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**Item No. 12.1.5**

**Halifax Regional Council  
November 13, 2007**

**TO:** Mayor Kelly and Members of Halifax Regional Council

**SUBMITTED BY:** \_\_\_\_\_  
Brad Anguish, Director of Business Planning & Information Services

**DATE:** October 9, 2007

**SUBJECT:** **Harbour Solutions Project - 2nd Quarter (June to September, 2007)**

**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**

The wastewater treatment facilities and wastewater collection systems are progressing well overall. The overall substantial completion of the Project is still forecasted to be September 2008. A detailed report of progress is attached as Appendix A.

### ***Halifax***

The Halifax Wastewater Collection System (WWCS) work during the 2nd quarter of 2007/08 continued with the remaining mechanical, electrical, and reinstatement work - such as landscaping and paving at various regulation structures - as well as the pumping capacity upgrade to the Duffus Street Pumping Station, which was completed. The lateral connections on Hollis Street were also completed.

Regarding the Halifax WWTF, during the 2nd quarter of 2007/08, work was focused on interior finishing, such as drywall, painting, etc. Final grading of the site in preparation for landscaping was also advanced. Concrete repairs to the bottom of the wet well were completed in order to meet required project quality standards. With the exception of the chemical feed pumps, Fournier presses and the generators, all equipment was successfully commissioned with clean water.

At the time of writing this report, the whole Halifax WWTF has been successfully commissioned using clean water and sewage treatment has begun using a portion of the flow from the Duffus Street Pumping Station. With the exception of the final lift of asphalt at Barrington and Inglis, and barring any rework as a result of deficiencies, Harbour Solutions construction within the streets right of way in Halifax has been completed.

### ***Dartmouth***

The Dartmouth WWCS work during the 2nd quarter of 2007/08 was concentrated on reinstatement of various structures and street locations. Mechanical and electrical installation work is essentially complete with the exception of Old Ferry Road Combined Sewer Overflow's mechanical work, which will be completed after the Dartmouth WWTF is accepting flows. The Jamieson Street diversion piping work was deferred pending the completion of the Halifax Water's capital project that is replacing the Jamieson Street trunk sewer and outfall.

Regarding the Dartmouth WWTF, most of the coating of the various tanks and channels was essentially completed. Interior finishing (i.e., drywall, painting, etc.) continued in coordination with the remaining electrical and mechanical work.

The forecasted date for commissioning the Dartmouth WWTF remains March 31, 2008.

### ***Herring Cove***

The Herring Cove WWCS work during the 2nd quarter of 2007/08 continued at the Herring Cove Pumping Station and Roaches Pond retention tank. In addition, work was started on the Herring Cove interceptor and offshore portion of the Herring Cove WWTF outfall.

Detailed structural and architectural drawings were issued at the 100% level. Construction work concentrated on underground pipe installation, concrete formwork, reinforcing steel installation and concrete placing.

The forecasted date of commissioning remains September 30, 2008. It should be noted that D&D Water Solutions is undertaking a detailed schedule review and this date is subject to change.

### ***Biosolids Processing Facility***

The Biosolids Processing Facility (BPF) continued to process dewatered biosolids from HRM's existing treatment plants via the Aerotech Dewatering Facility. The quality performance test and labeling of the finished soil amendment product under the Canadian Fertilizer Act will be carried out with the biosolids from the Halifax WWTF. Finished product will continue to be stored on site in enclosed storage until the labeling process is complete.

### ***Safety***

There was no lost time due to safety incidents during this quarter. NSDEL carried out an inspection at the Halifax WWTF regarding handling of hazardous materials. NSDEL also carried out an inspection at the marine works of the Herring Cove WWTF outfall. Two orders were received for the latter inspection and outstanding requirements were addressed, (i.e., submission of code of practice of marine blasting, and no storage of explosives on the site).

## **BUDGET IMPLICATIONS**

The Harbour Solutions Project spent \$22.21 million in the 2nd quarter of 2007/08. Since the start of the project, \$284.03 million has been spent to September 30, 2007. Projections to meet the capital budget of \$332.7 million are still on target.

Inflation increases remain to be the most significant financial risks facing this project. 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, and 2006/07 brought inflation of 7.87%, 4.31%, and 5.25% respectively. In the first quarter of 2007/08, annual inflation was 5.8%, while in the second quarter inflation has once again risen above 6% to 7.41%.

