

**Halifax Regional Council
September 18, 2007**

TO: Mayor Kelly and Members of Halifax Regional Council

SUBMITTED BY:



Brad Anguish, Director of Business Planning & Information Services

DATE: August 14, 2007

SUBJECT: Harbour Solutions Project - 1st Quarter Report (April to June 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:

- an infrastructure development agreement for the construction of the three Wastewater Collection Systems on October 15, 2003 with Dexter Construction; and
- a development agreement for the construction of three advanced primary Wastewater Treatment Facilities on June 15, 2004 with D&D Water Solutions, Inc.; and
- a development agreement for the construction of a Biosolids Processing Facility on November 30, 2004 with SGE Acres Limited, and
- an operating and maintenance agreement for the Biosolids Processing Facility on November 30, 2004, with N-Viro Systems Canada Inc.; and
- 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 1st quarter 2007/08 continued with the remaining mechanical and electrical work and reinstatement work such as landscaping, paving, curb work etc., at various regulating structures, as well as continuing the work on the modifications to the Duffus Street Pumping Station, which is near completion.

The completion of the Atlantic School of Theology (AST) diversion chamber and completion of the Balmoral diversion piping will occur after the Halifax WWTF has been commissioned.

Regarding the Halifax WWTF, during the 1st quarter 2007/08, coating of the grit tanks was completed and hydro-testing of various tanks and channels continued with the completion of tests at the sludge tank and all channels. Interior finish work is progressing with a substantial portion of the work completed. All major equipment has arrived and is being installed.

The detailed commissioning plan for the Halifax WWTF was developed during the 1st quarter 2007/08 and the key elements include a “dry test” of all the electrical and mechanical equipment with the participation of equipment suppliers followed by a “wet test” with clean water and then raw sewage. This plan also includes coordination of the commissioning plan activities between the collection system and treatment facility contractors.

At the time of writing of this report, the Halifax WWTF has completed its dry commissioning and commenced wet commissioning with clean water. Sewage flows should start to be introduced to the WWTF by end September and contractual performance testing will start after an approximately 30 day running period.

Regarding the Halifax Community Liaison Committee, they have completed their input to the design of the WWTF and have moved forward with the Greater Halifax Partnership in establishing an independent Board to administer the \$1 million dollar Community Investment Fund, as approved by Regional Council. Having delivered on both their mandates, the CLC has officially dissolved itself. The Harbour Solutions project is grateful to the CLC and the individual volunteer efforts of its community members and will arrange for formal recognition by Regional Council in the very near future. Further detail on the CLC’s work is attached in Appendix A, Section 7.

Dartmouth

Regarding real estate acquisitions for Dartmouth, the license agreement with CN for a private crossing at the Dartmouth WWTF access road and easement acquisition at Tuffs Cove and Grove Street were executed.

The Dartmouth WWCS work, during the 1st quarter 2007/08, was concentrated on reinstatement activities at various structures and street locations. Mechanical and electrical installation work is essentially complete, with the exception of Old Ferry Road CSO's mechanical work. Work on Jamieson Street diversion piping completion was deferred pending of the completion of HRM's sewer capital project to replace the Jamieson Street trunk sewer and outfall.

Regarding the Dartmouth WWTF, during the 1st quarter 2007/08, exterior masonry work was completed as well as utility piping and roofing. The coating of various tanks and channels, piping, conduit and equipment installation was initiated and is ongoing.

The forecasted date of substantial completion remains March 31, 2008.

Herring Cove

The Herring Cove WWCS work during the 1st quarter 2007/08 continued at the Herring Cove Pumping Station and the Roaches Pond retention tank, with the completion of the on-shore section of the outfall and water pipe installation to the Herring Cove WWTF.

Design work featured the release of the 100% design package for the off-shore portion of the Herring Cove WWTF Outfall, the last remaining design package. The Navigable Water Protection Act permit for the Herring Cove WWTF outfall was received.

Regarding the Herring Cove WWTF, detailed structural and architectural drawings were issued at the 65% design stage. Construction work was limited to rock excavation, temporary site servicing, tower crane installation and temporary power supply.

The forecasted date of substantial completion remains September 31, 2008.

Biosolids Processing Facility

The Biosolids Processing Facility (BPF) has started processing dewatered biosolids from the Aerotech Dewatering Facility. At the time of writing this report, the BPF has finished processing biosolids from the dredging of the Aerotech Sludge Lagoon. The finished product appears good quality in terms of granular size and solid content. The quality performance test will be carried out with the biosolids from Halifax WWTF which is expected to start generating in October 2007. The labeling of finished product under the Canadian Fertilizer's Act will follow.

Safety

There were no lost time incidents. NSDEL inspections were carried out during the quarter and no corrective orders were received.

BUDGET IMPLICATIONS

The Harbour Solutions Project spent \$1.93 million in the 1st quarter 2007/08 and, since the start of the project, \$225.85 million to June 30, 2007. Projections to meet the capital budget of \$332.7 million are still on target.

Inflation increase changes 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%.

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 contingency to address this issue. There have been times when the inflation factor has reached almost 8%. The revised estimated inflation amount for the Harbour Solutions Project was budgeted 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 8.9% 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 8.9%, more contingency funding would have to be set aside. At the time of the 4th quarter report (January to March, 2007), the uncommitted contingency balance was \$230,000 which can be made available to help meet any such increases.

Although the annual inflation rate could go as high as 8.9% 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. Staff is now estimating that inflation will not exceed 8% from now until completion of the project and therefore \$292,000 has been removed from the inflation contingency and added to the uncommitted contingency for a total of \$522,000.

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 - 1st Quarter Report (April to June 2007)

Appendix B - Third Edition, Naturally Green - Harbour Special Edition

A copy of this report can be obtained online at <http://www.halifax.ca/council/agendasc/agenda.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, 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 April 1 and June 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

Works during the 1st quarter 2007/08 continued with the remaining mechanical and electrical work, and reinstatement work such as landscaping, paving and curb work at the various regulation structures as well as continuing the work on the modifications to the Duffus Street Pumping Station which neared completion. In addition, diversion piping installation near the Sackville Street CSO, and the Maritime Museum of the Atlantic CSO was completed, as was the Salter Street Outfall. Lastly, work on the lateral connections on Hollis Street was initiated and substantial progress was made.

