ¹	1,779	1,699	1,609
Total NPC of CRD Contributions	313,512	300,309	293,327
Province Contributions			
Construction Payments - Eligible Costs	175,252	103,030	31,448
Retained Approvals and Construction Period Risk	16,591	11,174	7,339
Milestone Payments (DBFO pre-financial close)	-	5,926	11,810
ASP Capital Payments (DBFO)	-	83,762	161,526
Non-Recoverable HST (on development phase payments) ²	3,357	1,999	679
Total NPC of Province Contributions	195,201	205,891	212,802
Federal Contributions			
Construction Payments - Eligible Costs	175,252	103,030	31,448
Retained Approvals and Construction Period Risk	16,591	11,174	7,339
Milestone Payments (DBFO)	-	65,220	135,944
Non-Recoverable HST (on development phase payments) ²	3,357	1,999	679
Total NPC of Federal Contributions	195,201	181,423	175,410
Total NPC of all Contributions	703,914	687,623	681,538
Total Competitive Neutrality	2,100	1,123	-
Total NPC (incl. Competitive neutrality)	706,013	688,745	681,538

¹ Non-recoverable HST on the CRD funded DB or DBB capital costs and the taxable supply upon completion of the DBFO components have been assumed financed by the MFA loan. These are therefore accounted for in the NPC of the debt service of the MFA loan.

² Non-recoverable HST has been separately presented for the Provincial and Federal contributions to the development phase costs. It has been assumed that the CRD will pay for the Non-Recoverable HST upon receipt of the taxable supply at completion of the DBFO components. This amount has however been assumed to be an eligible cost and has been taken into consideration in determining the overall contributions from each source funding.

The above analysis shows that Option C has the lowest overall NPC, but is the highest cost option from the perspective of the Province. This is because the costs of private finance for each component is being allocated to the Province through the DBFO annual service payments. The federal government and the CRD receive the benefits of the DBFO efficiencies and risk transfer arrangements without bearing the costs associated with the private finance.

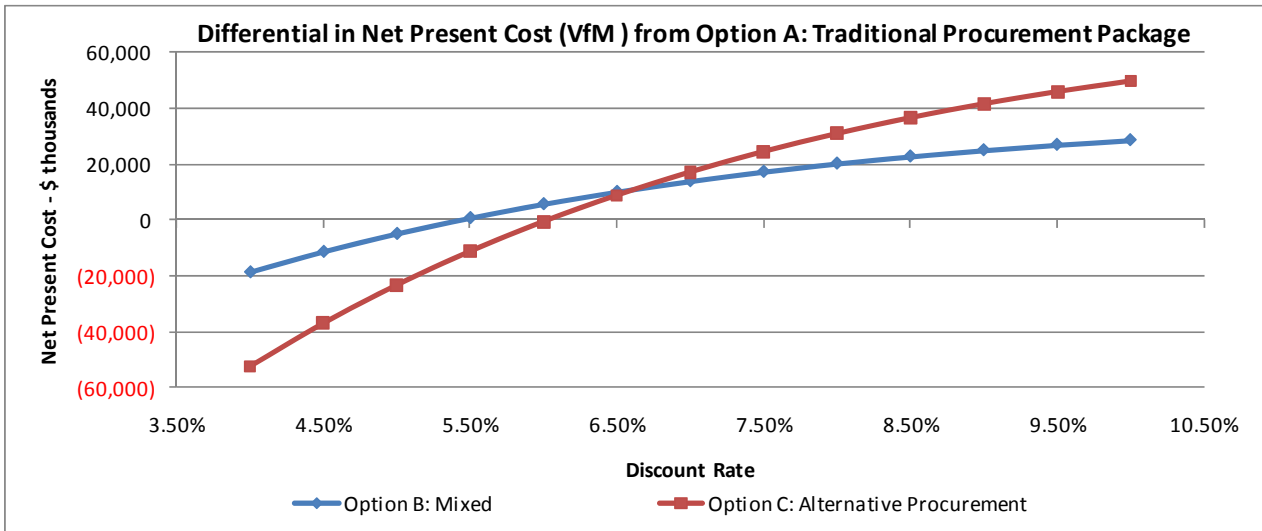
7.1 Sensitivity to Discount Rate

The primary discount rate used in the revised analysis continues to be 7.50% as directed by PBC. This rate has been retained to meet Provincial expectations as an estimate of the average long term project internal rate of return ("Project IRR") for a public sector wastewater capital project procurement similar to this Program.