To mitigate this risk and financial impact, staff revised the inflation estimate to 6% per year over the life of the contract and has committed a substantial portion (\$14.4 million) of the \$18.2 million

almost 8%. The revised estimated inflation amount for the Harbour Solutions Project was budgeted from contingency funds based on an average inflation rate throughout the entire duration of the construction period. This assumes that there will be fluctuations in the inflation rates, but that they will average out to be 6% annually.

Based on the inflation paid to date, staff calculate that the remaining contingency funds allocated for inflation can fund an inflation rate of approximately 13% annually for the duration of the project based on current contractor completion date projections. If the annual inflation rate were to increase to anything higher than the 13%, more contingency funding would have to be set aside. At the time of the 1<sup>st</sup> quarter report (April to June, 2007), the uncommitted contingency balance was \$522,000 which could be made available to help meet any such increases.

Although the annual inflation rate could go as high as 13% before additional contingency funding would be required, staff considers this very unlikely, given the history of the Non Residential Construction Index and the time remaining until the completion of the project. Because of the recent increase to 7.41% (which is an increase of 1.61% over the last quarter), staff are now estimating that inflation will not exceed 10% from now until completion of the project and therefore another \$300,000 has been removed from the inflation contingency and added to the uncommitted contingency for a total of \$822,000.

It should be noted that there remain numerous potential project 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 - 2nd Quarter of Report (June to September, 2007)

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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Report Approved by:

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## **Halifax Harbour Solutions Project**

### **2nd Quarter of Report - June to September, 2007**

#### **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 June 1 and September 30, 2007.

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 (P2)

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 2nd quarter of 2007/08 continued with the remaining mechanical and electrical work, and reinstatement work (such as landscaping, paving, curb work) at the various regulation structures, as well as continuing the work on the modifications to the Duffus Street Pumping Station, which was completed. In addition, work on the lateral connections on Hollis Street was completed.

During this quarter, detailed coordination with the wastewater treatment facility (WWTF) contractor was undertaken to ensure that the wastewater flows necessary to undertake the commissioning of the Halifax WWTF will be available when needed. This work included completing the work at the Duffus Street Pumping Station, the Pier A Pumping Station and the Halifax WWTF Outfall, among other work components. The Halifax Wastewater Collection System (WWCS) is now ready to supply wastewater flows to the Halifax WWTF.

#### ***3rd Quarter 2007/08***

In the 3rd quarter, the remaining work and commissioning of the Halifax WWCS will be completed. The remaining work includes the completion of the electrical power connections at the Sackville Street Combined Sewer Overflow (CSO) and the Maritime Museum of the Atlantic CSO, the remaining diversion piping at the North Street CSO, as well as the remaining reinstatement work, including placing the top course of asphalt at various locations. Completion of the Atlantic School of Theology diversion chamber and completion of the Balmoral Pumping Station/CSO diversion piping will occur after the Halifax WWTF has started to accept wastewater.

#### ***Dartmouth Wastewater Collection System***

Work during the 2nd quarter of 2007/08 was concentrated on reinstatement activities at various structures and street locations, including Alderney Drive, Shore Road, King Street CSO, Lyle Street CSO, etc. Mechanical and electrical installation work is essentially complete with the exception of the Old Ferry Road CSO mechanical work, which will be completed after the Dartmouth WWTF is accepting flows. The Jamieson Street diversion piping work was deferred pending the completion of the Halifax Water's capital project that is replacing the Jamieson Street trunk sewer and outfall.

#### ***3rd Quarter 2007/08***

During the 3rd quarter of 2007/08, remaining reinstatement work will continue as well as the completion of remaining mechanical and electrical work. As indicated previously, completion of the remaining diversion piping work will occur once the Dartmouth WWTF is ready to accept wastewater.

### ***Herring Cove Wastewater Collection System***

During the 2nd quarter of 2007/08, construction work continued at the Roaches Pond retention tank and the Herring Cove Pumping Station (Village Road P.S.). In addition, work was started on the Herring Cove interceptor and the off-shore portion of the Herring Cove WWTF Outfall.

