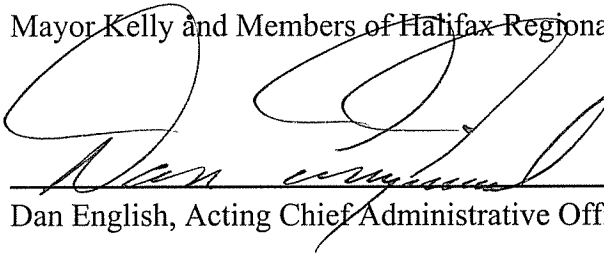


Committee of the Whole
October 22, 2002

TO: Mayor Kelly and Members of Halifax Regional Council

SUBMITTED BY:


Dan English, Acting Chief Administrative Officer

DATE: October 16, 2002

SUBJECT: Halifax Harbour Solutions Project - Financing Options

ORIGIN

Motion of Halifax Regional Council on 1 October, 2002, to authorize the Mayor to proceed with the signing of the agreements with the Halifax Regional Environmental Partnership and that staff appear before the Committee of the Whole to discuss funding options.

RECOMMENDATION

1. The condition precedent related to funding from the other levels of government, as currently stipulated in the Harbour Solutions Development Agreement, be lifted unconditionally and HRM proceed with the Project in its entirety;
2. Staff be instructed to amend the current Canada/Nova Scotia Infrastructure List to reflect the remaining level of funding sought for the Harbour Solutions Project of \$ 56 M, and the program be brought back to Regional Council as part of the 2003/2004 business planning process;
3. Council approve an adjustment of the Pollution Control Charge of an amount not to exceed 29 cents per cubic meter, to be phased in over a period of five years, as a means to finance the complete Harbour Solutions Project;
4. Council approve the Harbour Solution Project cost elements as outlined in the body of this report; and
5. Staff be instructed to continue to investigate other federal/provincial funding opportunities and report back to Regional Council once per quarter on these and other revenue sources which might be considered or available to offset the HRM portion of the HSP.

BACKGROUND

On 11 May 1999, Halifax Regional Council approved a \$ 0.40 per cubic meter increase in the pollution control charge, to be phased in over a four year period, as a means to generate money to seed HRM's share of the cost of the project. It was anticipated that HRM would be responsible for 2/3 of the costs. This has contributed to a current balance in the reserve of approximately \$ 67 million dollars available for the Harbour Solutions Project. The current pollution control charge is \$ 0.7828 per cubic meter.

More recently the provincial government announced a funding contribution of 30 million dollars to be spread over 15 years. In addition, the Province intends to donate a portion of the lands required for the construction of and access to the Dartmouth treatment plant site. When discounted at 7%, the present value of Nova Scotia's contribution is \$19 million dollars. The Federal Government also announced a contribution from the Canadian Strategic Infrastructure Fund of \$30 million dollars. Assuming the Federal funding is received in the near term, the present value of the cash contributions from the Federal and Provincial governments is \$49 million dollars, which is \$56 million dollars short of the \$105 million which was sought from other levels of government.

On 25 September 2002, Regional Council re-affirmed its commitment to the project and on 1 October 2002, Regional Council authorized the Mayor to proceed with signing the Project Agreements. The Agreements were signed on October 9, 2002, but they are not effective until two conditions precedent are met or waived (CEAA approval and advice on funding from other levels of government).

DISCUSSION

The purpose of this report is to provide Council with details of the factors influencing the funding of the project.

Harbour Solutions Capital Cost Summary

<i>Component</i>	<i>Cost</i>	<i>Comments</i>
<i>HALIFAX SYSTEM</i>	\$ 131.2 M	Includes estimates for interim financing, net HST and inflation, for the road, collection system and plant.
<i>DARTMOUTH SYSTEM</i>	\$104.9 M	Includes estimates for interim financing, net HST and inflation, for the road, collection system and plant.
<i>HERRING COVE SYSTEM</i>	\$ 62.4 M	Includes estimates for interim financing, net HST and inflation, for the road, collection system and plant.
<i>COMMUNITY INTEGRATION</i>	\$ 7 M	Halifax \$ 1 M Dartmouth \$ 1 M Herring Cove \$ 5 M
<i>NEGOTIATION</i>	\$.5 M	Remaining Costs until Effective Date
<i>CONTRACT SUPPORT</i>	\$ 2.1 M	Owner's Engineer, legal opinions, studies and other contract support required during the 54 month construction.
<i>COSTS TO DATE</i>	\$ 6.5 M	Projects costs incurred since 1998
<i>TOTAL CAPITAL COSTS</i>	\$ 314.6 M	

Over and above these capital costs, the Environmental Reserve Q105 will also be used to fund the land assembly for the treatment plant sites (\$5.4 M gross, \$3.2 M net), the Harbour Solutions Project Office Costs during the construction phase (\$2.1 M), and provide an allowance for HRM's project risk during construction (approx. \$10 M). Although HREP bears significant responsibility for risk throughout the life of the project, HRM is responsible for project risks (construction period and operating period) in the following areas:

- Imposed mitigative measures under CEAA (Canadian Environmental Assessment Agency);
- Changes in insurance requirements and /or costs from events of 11 September 01;

- Costs of additional insurance requested by HRM;
- Hazardous substances on 'HRM Sites' (treatment plant sites);
- Project risk events as stipulated in the development agreement and the operating and maintenance agreements, including archaeological finds;
- Certain changes in law; and
- Changes to project requirements requested by HRM.

Provincial / Federal Shortfall

The current shortfall from the amounts requested from other levels of government is \$56 million dollars. In order to build, operate and finance the complete project, in the absence of additional funding, HRM will have to fund \$266 million (210 million + 56 million) or 84 %. This compares to early estimates of 67 % for HRM's share of the project costs.

Deduction

With Council's commitment to proceed with the project, Council will have to consider options available to fund the balance of the shortfall, as well as provide sufficient cash flow for the additional allowances required.

Pollution Control Charge (PCC)

When Council originally approved the initial adjustment to the Pollution Control Charge in 1999, it was understood that future increases would likely be required. In a Staff Report dated 30 March 1999, entitled "Harbour Solutions Project, Next Steps", it was noted that,

"fairly rapid increase in the pollution control rate during the first five years starting in 1999-2000 provides the funds to move forward on a phased project. Without this the Harbour Solutions Project cannot be undertaken. Water rate increases would be in the order of \$ 105 - \$ 110 per year at the end of the five year period with very moderate increases after that date."