The remaining work includes the completion of the lateral connections on Hollis and Morris Streets, remaining reinstatement work, including placing the top course of asphalt at various locations, and completion of the remaining Duffus Street Pumping Station modification work. The Harbour Solutions Project also coordinated with Technical and Underground Services to have the wastewater collection system contractor repair the existing roof on the Duffus Street Pumping Station while the contractor was working at the station. Completion of the AST diversion chamber and completion of the Balmoral diversion piping will occur after the Halifax Wastewater Treatment Facility has been commissioned.

During the 2nd quarter 2007/08, detailed coordination with the WWTF contractor will be undertaken to ensure that the wastewater flows necessary to undertake the commissioning of the Halifax WWTF will be available when needed. This work includes commissioning of the Duffus Street Pumping Station, the Pier A Pumping Station, the Halifax WWTF Outfall and the tunnel, among other work components.

Dartmouth Wastewater Collection System

Regarding real estate acquisitions for Dartmouth, the license agreement with CN for a private crossing at the Dartmouth WWTF access road was executed in the 1st quarter 2007/08. Easement acquisitions from Tufts Cove and Nova Scotia Power Inc. at Grove Street were also executed in the 1st quarter 2007/08.

Construction work 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's mechanical work. Work on the Jamieson Street diversion piping completion was deferred pending the completion of HRM's project to replace the Jamieson Street trunk sewer and outfall.

During the 2nd quarter 2007/08, remaining reinstatement work will continue as well as the completion of the small amount of mechanical and electrical work. As indicated previously, completion of the remaining diversion piping work is dependent on the timing of the ability of the

Dartmouth WWTF to accept flows. Planning and coordination of this work continues. It is anticipated that this work will be completed during the 3rd quarter 2007/08.

Herring Cove Wastewater Collection System

During the 1st quarter 2007/08, construction work was completed for the on-shore section of the Herring Cove WWTF Outfall and the water pipe installation on the Herring WWTF access road. Work continued at the Herring Cove Pumping Station and Roaches Pond retention tank.

Design work featured the release of the 100% design package for the off-shore portion of the Herring Cove WWTF Outfall, the last remaining design package.

The Navigable Water Protection Act permit for the Herring Cove WWTF Outfall was received during the quarter.

During the 2nd quarter 2007/08, work will continue on all the remaining work components. Dexter Construction has coordinated with HRM's contractor that will be installing water and sewer servicing on Village Road to have the forcemain between the Village Road Pumping Station and the WWTF constructed at the same time to minimize the disruption on Village Road.

Section 2

Halifax Wastewater Treatment Facility

Civil, Architectural, and Structural Work

During the 1st quarter 2007/08, hydro-testing of the various tanks and channels continued with the completion of the tests at the sludge tank, the UV channels, and the channels from the UV area to the grit tanks. The coating of the grit tanks was completed as well as the wet well concrete injections. Repair of the concrete delaminations in the wet well was also substantially completed.

Interior finish work, including painting, flooring, drywall work, was initiated with a substantial portion of the work being completed.

Heritage Gas has informed the Harbour Solutions Project office that natural gas will be available soon at the Halifax WWTF site. A sleeve for the future gas line to the Halifax WWTF has been installed across the front parking area so that a gas line can be installed in the future without disturbing the parking area.

The Harbour Solutions Project also coordinated with HRM and the WWTF contractor for the renewal of curb at Barrington Street to avoid future disruption in the area.

Mechanical & Electrical Work

Mechanical and electrical work continued with substantial progress being made in the installation of process ventilation and supervisory control and data acquisition systems. In addition, remaining piping and cabling activities were substantially completed. All major equipment arrivals were completed during the quarter as well.

2nd Quarter 2007/08

During the 2nd quarter 2007/08, grit tanks and remaining channels hydro-testing will be completed, as well as the remaining interior finish work. Remaining mechanical and electrical equipment installation work will also be completed. Landscaping will also be initiated in the 2nd quarter 2007/08, after the commissioning process is underway.

Commissioning

The detailed commissioning plan was developed during the 1st quarter 2007/08 by the Commissioning Manager. The key elements of the plan include 'dry tests' of all the electrical and mechanical equipment with the participation of equipment suppliers and other vendors, potable water and raw water tests of key plant subsystems such as the wet well pumping station, the Densedeg tanks, the sludge handling system, the grit handling system, the UV disinfection system, and the odour control system. This plan also included detailed coordination of the commissioning plan activities between the WWCS and the WWTF contractors.

The commissioning plan is updated and reviewed with HRM regularly. The commissioning plan's milestones include the start of processing sewage through the Halifax WWTF scheduled for late September, and a 30 day plant running period to finalize all operating performance parameters. Lastly, a two week performance test period will be conducted. The official Halifax WWTF opening has been tentatively scheduled for November 16, 2007.

Dartmouth Wastewater Treatment Facility

Civil, Architectural, and Structural Work

Exterior masonry work was completed in the 1st quarter 2007/08, as well as site utility piping and roofing. In addition, the coating of the various tanks and channels was initiated and is ongoing. Interior masonry is essentially complete, as well with the remaining interior walls to be completed after the equipment is installed. Painting was also started and substantial progress has been made.

Mechanical & Electrical Work

During the 1st quarter 2007/08, much of the major equipment was installed. In addition, piping and conduit installation continued with substantial progress being made.

2nd Quarter 2007/08

The 2nd quarter 2007/08 work will include the completion of the tanks and channel coatings, and substantial completion of the interior finishes and site work. A substantial portion of the remaining site work and interior finishes will also be performed.

Equipment installation will continue as well as electrical and mechanical cabling, and piping installation will also accelerate.

Schedule

The forecasted date of substantial completion remains March 31, 2008.

Herring Cove Wastewater Treatment Facility**Design**

Detailed structural and architectural drawings were issued at the 65% level during the quarter as well as process mechanical and electrical design packages.