### ***3rd Quarter 2007/08***

In the 3<sup>rd</sup> quarter of 2007/08, work will continue on all the remaining work components.

## **Section 2**

### **Halifax Wastewater Treatment Facility**

#### ***Civil, Architectural, and Structural Work***

During the 2nd quarter of 2007/08, work was focussed on interior finishing, such as drywall, painting, etc. In addition, final grading of the site in preparation for landscaping was advanced. All the remaining hydro-testing was also completed. The pumping station at the bottom of the wet well required concrete repairs and this work was substantially completed during the quarter.

#### ***Mechanical and Electrical Work***

Mechanical and electrical work continued and is substantially complete. All major equipment has been installed, with the exception of the air conditioner. All cabling and piping was also completed.

#### ***Commissioning***

The commissioning plan has advanced to the point where the final commissioning activities, i.e., clean water process testing, and the associated running period and performance testing are ready to be completed. The wet well pumping station repairs are complete. At the time of writing this report, the hydraulic performance of the Halifax WWTF using clean water was successful and sewage treatment was started using flow from the Duffus Street Pumping Station.

### ***3rd Quarter 2007/08***

The 3<sup>rd</sup> quarter of 2007/08 will be devoted to the completion of the commissioning program.

### **Dartmouth Wastewater Treatment Facility**

#### ***Civil, Architectural, and Structural Work***

During the 2nd quarter of 2007/08, coating of the various tanks and channels was essentially completed, with some exceptions (i.e., channels downstream of the UV channels). Interior finishing such as drywall, painting, etc., continued in coordination with the remaining mechanical and electrical work. Final grading on most of the site such as curb work was also performed.



***Mechanical and Electrical Work***

During the 2nd quarter of 2007/08, the remaining major equipment was installed. In addition, piping and conduit installation continued with substantial progress continuing to be made. Heritage Gas has informed the Harbour Solutions Project office that natural gas will be available at the Dartmouth WWTF site. As a result, the boilers for the Dartmouth WWTF will be changed to burn either natural gas or oil.

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***Commissioning***

Initial dry commissioning activities will be started in the 3rd quarter of 2007/08.

***3rd Quarter 2007/08***

The 3rd quarter work will include completion of the remaining coatings and substantial progress if not completion of the hydro-testing. The interior finishes will also be completed, assuming that the remaining mechanical and electrical work will allow this work to be done. Landscaping will also be advanced to the extent possible. It is also anticipated that all remaining mechanical and electrical work will be completed.

**Herring Cove Wastewater Treatment Facility**

***Design***

Detailed structural and architectural drawings were issued at the 100% level during the quarter as well as process mechanical and electrical design packages.

***Civil Work***

Construction work concentrated on underground pipe installation, concrete formwork, reinforcing steel installation and concrete placing.

***Mechanical and Electrical Work***

Underground pipe installation and penetration installation was started in coordination with the ongoing concrete work.

***3rd Quarter 2007/08***

In the 3rd quarter of 2007/08, the drainage system will be completed, concrete work will continue, as will in-slab cabling and penetration installation.

**Section 3**

**Biosolids Processing Facility**

The Biosolids Processing Facility (BPF) continued to process dewatered biosolids from HRM's existing treatment plants via the Aerotech Dewatering Facility. The quality performance test and labelling of finished products under the Canadian Fertilizer Act will be carried out with the biosolids from Halifax WWTF.

The Biosolids Processing Facility (BPF) at Aerotech Business Park has been processing the biosolids from the existing treatment plants and from the sludge lagoon for a number of months now. Due to the delay in the start up of the Halifax Wastewater Treatment Facility (WWTF), the performance tests of the BPF cannot start until there is a steady supply of biosolids from the Halifax WWTF. As with any new installation, there is fine tuning and rectification of deficiency items ongoing. These deficiencies and fine tuning of the operation will not affect the acceptance of the biosolids from the Halifax WWTF.

