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Item No. 1

Halifax Regional Council
September 9, 2008

TO: Mayor Kelly and Members of Halifax Regional Council

SUBMITTED BY: _____
Brad Anguish, Director of Business Planning & Information Services

DATE: August 4, 2008

SUBJECT: **Harbour Solutions Project - 1st Quarter Report -
April to June, 2008**

INFORMATION REPORT

ORIGIN

This report originates from the Council session of October 22, 2002 when staff was authorized to submit quarterly reports for the duration of the project.

BACKGROUND

HRM has entered into five contracts to date for the implementation of the Halifax Harbour Solutions Project, namely:

- C an infrastructure development agreement for the construction of the three Wastewater Collection Systems on October 15, 2003 with Dexter Construction; and
- C a development agreement for the construction of three advanced primary Wastewater Treatment Facilities on June 15, 2004 with D&D Water Solutions, Inc.; and
- C a development agreement for the construction of a Biosolids Processing Facility on November 30, 2004 with SGE Acres Limited, and
- C an operating and maintenance agreement for the Biosolids Processing Facility on November 30, 2004, with N-Viro Systems Canada Inc.; and
- C an operating agreement for the transportation of dewatered biosolids from the three new Wastewater Treatment Facilities on May 31, 2006, with Seaboard Liquid Carriers Limited.

DISCUSSION

Completion of the Wastewater Treatment Facilities (WWTF) and Wastewater Collection Systems (WWCS) are progressing within budget.

Halifax

The Halifax Wastewater Collection System work during the 1st quarter of 2008/09 continued to focus on start-up activities of the various regulation structures and pumping stations.

The Halifax Wastewater Treatment Facility has been continuously treating sewage from Halifax since November, 2007. The contractors for the Halifax WWCS and WWTF are working towards substantial completion of the systems and rectification of deficiencies. One of the deficiencies involves odour emanating from a vent of the effluent pipe which is located just outside of the plant. At the time of writing of this report, the contractor has implemented a temporary solution. Staff have been advised by the Contractor that various permanent solutions will be evaluated and implemented before the winter.

Dartmouth

The Dartmouth Wastewater Collection System (WWCS) work during the 1st quarter of 2008/09 continued to focus on start-up activities of the various regulation structures and pumping stations.

The Dartmouth WWTF work during the 1st quarter of 2008/09 was mainly on the dry commissioning and operations of all plant equipment using clean water.

At the time of writing of this report, the Dartmouth WWTF has started wet commissioning and the 30 days running period defined in the contract. Formal performance testing will follow in the near future when the Contractor is ready.

Herring Cove

The Herring Cove WWTF work during the 1st quarter of 2008/09 concentrated on the completion of the concrete work. The revised completion schedule for Herring Cove is still the 1st quarter of 2009/10 for the completion of equipment installation with commissioning activities progressing during the 2nd quarter of 2009/10. The contractor continues to look for opportunities to move the schedule forward.

Biosolids Processing Facility

The Biosolids Processing Facility (BPF) continued to process biosolids from the Aerotech Dewatering Facility, and from the Halifax WWTF. At the time of writing of this report, biosolids from the Dartmouth WWTF are also being processed.

The finished product continues to meet the Class “A” biosolids standard as established by the Province of Nova Scotia with most of the product even meeting the “exceptional quality” standard.

Safety

There were no lost time incidents during the quarter. Nova Scotia Department of Labour carried out a Workplace Inspection on June 27, 2008. A Compliance Order regarding confined space procedures was issued and acted upon.

BUDGET IMPLICATIONS

The Harbour Solutions Project spent \$11.9 million in the 1st quarter of 2008/09 and, since the start of the project, \$302.2 million to June 30, 2008. Projections to meet the capital budget of \$332.7 million are still on target.

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As all completion dates certain for the various components have now passed, there should be no additional inflation risk. History of the Halifax Non-Residential Construction Index over the past twenty years shows average annual inflation of just over 2%. At the beginning of the project, staff conservatively estimated annual inflation at 2.8% for budget purposes. However, fiscal years 2004/05, 2005/06, 2006/07, and 2007/08 brought inflation of 7.87%, 4.31%, 5.25%, and 7.78% respectively. In the first quarter of 2008/09, inflation was 6.24%. To mitigate this risk and financial impact, staff revised the inflation estimate to approximately 6% per year over the life of the contract and a substantial portion (\$14.7 million) of the \$18.2 million contingency was committed to address this issue.