Civil Work

Construction work was limited to rock excavation. Mobilization of temporary site services including site trailer, tower crane installation, electrical services, were also completed near the end of the quarter.

2nd Quarter 2007/08

Rock excavation will be completed, concrete construction, and underground piping installation will begin in the 2nd quarter 2007/08.

Safety

There were no lost time incidents. The Nova Scotia Department of Environment and Labour inspections were carried out during the quarter and no corrective orders were received.

Section 3

Biosolids Processing Facility

The biosolids processing facility (BPF) has started processing dewatered biosolids from the Aerotech Dewatering Facility. At the time of writing this report, the BPF is also processing material from the Aerotech Sludge Lagoon.

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 June 19, 2007, activities that P2 staff have undertaken or completed include the following:

- Staff, during this reporting period, have continued as the primary activity 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 80% of businesses have been inspected in this sewershed. Staff anticipate having this sewershed completed by December, 2007.
- P2 staff responded to 21 environmental incidents or related investigations since the previous report. Many of these included lake water quality incidents.
- Staff activities in the monitoring of food preparation sector continues to be an area of increased attention. 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.

- Staff installed 264 storm drain markers to raise awareness that only rain may enter the municipal storm drain system. Staff will continue to install these markers throughout HRM during the summer months.
- P2 staff have produced and continue to deliver pollution prevention television and radio advertisements to promote environmental responsibility and awareness for the general public.
- P2 staff have completed and are now distributing the product of an intergovernmental pollution prevention project entitled “HRM Best Management Practices (BMP’s) for Industry” for several industrial sectors located in HRM which has involved HRM’s P2 staff,
- Environment Canada, DOE and the Canadian Centre for Pollution Prevention. The development of these BMP’s will provide businesses with the identification of wastewater characteristics and methodologies to undertake to assist them with by-law compliance. These BMP’s have been completed and have been printed by Environment Canada. Distribution to respective business is currently ongoing.

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 sewershed will be completed by December 2007, which is in advance of the HSP WWTF commissioning. This represents 5,412 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 ensure 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.

Currently, the reduction of a regulated parameter BOD, for both soluble and total fractions, is viewed by staff as a priority activity in support of the Harbour Solutions Project. BOD in wastewater is typically removed by secondary or aeration based reactors as found in most municipal wastewater treatment plants. The HSP, WWTF’s are advanced primary facilities which have a lesser ability to remove BOD than does conventional secondary wastewater treatment processes.

The effective removal or reduction at source of BOD from industrial, commercial or institutional dischargers would similarly require on site secondary pre-treatment facilities for many of HRM’s dischargers. As the majority of HRM’s businesses do not have adequate space requirements for this type of pre-treatment option, other venues for BOD reduction have been pursued. Within the food industry and as previously reported, new and efficient grease traps as well as education for effective dry clean methods have been promoted by staff. Overall reductions in matter discharged to sewer that contains BOD concentrations have been achieved at many locations and

this will continue to be an ongoing program component combining both compliance activities and education delivery. Nodal sampling of representative locations throughout the sewersheds indicate resident BOD concentrations within the treatment regime of the HSP facilities. Effectiveness of this approach will be determined once the HSP facilities are operational for each of the serviced sewersheds.

Educational information will be continued to be provided through related media and presentation opportunities to provide for public education and enhanced stewardship of our surface water resources. P2 staff provided 14 presentations to schools and selected business associations since the last report.

Section 5

Harbour Water Quality Monitoring

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. As the collection system is sized to handle four times the average dry weather flow, more intensive monitoring for fecal coliform bacteria will be conducted near key overflow points both prior to and following plant commissioning to understand how water quality may be affected during severe wet weather events.

Fecal coliform bacteria levels are currently high throughout the middle and inner harbour, exceeding the swimming guidelines, particularly in winter months. Levels in NW 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.

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. 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 2007, the Harbour Solutions Project has spent \$225.85 million of its \$332.7 million capital budget. Spending for the 1st quarter 2007/08 just completed was \$1.93 million which is largely comprised of \$0.87 million for the wastewater collection system, \$0.23 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 \$0.69 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:

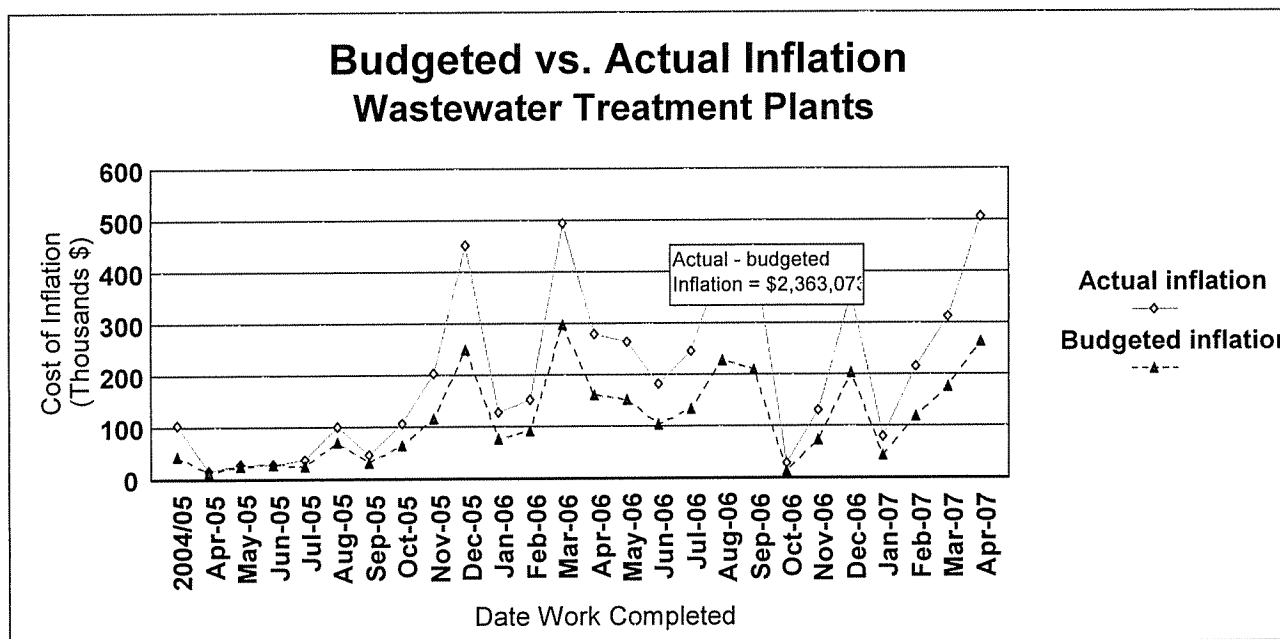
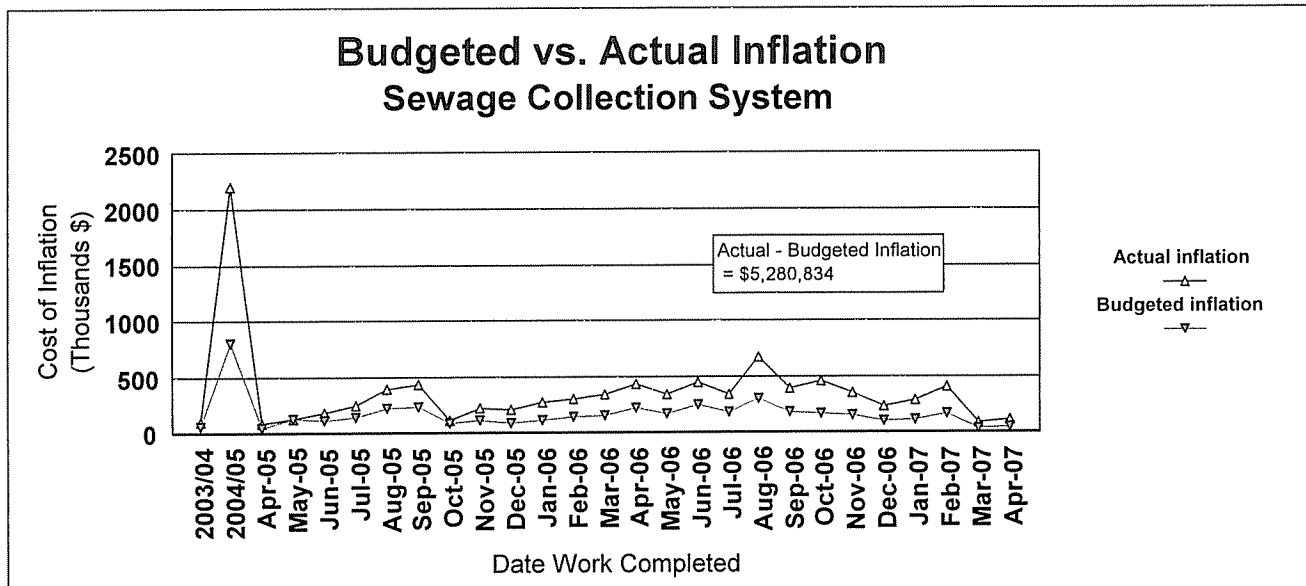
Date	Environmental Protection Charge-HSP portion	Increase
October 2003	\$0.42	\$0.05
March 2005	\$0.47	\$0.05
October 2005	\$0.52	\$0.05
October 2006	\$0.57	\$0.05
October 2007	\$0.66	\$0.09

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 EMS department and HRWC, the Reserve will actually reside 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.

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%. At this point, it would still not be prudent to revise estimates over the Project's life down from the projected 6% annual inflation.

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 2007, \$7.64 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. At the time of the Harbour Solutions quarterly report for the period ending December 2006, the uncommitted contingency balance was \$1.89 million. Since then, \$1.66 million was approved by Council to be spent on Herring Cove Water & Sewer, reducing the available balance to \$230,000.

In addition, a potential additional \$2.5 - \$3 million has been identified, as a result of the delay in completion of the Wastewater Treatment Facilities in Halifax, Dartmouth and Herring Cove. This is due to the inflation adjustment not paid to the contractor, once the completion date extends beyond the original Date Certain.

Although the annual inflation rate could go as high as 8.9% 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. Approximately \$292,000 could be made available if it were assumed that inflation would not exceed 8% from now until completion of the project. Therefore, \$292,000 has been added to the available contingency balance, effectively increasing the uncommitted balance from \$230,000 to \$522,000. Staff will continue to monitor the inflation trends and will revise the 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	6.74
Amount committed for amendments	1.64
Herring Cove Water & Sewer	1.66
Uncommitted	<u>0.52</u>
Total	\$18.2

Harbour Solutions Project
1st Quarter 2007/08
(in millions of dollars)

	<u>1st Quarter</u>	<u>Year to Date</u>	<u>Project Total</u>	<u>Budget</u>
Firm Price Contracts				
<u>Sewage Collection System</u>	0.87	0.87	106.24	112.3
<u>Sewage Treatment Plants</u>	0.23	0.23	72.55	136.9
<u>Biosolids Processing Facility</u>	0.01	0.01	12.14	12.5
<u>Net HST</u>	-	-	-	9.6
<u>Community Liaison Committees</u>	0.13	0.13	2.49	7.0
<u>Land</u>	-	-	4.92	4.8
<u>Pre-Construction Contract</u>	-	-	7.11	7.1
Total Firm Price Costs	1.24	1.24	205.45	290.20
Variable Costs				
<u>Admin., Contract Mgmt., Communication</u>	0.25	0.25	6.95	12.0
<u>Contingency</u>	-	-	-	18.2
<u>Inflation</u>	0.44	0.44	13.46	12.3
Total Variable Costs	0.69	0.69	20.41	42.5
Harbour Solutions Project Total Cost	1.93	1.93	225.85	332.7
Funding				
<u>EP Reserve Levies</u>	4.17	4.17	160.2	160.2
<u>Long-term debt: N.S. Municipal Finance Corporation</u>	-	-	110.00	110.0
<u>Federation of Canadian Municipalities</u>	-	-	20.0	20.0
<u>Cost Sharing: Province*</u>	-	-	6.01	10.0
<u>Canada Strategic Infrastructure Fund</u>	-	-	20.9	30.0
<u>Potential short-term debt</u>	-	-	-	2.5
Total Funding	4.17	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 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 4 page Naturally Green-Harbour Special Edition is being 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 the Halifax Regional Water Commission.