HRM entered into a five (5) year renewable operating and maintenance agreement for the Aerotech BPF

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on November 30, 2004 with N-Viro Systems Canada Inc. The N-Viro system is a patented alkaline stabilization process capable of treating municipal biosolids. The patented process consists of mixing the dewatered biosolids (about 25% solids) with alkaline materials such as cement kiln dust and lime. The mixed solids are conveyed to a dryer and are dried to the desirable 60-85% solids content. A combination of the heat from the dryer and a chemical reaction between the alkaline materials and moisture in the dewatered biosolids raises the temperature to a controlled range of between 52 and 62 degree C and the pH to slightly above 12. The material is held in the heat-pulse cell(s) in the controlled temperature range for a period of 12 hours. The elevated pH is then maintained for a total of 72 hours. The heavy metals present in the biosolids are converted to insoluble forms and should not create any adverse condition in terms of metals leaching. The finished product is ready for distribution after 72 hours or it can be stored on site. HRM's BPF has an indoor storage capacity of the finished product for approximately 6 months.

N-Viro Systems Canada is responsible for all aspects of marketing and sales of the finished product to arm's-length third party and is also responsible for disposal of any unacceptable product. The finished product will be labeled under the regulation of the Canadian Fertilizer Act. N-Viro Systems Canada has been marketing similar finished product in Southwestern Ontario since 1996.

N-Viro Canada intends to market HRM's finished product through established farm product distributors. It will be sold as a soil amendment, liming product. The responsible farm product distributors will take soil samples and the rate of application will be based on soil tests and will not exceed appropriate agronomic rates as well as rates defined under the CFIA labeling.

Since alkaline materials such as cement kiln dust and lime is being added to the dewatered biosolids, the quality of these materials will have impact on the quality of the finished product. The Agreement between N-Viro Canada and HRM has a number of provisions to ensure a good quality finished biosolids product being produced.

The Agreement does not specify that the operator has to obtain their Alkaline Admixture from any particular supplier. On the contrary, the operator is required to purchase the Alkaline Admixture from a source that meets the quality specified in the contract. Some of the contract provisions include the following:

- C The operator shall only use an Alkaline Admixture which does not contain metal levels in excess of the maximum levels noted in a table in the Agreement. These provisions ensure that the finished product will not have metal levels higher than our biosolids.
- C HRM has full control of the source of the Alkaline Admixture. The Agreement states that “the operator shall not change its source of Alkaline Admixture during the term of this Agreement unless it secures HRM’s prior written approval, which approval shall not be unreasonably withheld if the Operator is able to provide evidence satisfactory to HRM that the alternate source of Alkaline Admixture has metal levels which are lower than the average metal levels set forth in the table”.
- C The Operator shall take a duplicate sample of each shipment of Alkaline Admixture received from its Alkaline Admixture supplier and provide one sample to HRM. Therefore, HRM can take the Alkaline Admixture to an independent laboratory for testing of metal levels.

- C The Agreement stipulates that the finished product shall meet or exceed all of the following Product Requirements:
- < acceptable product to CFIA under the Fertilizers Act; and
  - < acceptable product to NSDEL qualifying as Class A under the “Guidelines for Land Application and Storage of Biosolids in Nova Scotia”; and
  - < capable of classification as an Exceptional Quality Class A pathogen reduction material under US EPA Regulations 40CFR 503.

At the present time, the source of the Alkaline Admixture is from Brookfield Lafarge due to its superior quality. However, should the quality of the cement kiln dust from the Brookfield Plant deteriorate for any reason and not meet the required specifications, our operator will have to procure the Admixture from alternate sources under the terms of the Agreement.

#### 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.

At the Regional Council meeting of July 17, 2001 (Item No. 9.1), Council approved the adoption of By-Law W-101 respecting the “Discharge of Wastewater into Public Sewers”. This by-law regulates the discharge of specified substances that may comprise paints, inks, solvents and other hazardous, metal-rich and toxic products and wastes to the municipal sewer systems. The P2 program requires compliance with the Wastewater Discharge By-Law 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 at its meeting of September 18, 2007, 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 HRM’s By-Law W-101. It is the intent of staff to have this phase of activities completed prior to the completion and commissioning

of the Dartmouth WWTF. To date, an estimated 85 to 90% of identified businesses have been inspected within this sewershed. Staff anticipate having this sewershed completed by December, 2007.