As all of the dates certain for completion of the various components have now passed, staff has estimated the actual total inflation to the end of the project to be \$24.1 million, based on the inflation rates experienced and the invoices received to date. As the original inflation budget at 2.8% was \$12.3 million, the remainder of \$11.8 million was taken from the contingency budget.

It should be noted that there remain numerous potential project and contractual risks that may require funding from the uncommitted contingency balance. For example, due to recent changes in the electrical code, D&D Water Solutions Inc. has identified various areas in which the design/construction of the Herring Cove WWTF will be impacted. D&D has not yet finished their analysis of this issue and, therefore, it is not possible to quantify the actual financial impact at this time.

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.

ATTACHMENTS

Appendix A - Halifax Harbour Solutions Project -1st Quarter Report -April to June 2008

A copy of this report can be obtained online at <http://www.halifax.ca/council/agendasc/cagenda.html> then choose the appropriate meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

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Appendix A

Halifax Harbour Solutions Project 1st Quarter Report April to June, 2008

Introduction

The intent of this document is to provide Council and staff with a general overview of the Harbour Solutions Project progress during the period between April and June, 2008.

It is presented in sections:

Section 1 - Wastewater Collection System (WWCS)

Section 2 - Wastewater Treatment Facilities (WWTF)

Section 3 - Biosolids Processing Facility (BPF)

Section 4 - Pollution Prevention Program

Section 5 - Water Quality Sampling Program

Section 6 - Financial Information

Section 7 - Public Involvement and Information Program

Section 8 - Construction Safety

Section 1

Wastewater Collection Systems

Halifax Wastewater Collection System

Work during the 1st quarter of 2008 were focused on operating all the regulation structures as well as identification and repair of deficiencies. Commissioning activities such as training for Halifax Water staff were also completed during the quarter.

The landscaping was substantially completed and it is expected that all remaining commissioning documentation will be delivered to HRM in the 2nd quarter.

Two flooding events occurred at Peninsula Place (Barrington / Inglis) as a direct result of severe wet weather events. Investigations are ongoing in consultation with the Contractor and Halifax Water to understand whether performance of the new HSP or existing sewage infrastructure contributed to the cause.

Dartmouth Wastewater Collection System

Work during the 1st quarter of 2008 concentrated on preparing the regulation structures for the delivery of sewage flows to the Dartmouth WWTF. In addition, connection of the Dartmouth Cove diversion piping was completed. Completion of the remaining landscaping work was also initiated.

During the 2nd quarter of 2008, final diversion piping connection work will continue as well as the other remaining work required to send wastewater flows to the Dartmouth WWTF. In addition, remaining reinstatement work will be completed. Transfer documentation, deficiency lists, etc. will also start to be prepared.

Herring Cove Wastewater Collection System

During the 1st quarter of 2008 construction work continued at the Roaches Pond retention tank and the Herring Cove Pump Station. The Roaches Pond hydro testing was completed as well the retaining wall and site grading. Completion of the remaining mechanical and electrical work was also initiated. Work on the Herring Cove Pump Station included the advancement of the mechanical and electrical work. Work on the off-shore section of the Herring Cove WWTF Outfall continued.

During the 2nd quarter of 2008, remaining work on Roaches Pond Retention Tank will be completed. The work at the Herring Cove Pump Station and the off-shore section of the Herring Cove WWTF Outfall will also be completed.

Section 2

Wastewater Treatment Facilities

Halifax Wastewater Treatment Facility

Civil, Architectural, and Structural Work

During the 1st quarter of 2008, work concentrated on identification and repair of deficiencies.

Interior finishing was also completed. Landscaping of the site was also essentially completed.

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Mechanical & Electrical Work

Mechanical and electrical work was concentrated on identification and repair of deficiencies including items in the odor control system and the ventilation system.

Commissioning

The Performance Test was conducted April 4-17 and the associated report was received by HHSP and was also sent to Nova Scotia Environment. The report is being reviewed by our Owner's Engineer.

Documents, permits and approvals, required for the substantial completion of the Halifax WWTF to HRM were also being gathered by the contractor.

Second Quarter 2008

It is expected that the contractor will continue to work on the deficiencies.