Earlier versions of the financial model, for example, forecast that further increases could be required once full debt service and full operation of the systems came on line. In the report staff recommended, as one of the options, a phased increase to the pollution control charge of \$ 0.60 per cubic meter for a total of \$0.98 per cubic meter. Council eventually approved an initial \$ 0.40 per cubic meter increase to the then current rate of \$0.38 per cubic meter resulting in the current rate of \$ 0.78 per cubic meter.

Deduction

The current shortfall of funding from the other levels of government notwithstanding, a future increase to the PCC was likely inevitable. However, had the full \$105 million been contributed from the other levels of government an adjustment could have been postponed until a future year, likely 2007/2008, and would be in the range of \$ 0.09 per cubic meter.

Other Source of Funds

In preparing this report, staff considered other additional means to help fund the project.

Green Enabling Fund

Staff have made a loan request under the *FCM Green Municipal Investment Fund* for a total of \$83 million dollars. Under this arrangement, funds are loaned for up to 10 years at 150 basis points less than the Government of Canada rates. All or a portion of the interest rate savings realized on funds advanced under this program may have to be used for specific "green" purposes. Our application has not yet been approved as to eligibility or amount. Staff should have a better indication of the outcome of our request by early spring 2003.

Deduction

If the application is approved it would have the effect of lowering the pressure on the PCC rate or supporting "green" enhancements to the HSP.

Bond Issue

The difference between inflows from reserves and cost-sharing, and cash outflows for the project will be funded through debt. All financial models have assumed that any debt which is required to bridge the cash in and out flows will be repaid through ongoing PC rate revenues.

As Council is aware, any debt the municipality needs to bridge cash in and outflows, has been provided through the NS Municipal Finance Corporation (NSMFC) since the late 1970's. All municipalities in Nova Scotia are required to use the NSMFC for any debt needs they may have. HRM has been provided the opportunity, through legislation, to approach bond markets directly for the HSP. HRM's initial bond rating of "A/stable", was favourable to that of the Province, but there is no guarantee that a more favourable rating will translate into more favourable pricing on a bond issue. Staff will be assessing the likelihood of obtaining better interest rates for the HSP over the next few months and will be returning to Council with a recommendation regarding the best means

Halifax Harbour Solutions Project - Financing Options

to raise the necessary debt for the project. The current financial models include interest rate assumptions which are based on NSMFC estimates and staff's best estimates of other factors which could impact on the cost of borrowing over the life of the project.

Funding Through the Tax Rate

Staff has also been asked to consider the use of the assessment base as a means to raise additional monies for the HSP. Assuming the use of the entire assessment base of approximately \$ 25 billion, a one cent addition to the tax rate would raise an additional \$ 2.5 million annually in revenue for the project.

There are a number of issues to be considered relative to this approach to fund the shortfall of the Harbour Solutions Project. While it is often said that there is only one taxpayer, we are all aware that some costs are best funded from certain sources of revenue, or more specifically, not all revenue sources are appropriate for every project. A recent example of this was the attempt to cover provincial equalization costs through the municipal tax base. HRM and other municipalities argued (successfully) that the property tax base was not the appropriate base from which to fund Provincial programs. Instead, it was argued that provincial income taxes were a more fair and appropriate base from which these costs be covered.

All preliminary project planning and funding discussions have concluded that HRM's portion of the HSP costs would be funded through the Pollution Control Charge, collected on the basis of water consumption. Standard and Poor's which provided HRM's first independent bond rating, expressly stated: *"The city's debt and debt service burden, however, is quite high by Canadian and international peer standards....The resulting high level of debt service constrains Halifax's capital financing options.....The debt incurred by the city for Harbour Solutions, however, will be serviced entirely by a dedicated wastewater service charge that was introduced recently."* In addition, discussions with FCM staff regarding the FCM Green Fund indicate that one of the particularly attractive elements of the HRM Harbour project is that the funding comes from a dedicated waste water charge, not from property taxes. With HRM's relatively high debt and considerable capital pressures, Standard and Poor's has commented favorably on the HSP because the source of funds has no impact on HRM's net debt.

Over the next 10-15 years, addressing capital budget pressures related to services for roads, fire, transit, police, etc., will require a balancing act. Every available appropriate funding source must be examined in order that we are able to meet the needs of HRM's citizens, while recognizing our obligation to ensure citizens receive good value for their taxes. The use of any financial capacity which might exist in the property tax base, for the HSP, leaves all other municipal services with few options to address capital service gaps in the foreseeable future.

Not all of the total assessment base represents property which is serviced by the municipal sewer system. Those not serviced, maintain their own private septic systems. It is unlikely that these taxpayers will feel that they are receiving value for their taxes if a portion of those taxes is used for the HSP. It might be argued that all residents of HRM will benefit from the HSP. There is merit in this argument and it is likely that all residents of Nova Scotia will benefit indirectly from the HSP. However, those residents do not contribute to the inflows of the sewage system which the HSP addresses. Those HRM residents with no connection to the HRM sewage system will be supporting the project based on their ability to pay through their Provincial and Federal taxes.

If the property tax base were used but the impact were to be restricted to urban taxpayers through an area rate, the problems associated with use of the property tax base are not eliminated. There is no way through the assessment system to ensure that only taxpayers who are connected to the HRM sewer system would pay. There are taxpayers in the urban area who are not on the sewer system. In addition, the current assessment system uses market values to determine the proportion that each taxpayer should pay to support local services. We hear every day that taxpayers do not feel that this is the best means of determining their fair proportion of municipal services, since market value is often not closely correlated to services received, particularly in a time of strong market growth in some areas of the municipality. The PCC is based on water consumption and is a far more appropriate base in determining each resident's fair share of the costs of the HSP than would the market value of their home. In addition, commercial taxpayers pay a multiplier which would compound this affect.

Deduction

Raising the additional funds through the tax base is not recommended for the reasons outlined above.

Financial Model Assumptions

The financial model used to assess the project's impact on the PCC used the following assumptions:

- Interest on reserve balance - 2%
- Water consumption growth - 1 % annually
- Inflation - 2.4 % during construction
- Interest on debt - 7 %

Deductions

To fund the construction and operation of the full project would require an additional \$ 0.29 per cubic meter charge on the PCC¹. This charge would have to be levied over a five year period and would result in additional cost per annum as follows:

- 2004 - \$ 12.80 per annum
- 2005 - \$ 12.80 or \$ 25.60 per annum aggregate
- 2006 - \$ 12.80 or \$ 38.40 per annum aggregate
- 2007 - \$ 12.80 or \$ 51.20 per annum aggregate
- 2008 - \$ 12.80 or \$ 64.00 per annum aggregate

Even considering the number of sensitivities in this model, staff is satisfied that the model is realistic enough in its projections for Council to make an informed decision on the way forward.