- P2 staff responded to 19 environmental incidents or related investigations since the previous report. Many of these included lake water quality incidents which resulted in extensive monitoring and inspections for the source of various contaminants.
- Staff for the past several years have installed storm drain markers to raise awareness that only rain may enter the municipal storm drain system. Representatives of Scouts Canada have approached P2 staff to discuss the possible participation in a “Yellow Fish” drain marking program. These discussions are ongoing and will be reported on at a latter date.
- P2 staff have produced and continue to deliver on-going pollution prevention television and 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. Reduction of the amount of fat, oil and grease (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.

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 sewershed basis consistent with the HSP commissioning. As previously reported, the Halifax WWTF sewershed has been completed and the Dartmouth WWTF sewershed will be completed by December 2007, which is in advance of the HSP WWTF commissioning. This represents 5,511 inspections to date. The program will then continue with inspections of all non-residential locations for the Herring Cove sewershed and eventually will extend to all businesses within municipally serviced sewersheds throughout HRM.

Continual monitoring of wastewater discharges is required to insure compliance with the provisions of HRM’s Wastewater Discharge By-Law W-100. This bylaw identifies and regulates physical and chemical parameters which, if not regulated, may impair municipal infrastructure, treatment efficiencies as well as the receiving environments.

It should be noted that the P2 program and staff transferred to Halifax Water on August 1, 2007. The P2 program in support of Harbour Solutions remains unchanged as a result.

## **Section 5**

### **Water Quality Sampling Program**

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 has been performed at Fairview Cove to monitor for effects of sewage diversion due to construction at the Duffus Street Pumping station.

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 2007 (Halifax) and 2008 (Dartmouth and Herring Cove). The sampling program is scheduled to continue through 2009. Water quality objectives have been established for various portions of the Harbour, and the sampling program will allow assessment of progress toward those objectives as sewage discharge to the Harbour becomes treated.

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 commissioning of the Halifax plant in fall of 2007, conditions in the Northwest Arm and Point Pleasant Park areas will rapidly improve.

Contact recreation guidelines should be met by summer of 2008, the only exceptions being the few days during or immediately following heavy rainfall events, when wet weather overflows will still occur at some points in the collection system. More intensive monitoring for faecal coliform bacteria will be conducted near key overflow points both prior to and following plant commissioning. Faecal coliform bacteria levels are currently high throughout the middle and inner harbour, exceeding the swimming guidelines, particularly in winter months. Levels in Northwest Arm and the Basin are periodically elevated. 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 in the harbour are not currently met except in the outer harbour, based on the various measured parameters.

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

## Section 6

### **Financial Information**

As of September 2007, the Harbour Solutions Project has spent \$248.06 million of its \$332.7 million capital budget. Spending for the 2nd quarter of 2007/08 just completed was \$22.21 million which is largely comprised of \$5.79 million for the wastewater collection system, \$12.39 million for the wastewater treatment facilities, and \$0.01 million for the new biosolids processing facility, which is now substantially completed. Contract management, the Public Involvement & Information Program, aggressive pollution prevention, water quality monitoring, inflation, and administration totalled \$1.06 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 first \$0.05 increase was implemented in October 2003. In January 2005, Council approved the schedule of remaining increases necessary to fund the Project. The second, third and fourth \$0.05 increases became effective in March 2005, October 2005 and October 2006 respectively. The next and final increase of \$0.09 will become effective in October 2007. The table below shows the implementation dates for the increases totalling \$0.29 for the Harbour Solutions Project:

Date	Environmental Protection Charge-HSP portion	Increase
October 2003	\$0.42	\$0.05
March 2005	\$0.47	\$0.05
October 2005	\$0.52	\$0.05
October 2006	\$0.57	\$0.05
October 2007	\$0.66	\$0.09

The above rates attributable to Harbour Solutions are just one portion of the Environmental Protection Charge. The charge also funds expenses associated with already existing infrastructure. All revenues collected are recorded in the Environmental Protection Reserve. Staff maintains an administrative split of Reserve balances. With the merger of the former Environmental Management Services Business Unit and the HRWC on August 1, 2007, the Reserve now resides with HRWC and the necessary cash will be submitted to HRM on an as needed basis in order to complete the capital portion of the Harbour Solutions Project. HRWC will continue to fund all Harbour Solutions operations (provided by HRWC staff) from the Reserve as well.