Dartmouth Wastewater Treatment Facility

Civil, Architectural, and Structural Work

During the 1st quarter, hydro testing of the various tanks and channels was completed. Interior finishing work continued with most work being completed with the exception of floor finishes which continued through the quarter. Remaining landscaping work was initiated.

Mechanical & Electrical Work

Remaining mechanical and electrical work was completed.

Commissioning

All commissioning activities leading to the introduction of raw water were substantially completed.

Second Quarter 2008

Introduction of raw water into the facility will start early in the 2nd quarter. It is expected that the 'running period' will be initiated shortly thereafter. Deficiencies will also be identified and repairs initiated. Remainder of the landscaping will also be completed.

Herring Cove Wastewater Treatment Facility

Civil Work

Mass concrete work was completed in the 1st quarter. Interior painting and block work was also initiated. Yard curbing was also completed.

Mechanical & Electrical Work

All major equipment arrived on site during the quarter and equipment installation started.

Second Quarter 2008

Interior block work will continue and exterior block work will start. Interior painting will also

continue. Landscaping work will also be initiated (i.e., site grading, paving, etc.).

Schedule

The schedule has been assessed by the Contractor and the current forecast for the achievement of substantial completion for the Herring Cove WWTF (August 2009) has been received.

Section 3

Biosolids Processing Facility

The Biosolids Processing Facility (BPF) continued to process biosolids from the Aerotech Dewatering Facility, and from the Halifax WWTF. At the time of writing of this report, biosolids from the Dartmouth WWTF are also being processed.

The finished product continues to meet the Class “A” biosolids standard as established by the Province of Nova Scotia with most product even meeting the “exceptional quality” standard.

Section 4

Pollution Prevention Program

In support of the Harbour Solutions Project and as a requirement of Provincial legislation, HRM initiated a Source Control Strategy, now referred to as the Pollution Prevention (P2) Program. This program has been designed and implemented to reduce the levels of organic and inorganic compounds, toxins and other matter currently entering the municipal stormwater and wastewater sewer systems, and ultimately, freshwater and marine environments including Halifax Harbour.

The P2 program requires compliance with Halifax Water’s Rules and Regulations through planning, education, inspections and monitoring at the source of these discharges from all industrial, commercial and institutional locations within HRM. Additionally, educational information is provided through various mediums for the residential sector to allow direct participation by the public in the protection of our natural marine and freshwater resources. Staff previously provided updates to Council on the status of this program. Since the last update provided to Regional Council, activities that P2 staff have undertaken or completed include the following:

- Staff, during this reporting period, have continued with inspections of businesses within the Dartmouth WWTF sewershed for compliance with Halifax Water’s Rules and Regulations. It is estimated that over 90% of identified businesses have been inspected within this sewershed.
- P2 staff responded to 24 separate environmental incidents or related investigations since the previous report. Some of these included lake water quality incidents which resulted in monitoring and inspections for the source of various contaminants.
- P2 staff have produced and continue to deliver pollution prevention radio advertisements to promote environmental responsibility and awareness for the general public.

- Staff activities in the monitoring of food preparation sector continues to be a priority area. Staff have participated in the development of a Canada-wide strategy for the management of fat, oil and grease (FOG) through participation in the Canadian Water and Wastewater Association. Reduction of the amount of (FOG) that is discharged to municipal sewer systems will correspond to a reduction in Soluble and Total BOD influent loadings to the HSP WWTF's and may result in a reduction of system operation and maintenance costs. An educational brochure has been completed and will be distributed to food establishments in the near future.
- The P2 program has been managing the disconnect of 30 private sewage outfalls to the Harbour, 15 located each in Dartmouth and Halifax. With the exception of 3 recently discovered locations, all known dischargers have been corrected. The remaining 3 are subject to the same disconnect protocol that has been used for all other private outfalls.

To date, the P2 program has been following a business plan in which the program objective is to have pollution prevention fully implemented on a sewer shed basis consistent with the HSP commissioning. As previously reported, the Halifax WWTF sewer shed has been completed and the Dartmouth WWTF sewer shed will be completed in 2008. This represents in excess of 5,500 inspections to date. The program will then continue with inspections of all non-residential locations for the Herring Cove sewer shed and eventually will extend to all businesses within the serviced sewer sheds throughout HRM.