Capital Available Within Current Appropriations

Including the reserve balance, the funding announced by the other levels of government, and the capital capacity which exists in the current level of the PCC, HRM currently can afford to undertake approximately \$ 213 million of work. This equates to the Halifax System (road, collection system and plant) and possibly the Dartmouth Collection System².

Deductions

Building only what HRM can afford with the existing appropriations would result in a debt load of \$ 70 - 80 million, bearing in mind the existing PCC of \$ 0.78 per cubic meter would have to service this debt load and the respective operating costs of the associated plant and systems.

If HRM chooses to build both the Halifax and Dartmouth Systems, complete with Community Integration, it would have to finance an additional \$49 million dollars, requiring an increase to the PCC of \$ 0.08 per cubic meter to \$ 0.86. This would result in a debt load of \$ 120 -130 million.

Under this scenario Council could consider an immediate increase to the PCC whilst providing an additional window of time (up to 19 months) to lobby the other levels of government and/or consider a subsequent increase to the PCC to complete the balance of the project (Herring Cove System).

¹ Cost based on annual consumption of 256 cubic meters

² Although technically feasible, to build only the Dartmouth Collection System would likely require some modifications to the system, including an additional pumping station, screening at CSOs, etc. It is estimated that an additional \$ 8 million would be required for the Dartmouth collections system.

In previous iterations of the Development Agreement, there was a clause that provided HRM with the ability to opt out of the Dartmouth and Herring Cove components of the Project (election to be made at Effective Date + 9 months), and a second option to not proceed with the Herring Cove component (election to be made at Effective Date + 19 months). If Council wanted to leave itself a means not to proceed with the balance of the project, it could instruct staff to negotiate a clause with the partner so as to re-introduce one of these options.

BUDGET IMPLICATIONS

The budget implications are as outlined in this report. If Council accepts the recommendation there will no impact on the operating budget and staff will return to Council at a later date to finalize the necessary changes to the PCC.

FINANCIAL MANAGEMENT POLICIES/BUSINESS PLAN

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating, Capital and Reserve budgets, policies and procedures regarding withdrawals from the utilization of Capital and Operating reserves, as well as any relevant legislation.

ALTERNATIVES

1. Council could approve an immediate increase to the PCC of \$ 0.10 per cubic meter, to be phased in over two years, to fund both the Halifax and Dartmouth Systems. Council could instruct the negotiating team to negotiate an additional clause in the development agreement that would allow Council to opt out of the Herring Cove System on or before the Effective Date plus 19 months. This option would afford HRM a window to seek additional funds or approve a further increase to the PCC to complete the balance of the project. Under this alternative the condition precedent on funding would be lifted in the event that the additional clause is inserted as was negotiated in March 2002.
2. Council could not approve an increase to the PCC at this time and instruct the negotiating team to re-introduce the clauses to terminate the Dartmouth and Herring Cove Systems. Under this alternative HRM would have nine months to decide on whether to proceed with the Dartmouth System and if so another 10 months (ED + 19 months) to elect to proceed with the Herring Cove System. Under this alternative the condition precedent on funding would be lifted in the event that the additional clause is inserted as was negotiated in March 2002.

Neither of these two alternatives are recommended based on the information contained in the report, Council's stated commitment to the project, efforts to date, as well as public expectations of the project. Staff maintains that the increases to the PCC are modest if phased, and when balanced against the benefits of completing the whole project.

Additional copies of this report, and information on its status, can be obtained by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

Report Prepared by: Mike Labrecque, Project Director, Harbour Solutions Project, at 490-4756

Report Approved by: 
Mike Labrecque, Project Director, Harbour Solutions Project, at 490-4756

Harbour Solutions

Project Summary: Build Complete Project

	HREP contract	Inflation Summary	Interim Financing	Other Costs	Net HST	HST In Total
<u>HREP Contract</u>	(Ex inflation)					
Halifax	(Ex financing)					
Collection systems	61,878,410	359,717			4,001,289	66,239,416
Treatment Plants	56,540,797	819,789	2,788,295		3,866,972	64,015,853
Roads	861,612	0	0		55,393	917,005
Subtotal	<u>119,280,819</u>	<u>1,179,506</u>	<u>2,788,295</u>		<u>7,923,654</u>	<u>131,172,275</u>
Dartmouth						
Collection systems	41,965,395	1,635,462			2,803,099	46,403,956
Treatment Plants	48,203,962	2,094,198	2,999,838		3,426,528	56,724,526
Roads	1,600,137	53,765	0		106,329	1,760,231
Subtotal	<u>91,769,494</u>	<u>3,783,425</u>	<u>2,999,838</u>		<u>6,335,957</u>	<u>104,888,714</u>
Herring Cove						
Collection systems	14,860,400	1,172,190			1,030,735	17,063,325
Treatment Plants	37,153,407	2,920,859	2,022,195		2,706,381	44,802,842
Roads	492,348	29,049	0		33,521	554,917
Subtotal	<u>52,506,155</u>	<u>4,122,097</u>	<u>2,022,195</u>		<u>3,770,637</u>	<u>62,421,085</u>
	<u>263,556,468</u>	<u>9,085,028</u>	<u>7,810,329</u>		<u>18,030,248</u>	<u>298,482,073</u>
<u>Other Costs</u>						
Community Integration						
Halifax				1,000,000	60,406	1,000,000
Dartmouth				1,000,000	60,406	1,000,000
Herring Cove				5,000,000	302,032	5,000,000
Remaining contract negotiation				500,000	30,203	500,000
Contract support				2,100,000	132,301	2,100,000
				<u>9,600,000</u>	<u>585,349</u>	<u>9,600,000</u>
Sub total				<u>18,615,597</u>	<u>308,082,073</u>	
Costs spent to date (net of land acquisition)					<u>6,586,555</u>	
Total before HRM financing costs					<u>314,668,628</u>	
Operationalized costs						
Harbour Solutions Office				<u>2,190,173</u>	<u>132,301</u>	<u>2,190,173</u>
Land acquisition						
Spent to date						349,442
Remaining budget*				<u>5,350,000</u>	<u>572,568</u>	<u>5,478,580</u>
Total						<u>5,828,022</u>
Total net HST					<u>19,320,465</u>	
Grand total before project risk						<u>322,686,823</u>
Allowance for project risk						<u>10,000,000</u>

* Land budget includes only net HST on NS contribution in kind of \$2mm. This figure includes the gross costs of the Pier A acquisition. We expect to ultimately resell a portion of these lands.