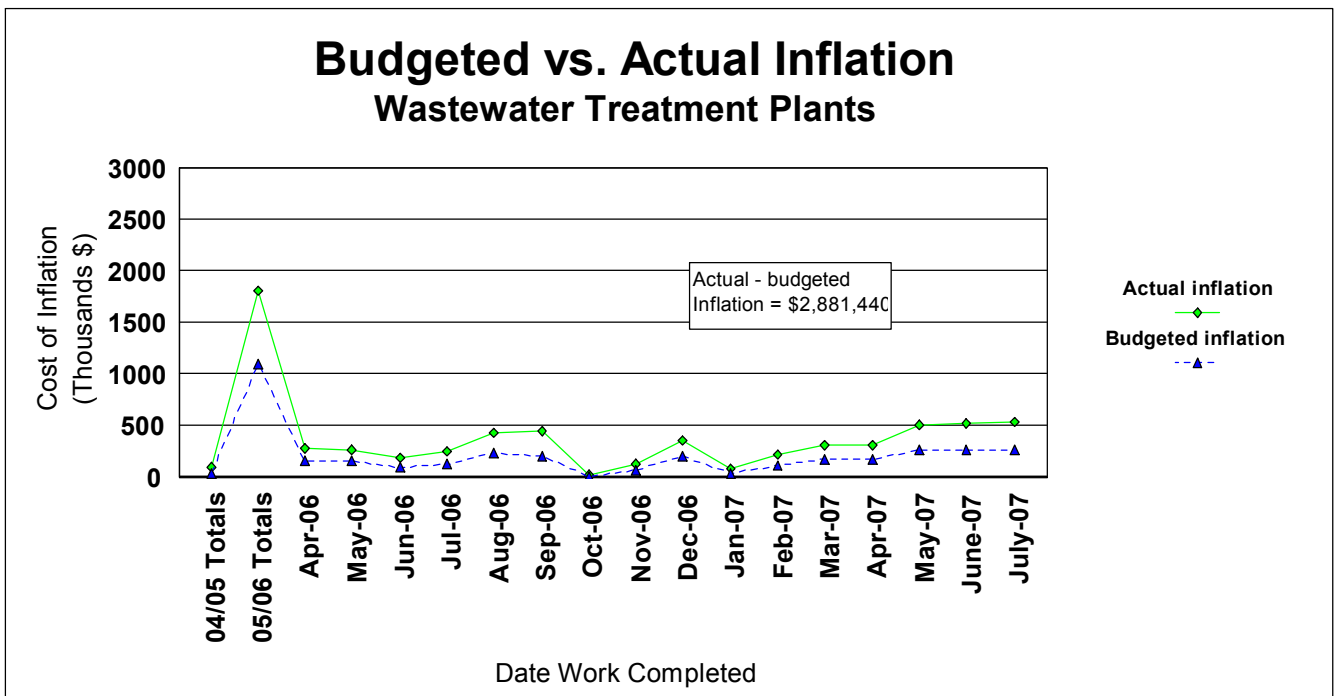
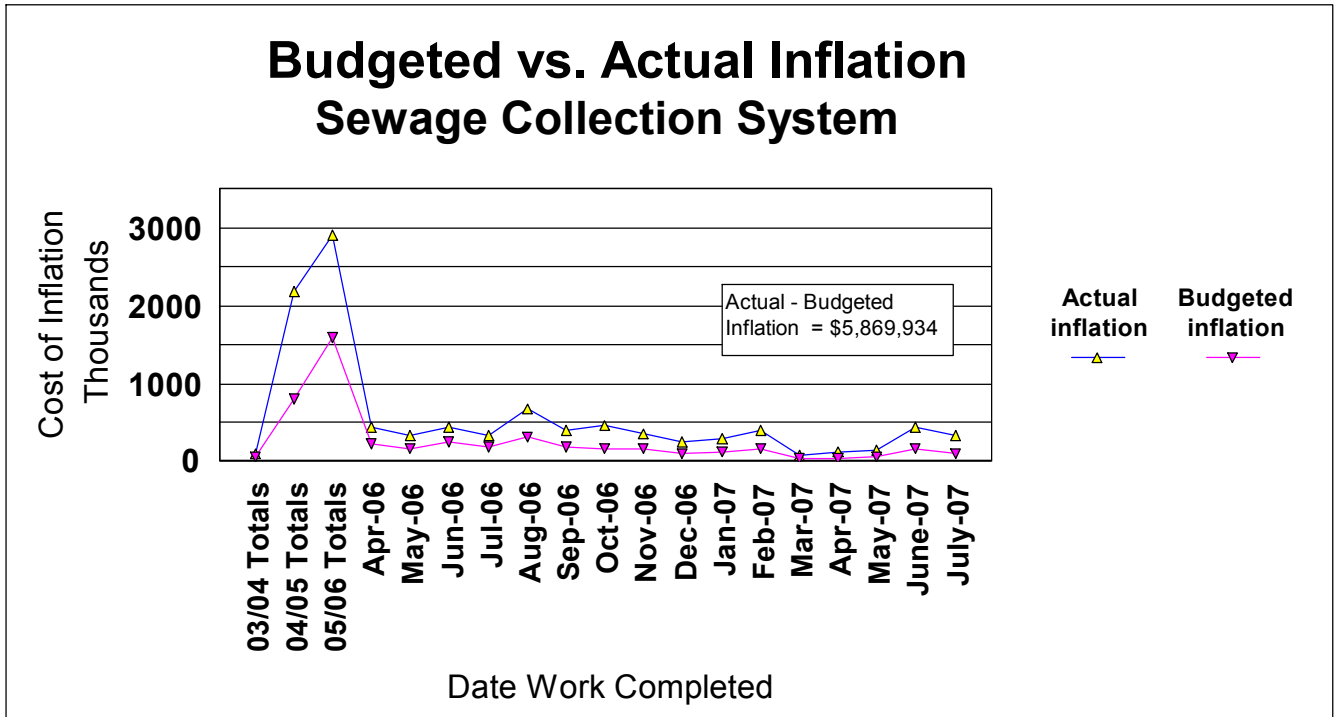
***Inflation***