The table below summarizes the net present cost of the Project over a range of discount rates. This table demonstrates the sensitivity of the discount rate.

Discount Rate	Option A: Traditional	Option B: Mixed	Option C: Alternative Procurement
4.000%	987,941	1,006,466	1,040,393
4.500%	937,101	948,346	974,082
5.000%	890,424	895,261	913,734
5.500%	847,479	846,678	858,711
6.000%	807,883	802,127	808,448
6.500%	771,300	761,192	762,450
7.000%	737,431	723,506	720,276
7.500%	706,013	688,745	681,538
8.000%	676,812	656,621	645,894
8.500%	649,619	626,879	613,038
9.000%	624,249	599,291	582,699
9.500%	600,536	573,656	554,636
10.000%	578,333	549,793	528,636

The chart below illustrates how the discount rate impacts the VfM proposition (e.g. difference in Net Present Cost of the Traditional option versus the Net Present Cost of an alternative form of procurement) relative to the overall VfM of the Traditional procurement package option (typically the Benchmark in a VfM analysis).



Option B and Option C have approximately equivalent NPCs when a discount rate of 6.6% is assumed. Using a discount rate lower than 6.6%, Option B presents greater potential value for money compared with Option C, while at rates above 6.6%, Option C presents the greater potential value for money.

8 Appendices

Appendix 1: Estimated Total Combined Program Costs for Each Program Component

Estimated Development Costs <i>(all figures in \$ thousands unless stated otherwise)</i>	Option A: Traditional		Option B: Mixed		Option C: Alternative Procurement	
	Traditional <i>(Nominal)</i>	Traditional <i>(Nominal)</i>	DB <i>(Nominal)</i>	DBFO <i>(Nominal)</i>	Traditional <i>(Nominal)</i>	DBFO <i>(Nominal)</i>
Conveyance and Pumping	60,109	60,109	-	-	54,531	-
Saanich East	14,455	14,455	-	-	14,455	-
McLoughlin Point WWTP	283,224	-	267,402	-	-	560,554
Clover Point Headworks and Conveyance	68,048	-	57,386	-	57,386	-
Energy Ctr / Biosolids / Resource Recovery	281,006	-	-	262,847	-	Incl in "MP"
McLoughlin Point Outfall	30,434	28,327	-	-	-	Incl in "MP"
Land Purchase	13,000	13,000	-	-	13,000	-
Development Cost Sub-Total	750,277	115,891	324,788	262,847	139,372	560,554
Approvals and Construction Period Risk	65,800		54,879		49,387	
Non-Recoverable HST	14,281		13,272		13,113	
Total	830,359		771,677		762,425	
<i>Difference (from Traditional)</i>		-%		(7.07%)		(8.18%)