Harbour Solutions: Pollution Control Rate Sensivity

Water Bill Impact

Printed: 18-Oct-2002

Version: Build Complete Project

Minimum										Aggregate increase		
Quarterly Water Charge	Water Cost	Virtual EP-2 Rate	Virtual HS-3 Rate	Total PC-4 Rate	PC rate Increase (absolute)	Aggregate increase PC Rate since 2003	Average Resident Usage Annual Bill	Resident User	Water Bill Increase (absolute)	Water Bill Increase since 2003 (percent)	Water Bill	PC of Water
Fiscal Year	per cubic meter	WW-1 Rate	HS-3 Rate	Rate	Increase (absolute)	since 2003	Usage Annual Bill	User	Water Bill Increase (absolute)	since 2003 (percent)	Water Bill	PC of Water
02/03	\$0.2552	\$0.2324	\$0.1804	\$0.3700	\$0.7828	\$25.60	256	\$388	\$388	12.8%	\$188	\$200
03/04*	\$0.278	\$0.2788	\$0.1804	\$0.3736	\$0.8328	\$12.80	256	\$417	\$28.64	6.4%	\$203	\$213
04/05	\$0.291	\$0.2736	\$0.1804	\$0.4288	\$0.8828	\$12.80	256	\$442	\$24.97	6.0%	\$216	\$226
05/06	\$0.291	\$0.2755	\$0.1804	\$0.4769	\$0.9328	\$12.80	256	\$454	\$12.80	5.7%	\$216	\$239
06/07	\$0.291	\$0.2778	\$0.1804	\$0.5246	\$0.9828	\$12.80	256	\$467	\$12.80	5.4%	\$216	\$252
07/08	\$0.291	\$0.2804	\$0.1804	\$0.5720	\$1.0328	\$12.80	256	\$480	\$12.80	5.1%	\$216	\$264
08/09	\$0.291	\$0.2833	\$0.1804	\$0.5032	\$0.9669	(\$16.88)	256	\$463	(\$16.88)	-6.4%	\$216	\$248
09/10	\$0.291	\$0.2875	\$0.1804	\$0.5039	\$0.9719	\$1.28	256	\$464	\$1.28	0.5%	\$216	\$249
10/11	\$0.291	\$0.2918	\$0.1804	\$0.5048	\$0.9770	\$1.31	256	\$466	\$1.31	0.5%	\$216	\$250
11/12	\$0.291	\$0.2961	\$0.1804	\$0.5061	\$0.9826	\$1.44	256	\$467	\$1.44	0.6%	\$216	\$252
12/13	\$0.291	\$0.3005	\$0.1804	\$0.5085	\$0.9894	\$1.73	256	\$469	\$1.73	0.7%	\$216	\$253
13/14	\$0.291	\$0.3050	\$0.1804	\$0.5152	\$1.0005	\$2.85	256	\$472	\$2.85	1.1%	\$216	\$256
14/15	\$0.291	\$0.3095	\$0.1804	\$0.5172	\$1.0071	\$1.68	256	\$473	\$1.68	0.7%	\$216	\$258
15/16	\$0.291	\$0.3141	\$0.1804	\$0.5260	\$1.0205	\$3.44	256	\$477	\$3.44	1.3%	\$216	\$261
16/17	\$0.291	\$0.3188	\$0.1804	\$0.5237	\$1.0228	\$0.58	256	\$477	\$0.58	0.2%	\$216	\$262
17/18	\$0.291	\$0.3235	\$0.1804	\$0.5359	\$1.0398	\$4.33	256	\$482	\$4.33	1.7%	\$216	\$266
18/19	\$0.291	\$0.3283	\$0.1804	\$0.5370	\$1.0457	\$1.52	256	\$483	\$1.52	0.6%	\$216	\$268
19/20	\$0.291	\$0.3332	\$0.1804	\$0.5720	\$1.0856	\$10.22	256	\$493	\$10.22	3.8%	\$216	\$278
20/21	\$0.291	\$0.3381	\$0.1804	\$0.6295	\$1.1481	\$15.99	256	\$509	\$15.99	5.8%	\$216	\$294
21/22	\$0.291	\$0.3431	\$0.1804	\$0.6320	\$1.1556	\$1.92	256	\$511	\$1.92	0.7%	\$216	\$296
22/23	\$0.291	\$0.3482	\$0.1804	\$0.6147	\$1.1433	(\$3.14)	256	\$508	(\$3.14)	-1.1%	\$216	\$293
23/24	\$0.291	\$0.3534	\$0.1804	\$0.5810	\$1.1148	(\$7.29)	256	\$501	(\$7.29)	-2.5%	\$216	\$285
24/25	\$0.291	\$0.3587	\$0.1804	\$0.5826	\$1.1217	\$1.75	256	\$503	\$1.75	0.6%	\$216	\$287
25/26	\$0.291	\$0.3640	\$0.1804	\$0.5996	\$1.1440	\$5.72	256	\$508	\$5.72	2.0%	\$216	\$293
26/27	\$0.291	\$0.3694	\$0.1804	\$0.6021	\$1.1519	\$2.03	256	\$510	\$2.03	0.7%	\$216	\$295
27/28	\$0.291	\$0.3749	\$0.1804	\$0.5896	\$1.1449	(\$1.81)	256	\$509	(\$1.81)	-0.6%	\$216	\$293
28/29	\$0.291	\$0.3805	\$0.1804	\$0.5843	\$1.1452	\$0.08	256	\$509	\$0.08	0.0%	\$216	\$293
29/30	\$0.291	\$0.3861	\$0.1804	\$0.6293	\$1.1958	\$12.95	256	\$522	\$12.95	4.4%	\$216	\$306
30/31	\$0.291	\$0.3918	\$0.1804	\$0.6603	\$1.2326	\$9.42	256	\$531	\$9.42	3.1%	\$216	\$316
31/32	\$0.291	\$0.3977	\$0.1804	\$0.6461	\$1.2241	(\$2.16)	256	\$529	(\$2.16)	-0.7%	\$216	\$313
32/33	\$0.291	\$0.4036	\$0.1804	\$0.6233	\$1.2072	(\$4.33)	256	\$525	(\$4.33)	-1.4%	\$216	\$309
33/34	\$0.291	\$0.4096	\$0.1804	\$0.6002	\$1.1902	(\$4.36)	256	\$520	(\$4.36)	-1.4%	\$216	\$305
34/35	\$0.291	\$0.4156	\$0.1804	\$0.6035	\$1.1995	\$2.38	256	\$523	\$2.38	0.8%	\$216	\$307
35/36	\$0.291	\$0.4218	\$0.1804	\$0.5916	\$1.1938	(\$1.46)	256	\$521	(\$1.46)	-0.5%	\$216	\$306
36/37	\$0.291	\$0.4281	\$0.1804	\$0.5944	\$1.2028	\$2.31	256	\$523	\$2.31	0.8%	\$216	\$308