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 year 2006/07 was

5.25%, while the first quarter of 2007/08 saw inflation of 5.8%. Current quarter inflation has once again risen above 6%, namely to 7.41%, and therefore it would still not be prudent to revise estimates over the Project's life down from the projected 6% annual inflation. If the current trend were to continue, inflation would well exceed the budgeted 6% by the time of completion of the project.

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 September 2007, \$8.75 million over and above budgeted inflation has been spent on these two contracts.





### ***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.

Based on the remaining contingency funding allocated for inflation, the annual inflation rate could go as high as 13% before additional contingency funding would be required. Staff does not consider this likely, given the history of the Non Residential Construction Index and the time remaining until the completion of the project. Taking a conservative assumption that inflation will not exceed 10% from now until completion of the project, \$300,000 has been added to the uncommitted contingency balance, effectively increasing the uncommitted balance from \$522,000 to \$822,000. Staff will continue to monitor the inflation trends and will revise the uncommitted contingency balance accordingly.

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

Realized inflation in excess of budget	\$7.64
Projected inflation in excess of budget	6.44
Amount committed for amendments	1.64
Herring Cove Water & Sewer	1.66
Uncommitted	<u>0.82</u>
Total	\$18.2

**Harbour Solutions Project**  
**2nd quarter of 2007/08**  
**(in millions of dollars)**

	<b>2nd quarter</b>	<b>Year to Date</b>	<b>Project Total</b>	<b>Budget</b>
<b>Firm Price Contracts</b>				
Wastewater Collection Systems	5.79	6.66	112.03	112.3
Wastewater Treatment Facilities	12.39	12.62	84.94	136.9
Biosolids Processing Facility	0.01	0.01	12.15	12.5
Net HST	-	-	-	9.6
Community Liaison Committees	2.96	3.09	5.45	7.0
Land	-	-	4.92	4.8
Pre-Construction Contract	-	-	7.11	7.1
<b>Total Firm Price Costs</b>	<b>21.15</b>	<b>22.39</b>	<b>226.6</b>	<b>290.2</b>
<b>Variable Costs</b>				
Administration Contract Management				
Communications	0.33	0.58	7.28	12.0
Contingency	-	-	-	18.2
Inflation	0.73	1.17	14.19	12.3
<b>Total Variable Costs</b>	<b>1.06</b>	<b>1.75</b>	<b>21.47</b>	<b>42.5</b>
<b>Harbour Solutions Project Total Cost</b>	<b>22.21</b>	<b>24.14</b>	<b>248.06</b>	<b>332.7</b>
<b>Funding</b>				
EP Reserve Levies	-	4.17	160.2	160.2
<b>Long Term Debt</b>				
N.S. Municipal Finance Corp.	-	-	110.00	110.00
Federation of Canadian Municipalities Cost Sharing	-	-	20.0	20.0
Province of Nova Scotia *	-	-	6.01	10.0
Canada Strategic Infrastructure Fund	-	-	20.9	30.0
<b>Potential Short-Term Debt</b>	-	-	-	2.5
<b>Total Funding</b>	-	4.17	317.11	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 the portion that will be received during the construction period.