Incl in "MP": Included in McLoughlin Point WWTP

Appendix 2: Estimated Annual Operating Costs

Estimated Annual Operating Costs <i>(all figures in \$ thousands unless stated otherwise)</i>	Option A: Traditional		Option B: Mixed			Option C: Alternative Procurement	
	Traditional <i>(Real)</i>	Traditional <i>(Real)</i>	DB <i>(Real)</i>	DBFO <i>(Real)</i>	Traditional <i>(Real)</i>	DBFO <i>(Real)</i>	
Conveyance and Pumping	881	881	-	-	881	-	
Saanich East	341	341	-	-	341	-	
McLoughlin Point WWTP	6,814	6,814	-	-	-	11,867	
Clover Point Headworks and Conveyance	942	942	-	-	942	-	
Energy Ctr / Biosolids / Resource Recovery	5,482	-	-	5,192	-	Incl in "MP"	
Resource Recovery (Biogas, Heat, Water, Struvite, Disposal)	-	-	-	-	-	Incl in "MP"	
McLoughlin Point Outfall	111	111	-	-	-	Incl in "MP"	
Revenue Offset	(1,012)	(1,012)	-	-	(1,012)	-	
Operations Insurance	600	325	-	275	-	600	
SPV Costs	-	-	-	1,000	-	1,000	
Operating Cost Sub-Total	14,159	8,401	-	6,467	1,151	13,467	
Operating Period Risk (Retained)	692		496		295		
Non-Recoverable HST	224		221		217		
Total	14,851		15,365		14,914		
<i>Difference (from Traditional)</i>		-%		3.46%		0.42%	

Incl in "MP": Included in McLoughlin Point WWTP

Appendix 3: Estimated Annual Cash Requirements during Construction Phase for each Option

	Total PV	Total Nominal	31-Dec-09	30-Jun-10	31-Dec-10	30-Jun-11	31-Dec-11	30-Jun-12	31-Dec-12	30-Jun-13	31-Dec-13	30-Jun-14	31-Dec-14	30-Jun-15	31-Dec-15	30-Jun-16
Traditional																
Conveyance, Pumping, Storage West Shore	46,135	60,109	-	-	951	1,902	1,902	1,902	1,937	14,062	29,611	7,842	-	-	-	-
Saanich East	9,872	14,455	-	-	-	-	350	700	398	96	96	96	1,440	6,294	4,427	560
McLoughlin Point	201,968	283,224	-	-	3,707	7,413	7,413	7,413	4,442	14,635	25,079	43,878	62,676	62,676	29,256	14,635
Clover Point	50,189	68,048	-	-	-	1,196	2,392	2,392	1,448	4,309	13,862	25,426	14,616	2,406	-	-
Energy Ctr / Biosolids	196,024	281,006	-	-	-	3,746	7,491	7,491	7,491	4,544	15,455	23,745	62,088	94,213	39,289	15,455
Outfalls & Tunnels	21,569	30,434	-	-	-	-	1,394	1,522	257	257	257	257	20,772	5,718	-	-
Resource Recovery (Biogas, Heat, Water, Struvite, Disposal)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Land Purchase	12,192	13,000	7,000	-	-	-	6,000	-	-	-	-	-	-	-	-	-
Retained Approvals and Construction Period Risk	49,774	65,800	-	-	13,465	1,018	1,496	1,530	1,141	2,708	6,026	7,233	11,544	12,238	5,213	2,190
Non-recoverable HST	10,285	14,281	123	-	317	267	498	402	299	711	1,582	1,898	3,030	3,212	1,368	575
Total	598,008	830,359	7,123	-	18,439	15,542	28,936	23,352	17,413	41,321	91,968	110,375	176,165	186,757	79,554	33,414
Hybrid																
Conveyance, Pumping, Storage West Shore	46,135	60,109	-	-	951	1,902	1,902	1,902	1,937	14,062	29,611	7,842	-	-	-	-
Saanich East	9,793	14,455	-	-	-	683	683	78	78	78	78	78	430	3,343	7,077	1,849
McLoughlin Point	188,329	267,402	-	-	-	2,014	4,028	4,028	4,028	16,544	26,826	45,333	61,200	61,200	28,298	13,903
Clover Point	42,850	57,386	-	-	-	1,199	1,199	1,199	2,356	7,085	18,613	18,613	7,121	-	-	-
Energy Ctr / Biosolids	188,837	262,847	-	-	2,196	4,393	4,393	4,393	4,393	17,406	23,903	59,462	90,528	37,414	14,365	-
Outfalls & Tunnels	21,983	28,327	-	-	-	-	-	2,237	436	20,121	5,532	-	-	-	-	-
Resource Recovery (Biogas, Heat, Water, Struvite, Disposal)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Land Purchase	12,192	13,000	7,000	-	-	-	6,000	-	-	-	-	-	-	-	-	-
Retained Approvals and Construction Period Risk	33,523	42,686	-	-	12,951	404	544	658	616	4,034	5,620	5,008	4,791	4,497	2,465	1,098
Transferred Approvals and Construction Period Risk	8,760	12,194	-	-	102	204	204	204	204	808	1,109	2,759	4,200	1,736	666	-
Non-recoverable HST	9,667	13,272	123	-	284	189	332	257	246	1,402	1,948	2,434	2,945	1,893	925	295
Total	562,071	771,677	7,123	-	16,484	10,987	19,284	14,956	14,294	81,540	113,240	141,529	171,214	110,084	53,797	17,145
PPP																
PPP (East Saanich, McLoughlin Point, Clover Point, Energy Ctr / Biosolids, Resource Recovery)	397,021	560,554	-	-	4,399	8,798	8,798	8,798	8,798	29,852	74,311	77,825	123,955	123,955	63,583	27,484
Saanich East	9,719	14,455	-	-	-	-	347	695	393	90	90	90	442	3,355	7,090	1,861
Conveyance, Pumping, Storage West Shore	41,854	54,531	-	-	863	1,725	1,725	1,725	1,757	12,757	26,863	7,115	-	-	-	-
Outfalls & Tunnels	42,771	57,386	-	-	-	1,176	1,176	1,176	2,262	6,919	18,447	18,447	6,513	1,268	-	-
Land Purchase	12,192	13,000	7,000	-	-	-	6,000	-	-	-	-	-	-	-	-	-
Retained Approvals and Construction Period Risk	22,017	26,246	-	-	13,283	300	336	371	456	2,042	4,689	2,649	718	477	732	192
Transferred Approvals and Construction Period Risk	16,390	23,141	-	-	182	363	363	363	363	1,232	3,068	3,213	5,117	5,117	2,625	1,135
Non-recoverable HST	9,484	13,113	123	-	328	216	328	230	245	926	2,231	1,913	2,393	2,348	1,296	537
Total	551,448	762,425	7,123	-	19,054	12,579	19,074	13,359	14,274	53,818	129,699	111,253	139,139	136,520	75,325	31,209