Corporate Communications, in its work with the P2 group, are currently running 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 on 6 ads has been very well received and continues to make the link between HSP and P2.

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)

Halifax:

On March 6, Council approved in principle a recommendation by the Halifax Community Liaison Committee (CLC) to utilize the Community Integration Fund allocated for the Halifax WWTF as a Community Investment Fund (CIF). Council's approval was subject to the CLC working with the Greater Halifax Partnership (GHP) to establish an appropriate administrative structure and a detailed business plan as part of HRM's Service Agreement with the GHP. On June 19th Regional Council approved a new Service Agreement with the GHP which includes this stipulation by Council.

The CLC has moved the idea of creating a revolving and sustainable community investment fund to the next step. With assistance provided by GHP, it has appointed a solid board of directors with the mix of skills, expertise and community knowledge needed to successfully administer a CIF.

A board recruitment campaign was initiated in May with assistance from the GHP and Harbour Solutions staff. Advertisements were placed in daily and weekly local papers, flyers were posted in

the community and the CLC itself spread word of the campaign. The Halifax CLC's web page, as part of the Harbour Solutions site, was one of the avenues for applying, with background information and an online application available. Hard copies of the application were also made available at the Halifax North Library and at the George Dixon Centre.

The recruitment campaign resulted in a very diverse and capable mix of candidates being brought forward. The new oversight board includes nine new members along with four members of the CLC in order to provide continuity. Of the thirteen members of the new board, ten are residents of the area to be served by the CIF.

The new board takes its role seriously and has moved quickly to understand its responsibilities. The board is committed to managing the fund responsibly over the long term and to engaging the community to ensure relevance of the fund's programs. The new board has been working diligently and has already started developing its identity. It has wasted no time in adopting a mission statement, vision and values which will guide its operations in serving the targeted community and is in the process of identifying specific programs which will serve as a basis for an operating model and business plan. It is anticipated that the fall of 2007 will see many exciting new developments emerge as the fund begins actively working in the community.

The CLC believes that it has provided reasonable input into the design and construction of the WWTF, which satisfies its first mandate. The CLC's second mandate is also concluded with the initiation of the new Board for the Community Investment Fund. With the completion of these tasks, the CLC has decided to dissolve itself. The Harbour Solutions project is grateful to the CLC and the individual volunteer efforts of its community members and will arrange for formal recognition by Regional Council in the very near future.

Herring Cove:

The Herring Cove CLC has essentially completed their mandate with respect to the Harbour Solutions Project. Corporate Communications staff will continue to meet with CLC members as required. The next phase of municipal service installation for the residents of Herring Cove CLC is well underway. Corporate Communications will continue to work with the CLC and community to address any concerns that might arise during construction.

The Herring Cove CLC now has a final design concept for the WWTF and pumping station exterior. Landscaping around the Herring Cove WWTF and pumping station is now being addressed.

Dartmouth:

Construction continues on the sewage collection system(SCS) and WWTF. Final integration work between the trail system and the WWTF is underway, as well as planning for reinstatement of the park area located beside the WWTF. NSPI continued planning for the undergrounding of poles along the access road.

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.

Communication Plan

PIIP staff developed and continue to implement a detailed communication plan for the 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 have all been made available on compact discs.

Three new Harbour Solutions display units continue to be used at public meetings, trade/home shows and other events. 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 will prove a valuable tool in explaining the advanced primary treatment process. The Halifax WWTF model is complete.

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 SCS, WWTF and biosolids processes.

Construction Communications

A PIIP staff member attends the Harbour Solutions construction meetings weekly to liaise with Dexter and D&D, as well as, other HRM departments to stay informed about construction that could impact the public/businesses, and ensure communications are developed to address these impacts. A PIIP member also attends, where required, meetings with businesses and residents that may be directly impacted by HSP related construction activity.

Weekly construction updates continue to be emailed 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 on 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 Corporate Communications for the 3 WWTF sites.

Correspondence

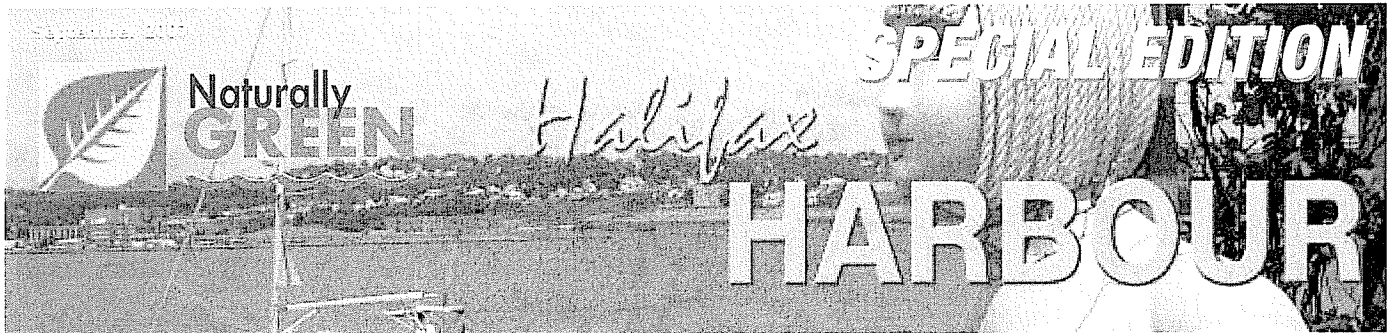
As requested/required, letters and e-mails are drafted to address concerns/enquiries from citizens regarding the Project. PIIP staff also regularly respond to numerous requests for HSP information from the general public, interest groups, media, Mayor Kelly and HRM Councillors, staff and others. Letters are also drafted for the CLC's and other levels of government.