ASSUMPTIONS

- 1-Wastewater
 - 2-Environmental Protection
 - 3-Harbour Solution
 - 4-Pollution Control
- Usage does not react to price change (ie inelastic). Per Water Commission (2002) a family of 4 with 2 children uses 64 cubic meters per quarter
- * Water rates shown for this fiscal year are effective Jan 1 '03 Total PC rate increases \$0.05 per year during construction period

Harbour Solutions

Project Summary: Hold Rate Constant

	HREP contract	Inflation Summary	Interim Financing	Other Costs	Net HST	HST In Total
<u>HREP Contract</u>	(Ex inflation)					
Halifax	(Ex financing)					
Collection systems	61,878,410	359,717			4,001,289	66,239,416
Treatment Plants	56,540,797	819,789	2,788,295		3,866,972	64,015,853
Roads	861,612	0	0		55,393	917,005
Subtotal	<u>119,280,819</u>	<u>1,179,506</u>	<u>2,788,295</u>		<u>7,923,654</u>	<u>131,172,275</u>
Dartmouth						
Collection systems	41,965,395	1,635,462			2,803,099	46,403,956
Treatment Plants	8,000,000	0	0		543,318	8,543,318
Roads	1,600,137	53,765	0		106,329	1,760,231
Subtotal	<u>51,565,532</u>	<u>1,689,227</u>	<u>0</u>		<u>3,452,746</u>	<u>56,707,505</u>
Herring Cove						
Collection systems	0	0			0	0
Treatment Plants	0	0	0		0	0
Roads	0	0	0		0	0
Subtotal	<u>0</u>	<u>0</u>	<u>0</u>		<u>0</u>	<u>0</u>
	<u>170,846,351</u>	<u>2,868,733</u>	<u>2,788,295</u>		<u>11,376,400</u>	<u>187,879,779</u>
<u>Other Costs</u>						
Community Integration						
Halifax				1,000,000	60,406	1,000,000
Dartmouth				0	0	0
Herring Cove				0	0	0
Remaining contract negotiation				500,000	30,203	500,000
Contract support				2,100,000	132,301	2,100,000
				<u>3,600,000</u>	<u>222,910</u>	<u>3,600,000</u>
Sub total					<u>11,599,310</u>	<u>191,479,779</u>
Costs spent to date (net of land acquisition)						<u>6,586,555</u>
Total before HRM financing costs						<u>198,066,334</u>
Operationalized costs						
Harbour Solutions Office				<u>2,190,173</u>	<u>132,301</u>	<u>2,190,173</u>
Land acquisition						
Spent to date						349,442
Remaining budget*				<u>4,350,000</u>	<u>512,161</u>	<u>4,478,580</u>
Total						<u>4,828,022</u>
Total net HST					<u>12,243,772</u>	
Grand total before project risk						<u>205,084,529</u>
Allowance for project risk						<u>10,000,000</u>

* Land budget includes only net HST on NS contribution in kind of \$2mm. This figure includes the gross costs of the Pier A acquisition. We expect to ultimately resell a portion of these lands.

Harbour Solutions: Pollution Control Rate Sensivity

Water Bill Impact

Printed: 18-Oct-2002

Hold Rate Constant

Version:

Minimum

Quarterly Water Charge Year (5/8 inch)	Water Cost per cubic meter	WW-1 Rate	Virtual EP-2 Rate	Virtual HS-3 Rate	Total PC-4 Rate	PC rate Increase (absolute)	Aggregate PC Rate Increase since 2003	PC rate Increase (percent)	Average Resident Usage	Resident User Annual Bill	Water Bill Increase (absolute)	Water Bill Increase (percent)	Aggregate increase since 2003	Water Bill	Water Bill Increase (percent)	PC
02/03	\$30.55	\$0.2552	\$0.2324	\$0.1804	\$0.3700	\$0.7828	\$25.60	12.8%	256	\$388	\$15.84	4.1%	\$188	\$200		\$200
03/04*	\$33.05	\$0.278	\$0.2788	\$0.1804	\$0.3236	\$0.7828	\$0.00	0.0%	256	\$404	\$15.84	4.1%	\$203	\$200		\$200
04/05	\$35.26	\$0.291	\$0.2736	\$0.1804	\$0.3288	\$0.7828	\$0.00	0.0%	256	\$416	\$12.17	3.0%	\$216	\$200		\$200
05/06	\$35.26	\$0.291	\$0.2755	\$0.1804	\$0.3269	\$0.7828	\$0.00	0.0%	256	\$416	\$0.00	0.0%	\$216	\$200		\$200
06/07	\$35.26	\$0.291	\$0.2778	\$0.1804	\$0.3246	\$0.7828	\$0.00	0.0%	256	\$416	\$0.00	0.0%	\$216	\$200		\$200
07/08	\$35.26	\$0.291	\$0.2804	\$0.1804	\$0.3220	\$0.7828	\$0.00	0.0%	256	\$416	\$0.00	0.0%	\$216	\$200		\$200
08/09	\$35.26	\$0.291	\$0.2833	\$0.1804	\$0.2405	\$0.7042	(\$20.12)	-10.0%	256	\$396	(\$20.12)	-4.8%	\$180	\$180		\$180
09/10	\$35.26	\$0.291	\$0.2875	\$0.1804	\$0.2419	\$0.7098	\$1.43	0.8%	256	\$397	\$1.43	0.4%	\$216	\$182		\$182
10/11	\$35.26	\$0.291	\$0.2918	\$0.1804	\$0.2433	\$0.7154	\$1.45	0.8%	256	\$399	\$1.45	0.4%	\$216	\$183		\$183
11/12	\$35.26	\$0.291	\$0.2961	\$0.1804	\$0.2447	\$0.7212	\$1.48	0.8%	256	\$400	\$1.48	0.4%	\$216	\$185		\$185
12/13	\$35.26	\$0.291	\$0.3005	\$0.1804	\$0.2479	\$0.7288	\$1.95	1.1%	256	\$402	\$1.95	0.5%	\$216	\$187		\$187
13/14	\$35.26	\$0.291	\$0.3050	\$0.1804	\$0.2535	\$0.7389	\$2.57	1.4%	256	\$405	\$2.57	0.6%	\$216	\$189		\$189
14/15	\$35.26	\$0.291	\$0.3095	\$0.1804	\$0.2500	\$0.7399	\$0.27	0.1%	256	\$405	\$0.27	0.1%	\$216	\$189		\$189
15/16	\$35.26	\$0.291	\$0.3141	\$0.1804	\$0.2598	\$0.7543	\$3.67	1.9%	256	\$409	\$3.67	0.9%	\$216	\$193		\$193
16/17	\$35.26	\$0.291	\$0.3188	\$0.1804	\$0.2533	\$0.7525	(\$0.46)	-0.2%	256	\$408	(\$0.46)	-0.1%	\$216	\$193		\$193
17/18	\$35.26	\$0.291	\$0.3235	\$0.1804	\$0.2731	\$0.7770	\$6.27	3.3%	256	\$414	\$6.27	1.5%	\$216	\$199		\$199
18/19	\$35.26	\$0.291	\$0.3283	\$0.1804	\$0.2560	\$0.7647	(\$3.13)	-1.6%	256	\$411	(\$3.13)	-0.8%	\$216	\$196		\$196
19/20	\$35.26	\$0.291	\$0.3332	\$0.1804	\$0.3020	\$0.8155	\$13.01	6.6%	256	\$424	\$13.01	3.2%	\$216	\$209		\$209
20/21	\$35.26	\$0.291	\$0.3381	\$0.1804	\$0.3681	\$0.8866	\$18.20	8.7%	256	\$443	\$18.20	4.3%	\$216	\$227		\$227
21/22	\$35.26	\$0.291	\$0.3431	\$0.1804	\$0.3163	\$0.8398	(\$11.99)	-5.3%	256	\$431	(\$11.99)	-2.7%	\$216	\$215		\$215
22/23	\$35.26	\$0.291	\$0.3482	\$0.1804	\$0.3076	\$0.8362	(\$0.92)	-0.4%	256	\$430	(\$0.92)	-0.2%	\$216	\$214		\$214
23/24	\$35.26	\$0.291	\$0.3534	\$0.1804	\$0.3110	\$0.8449	\$2.21	1.0%	256	\$432	\$2.21	0.5%	\$216	\$216		\$216
24/25	\$35.26	\$0.291	\$0.3587	\$0.1804	\$0.3204	\$0.8594	\$3.73	1.7%	256	\$436	\$3.73	0.9%	\$216	\$220		\$220
25/26	\$35.26	\$0.291	\$0.3640	\$0.1804	\$0.3290	\$0.8734	\$3.58	1.6%	256	\$439	\$3.58	0.8%	\$216	\$224		\$224
26/27	\$35.26	\$0.291	\$0.3694	\$0.1804	\$0.3206	\$0.8704	(\$0.77)	-0.3%	256	\$438	(\$0.77)	-0.2%	\$216	\$223		\$223
27/28	\$35.26	\$0.291	\$0.3749	\$0.1804	\$0.3186	\$0.8739	\$0.89	0.4%	256	\$439	\$0.89	0.2%	\$216	\$224		\$224
28/29	\$35.26	\$0.291	\$0.3805	\$0.1804	\$0.3197	\$0.8805	\$1.70	0.8%	256	\$441	\$1.70	0.4%	\$216	\$225		\$225
29/30	\$35.26	\$0.291	\$0.3861	\$0.1804	\$0.3651	\$0.9316	\$13.09	5.8%	256	\$454	\$13.09	3.0%	\$216	\$238		\$238
30/31	\$35.26	\$0.291	\$0.3918	\$0.1804	\$0.3566	\$0.9288	(\$0.72)	-0.3%	256	\$453	(\$0.72)	-0.2%	\$216	\$238		\$238
31/32	\$35.26	\$0.291	\$0.3977	\$0.1804	\$0.3267	\$0.9048	(\$6.15)	-2.6%	256	\$447	(\$6.15)	-1.4%	\$216	\$232		\$232
32/33	\$35.26	\$0.291	\$0.4036	\$0.1804	\$0.3299	\$0.9138	\$2.31	1.0%	256	\$449	\$2.31	0.5%	\$216	\$234		\$234
33/34	\$35.26	\$0.291	\$0.4096	\$0.1804	\$0.3354	\$0.9254	\$2.96	1.3%	256	\$452	\$2.96	0.7%	\$216	\$237		\$237
34/35	\$35.26	\$0.291	\$0.4156	\$0.1804	\$0.3411	\$0.9371	\$3.00	1.3%	256	\$455	\$3.00	0.7%	\$216	\$240		\$240
35/36	\$35.26	\$0.291	\$0.4218	\$0.1804	\$0.3317	\$0.9339	(\$0.82)	-0.3%	256	\$455	(\$0.82)	-0.2%	\$216	\$239		\$239
36/37	\$35.26	\$0.291	\$0.4281	\$0.1804	\$0.3340	\$0.9425	\$2.20	0.9%	256	\$457	\$2.20	0.5%	\$216	\$241		\$241

1-Wastewater

2-Environmental Protection

3-Harbour Solution

4-Pollution Control

Usage does not react to price change (ie inelastic). Per Water Commission (2002) a family of 4 with 2 children uses 64 cubic meters per quarter

* Water rates shown for this fiscal year are effective Jan 1 '03

Total PC rate increases \$0.05 per year during construction period

Harbour Solutions

Budget Holding Rate Constant

Revenues

Harbour Solutions Rate (within total <i>Pollution Control Rate</i> of \$0.7828) (average forecast over 5 year construction period)	\$0.3348
Billable water consumption (average forecast 1998 to 2008; cubic meters)	<u>40,998,799</u>
Annual revenues from <i>Harbour Solutions</i> levy	\$13,726,330
Less: Operating costs of Harbour Solutions ST plants (2008 figures)	(\$5,501,225)
Less: Operating costs of collection systems and incremental overhead (2008)	<u>(\$1,144,436)</u>
Annual Harbour Solutions levy available for debt servicing	<u><u>\$7,080,669</u></u>
Present value of <i>Harbour Solutions</i> levy available for debt servicing	\$89,546,073
Discount rate:	7.00%
Time: Construction period to first borrowing (pays for Halifax plant)	2
Debt amortization period	<u>30</u>
	<u><u>32</u></u>
<u>Other Funding Sources</u>	
Present Value of Nova Scotia contribution (land at \$2mm)	\$19,024,138
Federal funding	\$30,000,000
Funds available for Harbour Solutions from reserves (Dec '02 estimate)	<u>\$67,000,000</u>
Funds available for future Harbour Solutions expenditures	\$205,570,212
Funds spent to date	<u>6,586,555</u>
Harbour solutions budget theoretically supportable with current levy	<u><u>\$212,156,767</u></u>