Appendix 4: Estimated Government Funding Sources and Allocation

This table illustrates how funding from each level of government is allocated to the components of the Program by procurement package option. CRD and Federal government contributions toward privately financed / DBFO component projects are advanced during construction only and are applied as a source of funding during construction for those projects. Only the Province's one-third share of contributions toward a privately financed / DBFO project is assumed to be funding that will be applied against repayment requirements for private sector debt.

Funding Sources	<u>Option A: Traditional</u> <i>(Nominal)</i>	<u>Option B: Mixed</u> <i>(Nominal)</i>	<u>Option C: Alternative Procurement</u> <i>(Nominal)</i>
<u>DBB Components</u>			
CRD Funding	285,453	65,950	68,244
Provincial Funding	272,453	52,950	55,244
Federal Funding	272,453	52,950	55,244
<u>DB Components</u>			
CRD Funding	-	108,263	-
Provincial Funding	-	108,263	-
Federal Funding	-	108,263	-
<u>PPP Components</u>			
CRD Funding	-	91,680	194,565
Provincial Funding	-	91,680	194,565
Federal Funding	-	91,680	194,565
<u>Totals</u>			
CRD Funding	285,453	265,892	262,808
Provincial / PPP Funding	272,453	252,892	249,808
Federal Funding	272,453	252,892	249,808
Total	830,359	771,677	762,425

Note: HST on capital component of PPP included in DBB Funding

The CRD proportion of funding is marginally higher than the Province and Federal government proportions due to the fact that the CRD is responsible for 100% of the cost of land and interim financing (plus other "ineligible costs" that are incurred during implementation)

Appendix 5: Revised Risk Quantification

See separate enclosure (Confidential - not for public disclosure)

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