Two meetings have been held between Corporate Communications and federal/provincial communications officials to begin early planning for the Halifax WWTF opening. Monthly meetings are planned to continue to work on logistics.

Section 8

Construction Safety

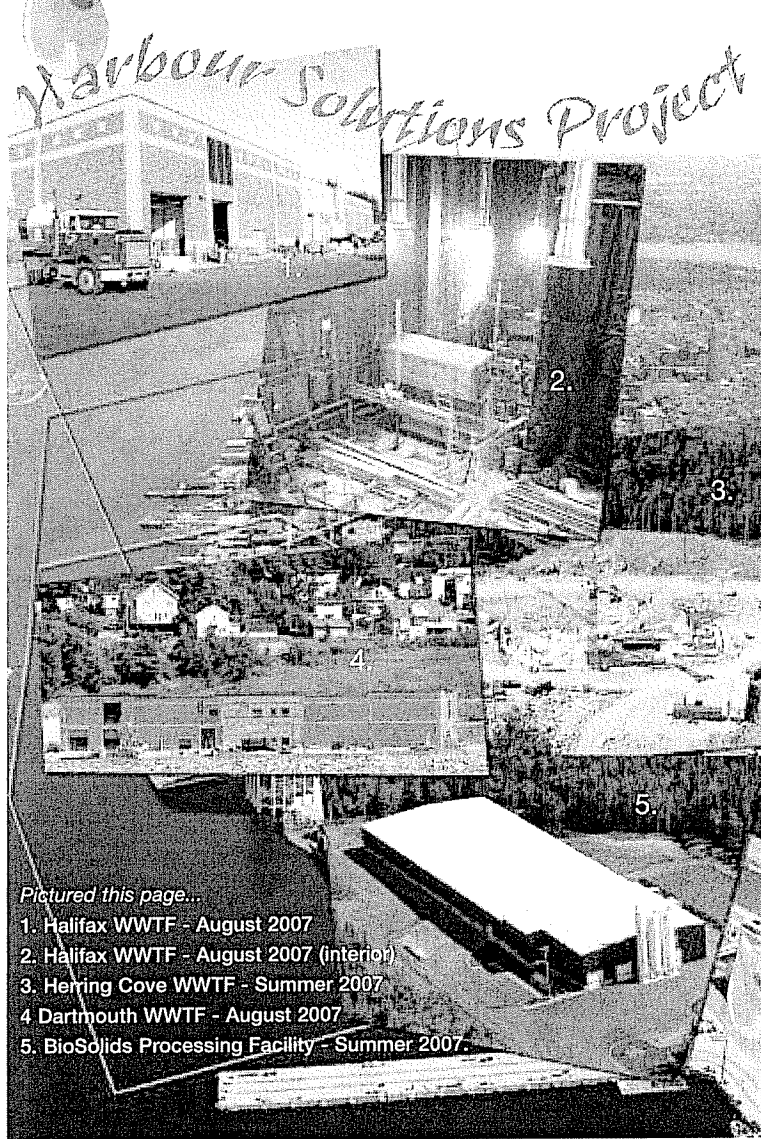
There were no lost time incidents. NSDEL inspections were carried out during the 1st quarter and no corrective orders were received.



Getting the treatment...

● Halifax Harbour Solutions Project ● Halifax Water ● Pollution Prevention

Halifax Harbour... construction update



Pictured this page...

1. Halifax WWTF - August 2007
2. Halifax WWTF - August 2007 (interior)
3. Herring Cove WWTF - Summer 2007
4. Dartmouth WWTF - August 2007
5. BioSolids Processing Facility - Summer 2007

SINCE THE FALL OF 2003, CONSTRUCTION has been underway on the Harbour Solutions Project. This fall will see a major milestone completed for the project and residents of HRM.

In Halifax, the sewage collection system (SCS) is essentially complete. Early last spring, crews began making final connections to the new and existing SCS components (piping, pumping stations, downtown tunnel, combined sewer overflow chambers and related infrastructure) to the Halifax facility. These connections allow for pre-commissioning (systems testing) of the Halifax WWTF.

The Halifax WWTF is scheduled to begin treating flows this fall.

In Dartmouth, SCS work is essentially complete. Crews will continue to work throughout 2007 and into 2008 to make final connections to new and existing SCS components.

Extensive structural, mechanical and electrical systems work continues at the Dartmouth WWTF.

The Dartmouth WWTF is scheduled to be operational in the spring/summer of 2008.

In Herring Cove, the gated access driveway has been paved and major excavation is essentially complete. Crews are now moving on to the structural phase of WWTF construction.

The Herring Cove WWTF is scheduled to be operational in the summer/fall of 2008.

The third and final component of the Harbour Solutions Project is the BioSolids Processing Facility (BPF) located in Aerotech Park.

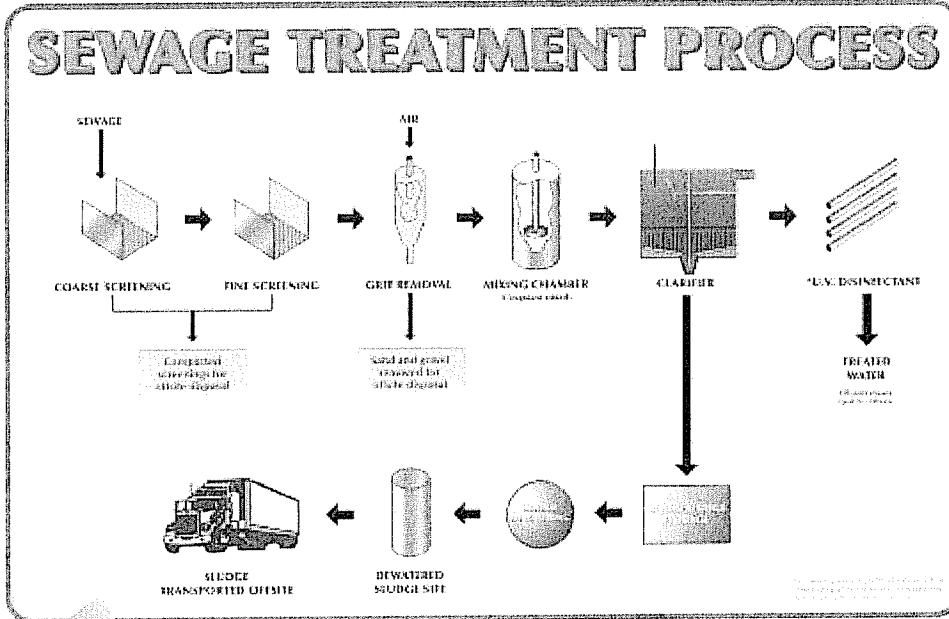
The BioSolids Processing Facility is scheduled to be complete when the Halifax wastewater treatment facility is operational this fall.