Section 5

Harbour Water Quality Monitoring June, 2008 Update

The Harbour water quality monitoring program was initiated in June, 2004. Samples are collected at 35 stations in the harbour, from the head of Bedford Basin to the harbour mouth past McNabs Island. Stations are located down the centre of the harbour, and at various additional points including areas of recreational use such as the yacht clubs. Since 2006, additional samples have been taken in Dartmouth Cove, Fairview Cove, and new sampling sites were established at Herring Cove. Additional sampling was performed at Fairview Cove during 2007 to monitor for effects of sewage diversion due to construction at the Duffus Street pumping station. Sites were added in late 2007/2008 around the NW Arm to monitor for changes as the Halifax plant came online.

Regular sampling continues on a bi-weekly basis for bacteria, metals, nutrients and water chemistry. Samples are collected at the surface and 10 metres at each site. The data are compiled into bi-weekly and quarterly summary reports. Testing for oils and biochemical oxygen demand (a measure of organic constituents in the water) has been discontinued at regular sampling sites due to levels which are routinely below detection limits. Methods for more sensitive detection of metals have been instituted. The program remains on schedule and below budget.

The purpose of the program is to establish existing baseline water quality conditions in the harbour, and to track changes as each of the three new treatment plants is commissioned in 2008 (Halifax and Dartmouth) and 2009 (Herring Cove). The sampling program is scheduled to continue through 2009. Based upon oceanographic modelling of the harbour, it is predicted that the water quality objectives

set by HRM, adapted from the Halifax Harbour Task Force, will be met through the advanced primary sewage treatment provided for Halifax and Dartmouth. Water quality objectives

differ for different parts of the harbour, but for the Outer Harbour, Northwest Arm and Bedford Basin, it is predicted that guidelines for contact recreation will be met. With full commissioning of the Halifax plant in 2008, conditions in the Northwest Arm and Point Pleasant Park areas have rapidly improved. Contact recreation guidelines have been met during spring and summer of 2008. Exceptions will be the few days during or immediately following heavy rainfall events, when wet weather overflows will still occur at some points in the collection system. A few remaining leak situations in the NW Arm trunk sewer were detected in the bacterial data, and work is under way to eliminate these during 2008. A decision was made to open two beaches (Black Rock beach at Point Pleasant Park and Dingle beach at Sir Sandford Fleming Park) for swimming on August 2, 2008. More intensive monitoring for faecal Cominform bacteria is ongoing near key overflow points.

Metals levels are low throughout the harbour, as are BOD levels. Oxygen levels are depressed in the deeper waters of Bedford Basin at various times, likely due to decomposition of organic materials. Oxygen levels are often too low, below the desired objective. Overall, water quality objectives are beginning to be met, based on the various measured parameters.

Quarterly reports and weekly/bi-weekly data reports and spreadsheets are available online at: <http://www.halifax.ca/harboursol/waterqualitydata.html>

Section 6

Financial Information

As of June 2008, the Harbour Solutions Project has spent \$302.2 million of its \$332.7 million capital budget. Spending for the 1st quarter of 2008/09 just completed was \$11.9 million, of which \$0.2 million was spent on the wastewater collection system, \$9.6 million on the wastewater treatment facilities, and \$1.1 million on the biosolids processing facility. Contract management, the Public Involvement & Information Program, aggressive pollution prevention, water quality monitoring, inflation, and administration totalled \$2.0 million.