Harbour Solutions

Project Summary: Build Halifax & Dartmouth Systems

	HREP contract	Inflation Summary	Interim Financing	Other Costs	Net HST	HST In Total
HREP Contract	(Ex inflation)					
Halifax	(Ex financing)					
Collection systems	61,878,410	359,717			4,001,289	66,239,416
Treatment Plants	56,540,797	819,789	2,788,295		3,866,972	64,015,853
Roads	861,612	0	0		55,393	917,005
Subtotal	<u>119,280,819</u>	<u>1,179,506</u>	<u>2,788,295</u>		<u>7,923,654</u>	<u>131,172,275</u>
Dartmouth						
Collection systems	41,965,395	1,635,462			2,803,099	46,403,956
Treatment Plants	48,203,962	2,094,198	2,999,838		3,426,528	56,724,526
Roads	1,600,137	53,765	0		106,329	1,760,231
Subtotal	<u>91,769,494</u>	<u>3,783,425</u>	<u>2,999,838</u>		<u>6,335,957</u>	<u>104,888,714</u>
Herring Cove						
Collection systems	0	0			0	0
Treatment Plants	0	0	0		0	0
Roads	0	0	0		0	0
Subtotal	<u>0</u>	<u>0</u>	<u>0</u>		<u>0</u>	<u>0</u>
	<u>211,050,313</u>	<u>4,962,931</u>	<u>5,788,134</u>		<u>14,259,611</u>	<u>236,060,988</u>
Other Costs						
Community Integration						
Halifax				1,000,000	60,406	1,000,000
Dartmouth				1,000,000	60,406	1,000,000
Herring Cove				0	0	0
Remaining contract negotiation				500,000	30,203	500,000
Contract support				2,100,000	132,301	2,100,000
				<u>4,600,000</u>	<u>283,317</u>	<u>4,600,000</u>
Sub total					<u>14,542,927</u>	240,660,988
Costs spent to date (net of land acquisition)						<u>6,586,555</u>
Total before HRM financing costs						<u>247,247,543</u>
Operationalized costs						
Harbour Solutions Office				2,190,173	132,301	2,190,173
				<u>2,190,173</u>	<u>132,301</u>	<u>2,190,173</u>
Land acquisition						
Spent to date						349,442
Remaining budget*				4,350,000	512,161	4,478,580
Total				<u>4,350,000</u>	<u>512,161</u>	<u>4,828,022</u>
Total net HST					<u>15,187,389</u>	
Grand total before project risk						<u>254,265,738</u>
Allowance for project risk						<u>10,000,000</u>

* Land budget includes only net HST on NS contribution in kind of \$2mm. This figure includes the gross costs of the Pier A acquisition. We expect to ultimately resell a portion of these lands.