## 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 (PIIP) 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 May 2007. The next edition is scheduled for October 2007.

The third edition of the four page Naturally Green-Harbour Special Edition was distributed to approximately 162,000 household beginning in mid September. The Naturally Green-Harbour Special Edition focuses on the Harbour Solutions Project, Pollution Prevention Program and the merger of HRM's wastewater & stormwater divisions with Halifax Water.

Corporate Communications, in its work with the P2 (Pollution Prevention) 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 advertisement campaigns have been award winning. The year long series of six advertisements has been very well received and continues to make the link between Harbour Solutions Project and Pollution Prevention.

July 27<sup>th</sup> saw major media outlets participate in a tour of the Halifax Wastewater Treatment Facility (WWTF), and in particular, the wet well area.

Corporate Communications is presently developing an educational video focussing on the biosolids and advanced-primary treatment processes. Shooting of the biosolids video is scheduled for October. The advanced-primary treatment video is slated for shooting in late October or early November.

Corporate Communications designed a user-friendly map outlining the various harbour related activities that will be possible once the HSP is up and running. The map was published in the recent "Special Harbour Edition of Naturally Green". The map has also appeared in numerous local publications over the past few months. The map was also requested by a local dental association. They plan to distribute the map and related information to its members to raise awareness of proper disposal issues within their membership.

#### ***Community Liaison Committees (CLC)***

The Halifax CLC has completed its mandate and disbanded. Staff assisted in the recent establishing of the Community Investment Fund Board/Committee in partnership with the Greater Halifax Partnership. At the time of writing of this report, Council approved the \$1M Community Integration Fund transfer to the Investment Fund Board and the funds transfer has been completed.

The Herring Cove CLC has essentially completed their mandate with respect to the Harbour Solutions Project. The Herring Cove CLC has decided the final design concept for the WWTF and pumping station exterior and landscaping around the Herring Cove WWTF and pumping station is now being addressed.

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In Dartmouth, in accordance with guidance from the local Councillor and the public, the new trail system is essentially complete. Final planning for the park area beside the Treatment Facility is under way with appropriate public input.

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, the Harbour Solutions Project website, radio and newspaper ads.

### ***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 have all been made available on compact discs.

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

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.

Presentations were given to Association of Professional Engineers of Nova Scotia (APENS) as well as a large group of 10 to 12 year old children attending a day-camp in Beaverbank.

### ***Harbour Solutions Website***

The Harbour Solutions website has been redesigned to provide a "user friendly" up-to-date source of information on the Project. PIIP staff continue to maintain the site for Harbour Solutions. The site features a large photo gallery, reference materials, construction notices informing residents of any possible traffic impacts and a large collection of information related to the WWCS, WWTF and Biosolids processes.

### ***Construction Communications***

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

### ***Signage***

PIIP 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 staff for the three WWTF sites.

### ***Correspondence***

As requested or required, several letters and e-mails were drafted to address the concerns or questions from citizens regarding the Project. Four meetings were held between staff and Federal/Provincial communications officials related to planning for the Halifax WWTF opening. On-going meetings are planned to continue to work on logistics.

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## **Section 8**

### **Construction Safety**

There were no lost time incidents. Nova Scotia Department of Environment and Labour (NSDEL) carried out an inspection of the Halifax Wastewater Treatment Facility concerning hazardous materials. NSDEL also carried out an inspection at the marine works of the Herring Cove WWTF outfall. Two orders were received and were complied with (i.e., submission of code of practice regarding marine blasting and no storage of explosives on site).