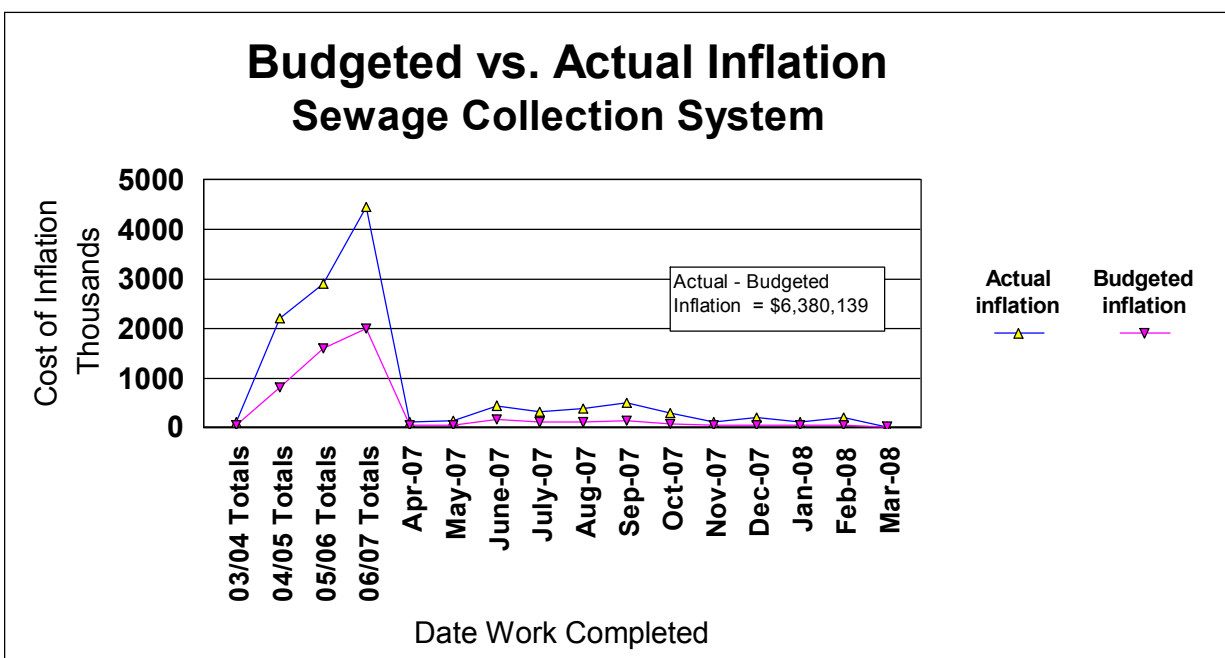
In October 2002, Council granted approval in principle to commence a series of increases, not to exceed \$0.29, to the Environmental Protection Charge as a means of funding the Harbour Solutions Project. The series of increases has now been completed, with the HSP portion of the EPC rate now being \$0.66.