For more information on HRM's environmental initiatives such as the Harbour Solutions Project, Pollution Prevention Program, composting & recycling and Pesticide By Law, check your HRM Stewardship Calendar, visit www.halifax.ca and follow the Naturally Green links, or call 490-4000.

Facility	Scheduled Completion Date
Halifax WWTF	fall 2007
Dartmouth WWTF	spring/summer 2008
Herring Cove WWTF	fall 2008
BioSolids Processing Facility	fall 2007

Harbour Solutions *The inside story*

What Is Advanced Primary Treatment? The three new Harbour Solutions wastewater treatment facilities (WWTF) utilize advanced-primary wastewater treatment technology. The advanced-primary treatment process removes up to 70 per cent of the suspended solids in the wastewater.



The process begins with flows entering the facility and passing through a series of coarse then fine screens. These screens remove the initial suspended materials.

From there the process moves onto the grit removal chamber where fine particles such as sand and gravel are removed. Flows then continue on to the mixing chamber where additives known as flocculent are added to assist in the settling process. This is the same type of flocculent used in the treatment of drinking water. These additives pull together some of the smaller particles and cause them to settle to the bottom of the clarifier, which is the next stage of processing.

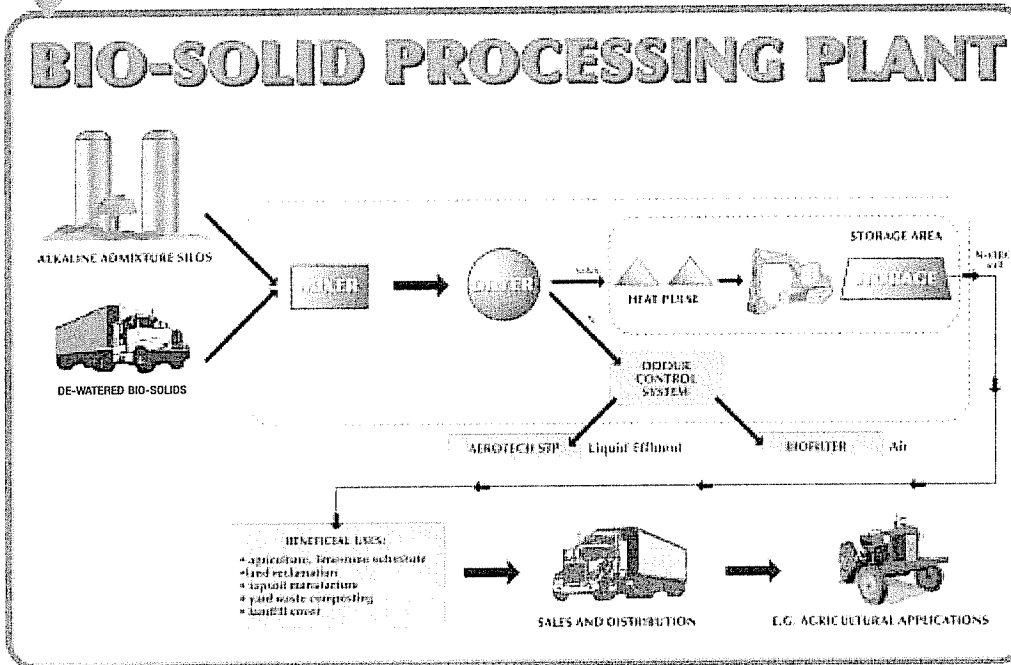
The contents of the clarifying tanks are transferred to the Fournier Presses where they are dewatered before being trucked for further processing at the Biosolids Processing Facility.

The final stage of the treatment process is the disinfection of the effluent before it is released into the harbour. The Harbour Solutions Project will utilize an environmentally beneficial process known as UV disinfection. High-intensity ultra-violet lights are used to kill bacteria in the treated flows.

(See the advanced-primary treatment process diagram at left for more detail.)

It is very important to remember that wastewater treatment facilities are designed to treat human waste only. No technology presently exists that would allow for the treatment of the many chemicals, medicines, paints, solvents and other hazardous materials that presently enter our harbour, lakes and rivers. The best way you can help our environment, watershed and your new wastewater treatment facilities is to not pour these materials down your sink, toilet, or storm drain at home or work. *Are you doing your part?*

Remember, Only Rain In The Storm Drain.



THE MATERIAL COLLECTED from wastewater following the treatment process, also known as biosolids, is a beneficial organic resource and an important component of the HARBOUR SOLUTIONS PROJECT. Rather than landfill or incinerate this material, HRM is using this organic material for a beneficial purpose, as we do with our green cart and recyclables programs.

The dewatered biosolids leaving the three new wastewater treatment facilities will be transported to the new N-Viro Biosolids Processing Facility at Aerotech Park for processing (see diagram for details).

The N-Viro process selected by HRM ensures a safe, high quality product suitable for a number of applications such as a soil amendment/fertilizer product, lime substitute or sod farming. The final product must meet USEPA CLASS A standards for biosolids products, and also meet Canadian Food Inspection Agency requirements under the Canadian Fertilizer Act, for labelling as a fertilizer product for sale in Canada.