Harbour Solutions: Pollution Control Rate Sensivity

Water Bill Impact

Printed: 18-Oct-2002

Version: Build Halifax & Dartmouth Systems

Minimum		Aggregate increase												
Quarterly Water Charge	Water Cost	Virtual WW-1 Rate	Virtual EP-2 Rate	Virtual HS-3 Rate	Total PC-4 Rate	PC rate Increase (absolute)	Aggregate increase PC Rate since 2003	PC rate Increase (percent)	Average Resident Usage	Resident User Annual Bill	Water Bill Increase (absolute)	Water Bill Increase (percent)	Water Bill Increase since 2003	PC of Water
Fiscal Year (5/8 inch)	per cubic meter	Rate	Rate	Rate	Rate	(absolute)	since 2003	(percent)	Usage	Annual Bill	Increase	(percent)	since 2003	of Water
02/03	\$30.55	\$0.2552	\$0.1804	\$0.3700	\$0.7828	\$25.60		12.8%	256	\$388			\$188	107%
03/04*	\$33.05	\$0.278	\$0.1804	\$0.3436	\$0.8028	\$5.12	\$5.12	2.6%	256	\$409	\$20.96	5.4%	\$203	101%
04/05	\$35.26	\$0.291	\$0.1804	\$0.3688	\$0.8228	\$5.12	\$10.24	2.5%	256	\$426	\$17.29	4.2%	\$216	98%
05/06	\$35.26	\$0.291	\$0.1804	\$0.3869	\$0.8428	\$5.12	\$15.36	2.4%	256	\$431	\$5.12	1.2%	\$216	100%
06/07	\$35.26	\$0.291	\$0.1804	\$0.4046	\$0.8628	\$5.12	\$20.48	2.4%	256	\$436	\$5.12	1.2%	\$216	102%
07/08	\$35.26	\$0.291	\$0.1804	\$0.4020	\$0.8628	\$0.00	\$20.48	0.0%	256	\$436	\$0.00	0.0%	\$216	102%
08/09	\$35.26	\$0.291	\$0.1804	\$0.3968	\$0.8605	(\$0.60)	\$19.88	-0.3%	256	\$436	(\$0.60)	-0.1%	\$216	102%
09/10	\$35.26	\$0.291	\$0.1804	\$0.3983	\$0.8662	\$1.46	\$21.34	0.7%	256	\$437	\$1.46	0.3%	\$216	103%
10/11	\$35.26	\$0.291	\$0.1804	\$0.3998	\$0.8720	\$1.49	\$22.84	0.7%	256	\$439	\$1.49	0.3%	\$216	104%
11/12	\$35.26	\$0.291	\$0.1804	\$0.4018	\$0.8783	\$1.62	\$24.46	0.7%	256	\$440	\$1.62	0.4%	\$216	104%
12/13	\$35.26	\$0.291	\$0.1804	\$0.4049	\$0.8858	\$1.91	\$26.37	0.8%	256	\$442	\$1.91	0.4%	\$216	105%
13/14	\$35.26	\$0.291	\$0.1804	\$0.4123	\$0.8976	\$3.03	\$29.40	1.3%	256	\$445	\$3.03	0.7%	\$216	107%
14/15	\$35.26	\$0.291	\$0.1804	\$0.4140	\$0.9039	\$1.59	\$30.99	0.7%	256	\$447	\$1.59	0.4%	\$216	107%
15/16	\$35.26	\$0.291	\$0.1804	\$0.4182	\$0.9127	\$2.26	\$33.25	1.0%	256	\$449	\$2.26	0.5%	\$216	108%
16/17	\$35.26	\$0.291	\$0.1804	\$0.4215	\$0.9207	\$2.05	\$35.30	0.9%	256	\$451	\$2.05	0.5%	\$216	109%
17/18	\$35.26	\$0.291	\$0.1804	\$0.4322	\$0.9361	\$3.95	\$39.25	1.7%	256	\$455	\$3.95	0.9%	\$216	111%
18/19	\$35.26	\$0.291	\$0.1804	\$0.4359	\$0.9446	\$2.18	\$41.42	0.9%	256	\$457	\$2.18	0.5%	\$216	112%
19/20	\$35.26	\$0.291	\$0.1804	\$0.4611	\$0.9747	\$7.70		3.2%	256	\$465	\$7.70	1.7%	\$216	116%
20/21	\$35.26	\$0.291	\$0.1804	\$0.5310	\$1.0495	\$19.16	\$19.16	7.7%	256	\$484	\$19.16	4.1%	\$216	125%
21/22	\$35.26	\$0.291	\$0.1804	\$0.5317	\$1.0553	\$1.47	\$1.47	0.5%	256	\$486	\$1.47	0.3%	\$216	125%
22/23	\$35.26	\$0.291	\$0.1804	\$0.4830	\$1.0117	(\$11.16)	(\$11.16)	-4.1%	256	\$475	(\$11.16)	-2.3%	\$216	120%
23/24	\$35.26	\$0.291	\$0.1804	\$0.4737	\$1.0075	(\$1.06)	(\$1.06)	-0.4%	256	\$473	(\$1.06)	-0.2%	\$216	120%
24/25	\$35.26	\$0.291	\$0.1804	\$0.4855	\$1.0246	\$4.36	\$4.36	1.7%	256	\$478	\$4.36	0.9%	\$216	122%
25/26	\$35.26	\$0.291	\$0.1804	\$0.5017	\$1.0461	\$5.50	\$5.50	2.1%	256	\$483	\$5.50	1.2%	\$216	124%
26/27	\$35.26	\$0.291	\$0.1804	\$0.5024	\$1.0522	\$1.58	\$1.58	0.6%	256	\$485	\$1.58	0.3%	\$216	125%
27/28	\$35.26	\$0.291	\$0.1804	\$0.4887	\$1.0440	(\$2.10)	(\$2.10)	-0.8%	256	\$483	(\$2.10)	-0.4%	\$216	124%
28/29	\$35.26	\$0.291	\$0.1804	\$0.4868	\$1.0476	\$0.92	\$0.92	0.3%	256	\$484	\$0.92	0.2%	\$216	124%
29/30	\$35.26	\$0.291	\$0.1804	\$0.5331	\$1.0996	\$13.30	\$13.30	5.0%	256	\$497	\$13.30	2.7%	\$216	131%
30/31	\$35.26	\$0.291	\$0.1804	\$0.5662	\$1.1384	\$9.95	\$9.95	3.5%	256	\$507	\$9.95	2.0%	\$216	135%
31/32	\$35.26	\$0.291	\$0.1804	\$0.5198	\$1.0978	(\$10.39)	(\$10.39)	-3.6%	256	\$497	(\$10.39)	-2.0%	\$216	130%
32/33	\$35.26	\$0.291	\$0.1804	\$0.4999	\$1.0838	(\$3.59)	(\$3.59)	-1.3%	256	\$493	(\$3.59)	-0.7%	\$216	129%
33/34	\$35.26	\$0.291	\$0.1804	\$0.5071	\$1.0970	\$3.38	\$3.38	1.2%	256	\$496	\$3.38	0.7%	\$216	130%
34/35	\$35.26	\$0.291	\$0.1804	\$0.5091	\$1.1052	\$2.09	\$2.09	0.7%	256	\$498	\$2.09	0.4%	\$216	131%
35/36	\$35.26	\$0.291	\$0.1804	\$0.5006	\$1.1028	(\$0.61)	(\$0.61)	-0.2%	256	\$498	(\$0.61)	-0.1%	\$216	131%
36/37	\$35.26	\$0.291	\$0.1804	\$0.5038	\$1.1122	\$2.42	\$2.42	0.9%	256	\$500	\$2.42	0.5%	\$216	132%

ASSUMPTIONS

Usage does not react to price change (ie inelastic). Per Water Commission (2002) a family of 4 with 2 children uses 64 cubic meters per quarter

* Water rates shown for this fiscal year are effective Jan 1 '03

Total PC rate increases \$0.05 per year during construction period

1-Wastewater

2-Environmental Protection

3-Harbour Solution

4-Pollution Control

Harbour Solutions

Comparative Canadian Water and Sewer Rates

Fiscal Year 2002/03

City	Water/cubic metre	Flat Charge Water	Annual water bill	Sewer/cubic metre	Flat Charge Sewer	Annual sewer bill	Combined rate/ cubic metre	Total annual bill
Waterloo	0.7100		\$181.76	0.7000		\$179.20	1.4100	\$360.96
Calgary*	0.8208	\$108.48	\$318.60			\$199.35	1.3344	\$517.96
Regina**	0.7700	\$17.50	\$214.62	0.5400	\$12.75	\$150.99	1.3100	\$365.61
Moncton	0.9530	\$22.50	\$266.47	0.2255	\$39.88	\$97.61	1.1785	\$364.08
Kamloops		\$248.80	\$248.80		\$214.40	\$214.40		\$463.20
Edmonton	1.1053	\$69.48	\$352.44	0.8739	\$54.96	\$278.68	1.9792	\$631.12
Miramichi	0.6900	\$75.08	\$251.72	0.8900	\$72.88	\$300.72	1.5800	\$552.44
Halifax***	0.2552	\$122.20	\$187.53	0.7828		\$200.40	1.0380	\$387.93

Assumptions:

Per Water Commission (2002), a family of 4 with 2 children uses 256 cubic metres per year.

Notes:

* Calgary's sewer charge is calculated as 62.57% of the water bill

** Regina's sewer charges are based on 82% of water consumed for residential units.

*** Halifax's sewer charges include wastewater charges. These were not separated out for the other cities compared.