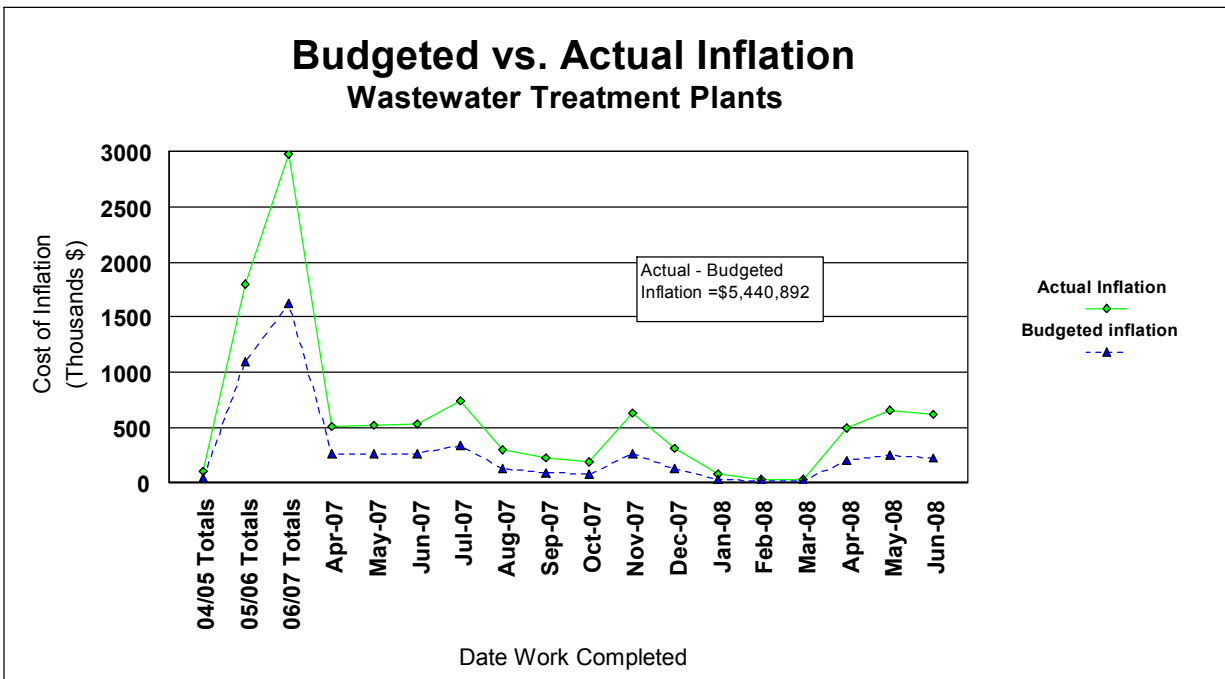
Inflation

Over the life of the project, 2004/05 was an extraordinary year for construction-related inflation in HRM in terms of its strong increase. In 2005/06 the inflation trend stabilized somewhat, and was lower than the revised inflation projection of 6% (4.31% vs. 7.87% in 2004/05). Inflation for fiscal years 2006/07 and 2007/08 was 5.25%, and 7.78% respectively, while the first quarter of 2008/09 saw inflation of 6.24%.

The impact of inflation in terms of dollars is demonstrated in the two charts on the next page for the wastewater collection system and the wastewater treatment facilities. The difference between the actual and budgeted inflation represents the amount which must be taken from the contingency funds. As of June 2008, \$11.82 million over and above budgeted inflation of \$12.3 million has been spent on these two contracts.

As the completion dates for all components of the sewage collection system and the sewage treatment plants have passed, no further inflation should be incurred on these components.





Contingency Spending

The contingency budget of \$18.20 million is largely set aside for addressing inflation beyond budgeted levels. The contingency is also being used to fund small items that have arisen through the contract amendments.

Actual and planned spending of contingency funds is as follows (shown in millions).

Realized inflation in excess of budget	\$11.82
Amount committed for amendments	3.41
net of CSIF contribution for diffusers	(2.50)
Herring Cove Water & Sewer	1.66
Commitments	0.25
Uncommitted	<u>3.56</u>
Total	\$18.20

Commitments listed above include a larger Fournier press and a larger chemical tank storage. It should also be noted that there remain numerous potential project risks that may require funding from the uncommitted contingency balance, such as an insurance allowance, and possible changes to the design/construction of the of the Herring Cove WWTF, as identified by D&D. However, the analysis of this issue is not yet completed, and , therefore, it is not possible to quantify the actual financial impact at this time.

Harbour Solutions Project
1st Quarter of 2008/09
(in millions of dollars)

	1 st Quarter	Year to Date	Project Total	Budget	Budget Adjustments		Revised Budget
					Net HST	Contingency	
Firm Price Contracts							
Wastewater Collection System	0.2	0.2	117.5	112.3	3.9	3.4	119.6
Wastewater Treatment Facilities	9.6	9.6	122.6	136.9	4.7		141.6
Biosolids Processing Facility	0.1	0.1	12.3	12.5	0.5		13.0
Net HST	-	-	-	9.6	-9.6		-
Community Liaison Committees	-	-	6.7	7.0		1.7	8.7
Land	-	-	4.9	4.8			4.8
Pre-Construction Contract	-	-	7.1	7.1			7.1
Total Firm Price Costs	9.9	9.9	271	290.2	-0.5	5.1	294.8
Variable Costs							
Admin., Contract Mgt., Communications	0.1	0.1	8.5	12.0		0.2	12.2
Contingency	-	-	-	18.2		-17.1	1.2
Inflation	1.9	1.9	22.7	12.3	0.5	11.8	24.6
Total Variable Costs	2	1.99	31.2	42.5	0.5	-5.1	37.9
Harbour Solutions Project Total Cost	11.9	11.9	302.2	332.7			332.7
Funding							
EPC Reserve Levies		4.2	160.2	160.2			160.2
Long Term Debt							
NS Municipal Finance Corp.			110.00	110.00			110.0
Federation of Canadian Municipalities			20.0	20.0			20.0
Cost Sharing:							
Province*			6.0	10.0			10.0
Canada Strategic Infrastructure Fund			20.9	30.0			30.0
Potential short-term debt				2.5			2.5
Total Funding		4.2	317.1	332.7			332.7

* The Province of Nova Scotia has committed \$30 million to the Project over a 15 year span. The \$10 million shown above in the table represents

Section 7

Public Information and Involvement Program

The Marketing, Design and Print Services section of the Corporate Communications Office assumed responsibility for the Public Information and Involvement Program for the Harbour Solutions Project in the fall of 2003.

Public Messaging

Harbour Solutions continues to be a major player in the Naturally Green Newsletter. This environmentally focussed in-house produced piece is distributed to approximately 162,000 households in HRM. The latest edition was released in late June 2008 with Harbour Solutions on the front page. This edition focussed on the re-opening of Black Rock and Dingle beaches and provided water quality results for the beach areas.

Corporate Communications coordinated a media tour of the N-Viro Biosolids facility in May.

Corporate Communications, in its work with the Pollution Prevention (P2) group, continues to run a radio campaign with the Metro Radio Group (Q104, C100, CJCH, KIXX and Sun FM). The campaign focuses on pollution prevention and the protection of our harbour. Previous radio ad campaigns have been award winning. The year long series of six ads has been very well received and continues to make the link between the Harbour Solutions Project and Pollution Prevention.

Corporate Communications developed an educational video focussing on the biosolids process. This video was provided to media at the Biosolids Processing Facility tour.

A video focussing on the advanced-primary treatment process is in the works.

Corporate Communications designed a user-friendly map outlining the various harbour related activities that will be possible once the Harbour Solutions Project is up and running. The map has appeared in a number of publications throughout the quarter including: The Boating News, Boom and Halifax Magazines and continues to be very well received. Boom Magazine also published a lengthy article on Harbour Solutions with copy supplied by Corporate Communications.

Community Liaison Committees (CLC)

The Herring Cove CLC has essentially completed their mandate with respect to the WWTF exterior design. The focus of the CLC is now on the landscaping around the WWTF, the Herring Cove pumping station and Latter's Pond recreation area. Staff from HRM's Community Development division are now assisting in these efforts.

Corporate Communications staff will continue to meet with CLC members as required. Corporate Communications also continues to work with the community to address any concerns that might arise during construction.

In Dartmouth, the new trail system is essentially complete. Staff are working with Councillor Barkhouse to coordinate the final landscaping plan for the WWTF.

Residents continue to be kept informed of work in their specific area through notices delivered door- to-door. Residents are also kept up-to-date on the overall project through publications such as Naturally Green, HSP website, radio and newspaper ads as required.

Communication Plan

Staff developed and continue to implement a detailed communication plan for the Harbour Solutions Project.

Presentations

Presentations are developed on an on-going basis for conferences, workshops and community groups. The presentations are updated regularly to correspond with project progress. These presentations are available on compact discs and on the HSP website.

Two presentations were given to students at William King Elementary school in Herring Cove.

Three new Harbour Solutions display units continue to be used at public meetings, trade/home shows, WWTF openings and other events such as Ocean's Day in June. The new display units focus on the positive message of the project, stewardship and integrating of messaging with HRM's Pollution Prevention Program.

As part of our presentation materials, Mayflower Models has been contracted to construct 3 scale models of the new wastewater treatment plants. These are a valuable tool in explaining the advanced primary treatment process and were used in the school presentations as noted above and Ocean's Day.

Harbour Solutions Website

The Harbour Solutions website continues to be updated on a regular basis and is a valuable, user-friendly public source of information on the Project. Staff continue to maintain the site for Harbour Solutions. The site features a large photo gallery, reference materials, past and current presentations, construction notices informing residents of any possible traffic impacts and a large collection of information related to the wastewater collection systems, wastewater treatment facilities, and biosolids processes.

Construction Communications

Construction updates are e-mailed as required to stakeholders and posted on the website, along with notices of impending construction and their impacts. Newspaper and radio ads, media releases and web postings continue to be developed for construction that may impact traffic.

Signage

Staff liaised with the federal and provincial governments to design, produce and install temporary construction signage for the sites of the three Wastewater Treatment Facilities.

More detailed permanent signage has been designed by Corporate Communications for the three WWTF sites as well as building mounted plaques.

Correspondence

As requested/required, letters and e-mails are drafted to address concerns/enquiries from citizens regarding the Project. PIIP staff also regularly respond to numerous requests for HSP

information from the general public, interest groups, media, Mayor Kelly and HRM Councillors, staff and others. Letters are also drafted for the CLC's and other levels of government.

Section 8

Construction Safety

There were no lost time incidents during the quarter. Nova Scotia Department of Labour carried out a Workplace Inspection on June 27, 2008. A Compliance Order regarding confined space procedures was issued and acted upon.