The facility will be owned by HRM. The process and product storage areas will be entirely enclosed within the building and will meet or exceed all regulations with respect to noise & odour controls.

EARLY IN 2007, NEGOTIATIONS BETWEEN HRM and the Halifax Regional Water Commission (HRWC) commenced with the goal of combining water, wastewater & stormwater services under the jurisdiction of the Halifax Regional Water Commission. A merger of HRM's wastewater services (underground sewer lines, stormwater lines, wastewater treatment facilities, pumping stations and associated staff) with the existing water utility was viewed as an excellent opportunity to deliver services in an integrated, cost effective and environmentally sound manner with a commitment to long-term sustainability.

HRM and the HRWC Board signed the final transfer agreement June 21, 2007. On August 1, 2007, the provincial regulating body, the Nova Scotia Utility and Review Board (NSUAR), gave final approval.

So now we have Canada's first merged water, wastewater & stormwater utility. But what does this mean to you as a customer and what do we call this new merged utility?

As a customer you will see no difference. It is business as usual. The goal is to make the merged utility a seamless operation and process to our customers. The same high quality, affordable drinking water will continue to be delivered right to your tap.

Should you have questions or concerns related to your water service such as bill inquiries, water main breaks, you can still call Customer Service at 490-4820 or visit us online at www.hrwc.ca.

For matters related to wastewater, stormwater & sewers such as flooding and sewer line breaks, you should continue to call the HRM Corporate Call Centre at 490-4000 or visit us online at www.halifax.ca. Customer calls will be dispatched to the appropriate work centre. Staff will now answer the phone under the name Halifax Water.

So now to a name. The common element of the new merged water and wastewater & stormwater utility is of course, water. Ensuring you have high quality water

entering your home or business and making sure the water and wastewater leaving your home or business is properly treated before it's released into the environment is the essence of our operation.

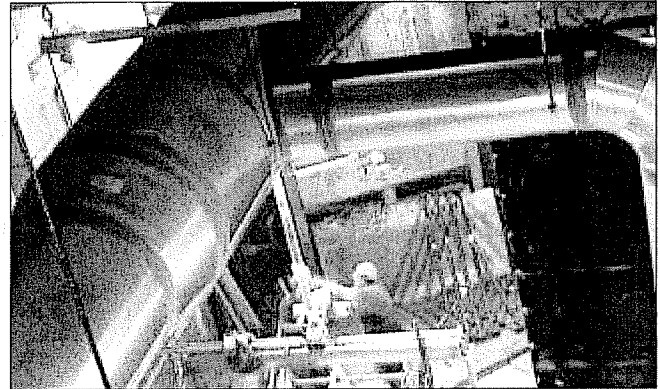
The new public name and logo will be Halifax Water (as pictured above left). It is clear, concise, easy to remember, and similar to other jurisdictions in North America. The stylistic 'H' with the water wave also provides the link to the water element of our service & is a familiar, recognizable symbol to our customers.

"Halifax Water" is the name you'll hear when you call our Customer Service lines and speak to staff. Over time, the former HRWC logo and name will be phased out of use on our vehicles and other infrastructure.

Providing you with high quality, affordable, world-class water and wastewater services are what the new Halifax Water is all about.



Upgrading a connection Cogswell & Brunswick, (August 2007).



The "wet well" at the Halifax Waste Water Treatment Plant, (August 2007).

SURVEY SAYS...

EARLIER THIS SUMMER, HRM COMMISSIONED A LOCAL, INDEPENDENT RESEARCH FIRM TO SURVEY RESIDENTS AND GET THEIR THOUGHTS RELATED TO THE HARBOUR SOLUTIONS PROJECT. THE RESULTS ARE BELOW. BASED ON THE NUMBERS, THE FUTURE BODES WELL FOR OUR HARBOUR, WATERSHEDS & WASTEWATER TREATMENT FACILITIES.

QUESTION#1: *Based on what you know or have heard, do you—(Completely support, Mostly support, Mostly oppose, Completely oppose, Don't know/no answer) the Harbour Solutions Project?*

- Completely support = 41%
- Mostly support = 52%
- Mostly oppose = 2%
- Completely Oppose = 1%
- Don't know/no answer = 4%

QUESTION#2: *As you may or may not know, there are new wastewater treatment plants being built for the Harbour Solutions Project, which will treat human waste only. This means that hazardous materials, such as paint, medications, and grease, disposed of in sinks, storm drains, and toilets at home and at work will damage the new plants and enter the harbour untreated. Based on this information, are you—(Very likely, Somewhat likely, Not very likely, Not at all likely, Depends, Don't know/No answer) to avoid disposing of*

hazardous materials through sinks, storm drains, and toilets?

- Very likely = 81%
- Somewhat likely = 6%
- Not very likely = 4%
- Not at all likely = 5%
- Depends = 1%
- Don't know/No answer = 3%

For more information about the Harbour Solutions Project visit www.halifax.ca/harboursol and follow the Naturally Green links to the Harbour Solutions Project. For proper disposal information follow the same Naturally Green links to our Pollution Prevention program.





Pollution Prevention

It's NOT just water under the bridge.

Protect your harbour.

PROTECTION OF OUR HARBOUR, LAKES, STREAMS & WATERSHEDS is everyone's responsibility. When pollutants such as pharmaceuticals, fat, oil and grease, paints, chemicals and other harmful materials are poured down storm drains or sinks & toilets at home or at work, they don't just go away, they contaminate the environment, the harbour, lake or stream they enter.

Municipal wastewater treatment facilities are designed to treat human waste only. In fact, these materials will damage municipal wastewater treatment facilities.

Help ensure we protect our environment, the 13 existing wastewater treatment facilities in HRM, and the three new Harbour Solutions Project facilities. Properly dispose of hazardous materials at home and work.

THINK BEFORE YOU POUR IT DOWN THE SINK AND ONLY RAIN IN THE STORM DRAIN.

For more information on HRM's Pollution Prevention Program, call 490-4000 or visit us online at www.halifax.ca/pollutionprevention.

PHARMACEUTICALS	➤	Return to pharmacy
FAT, OIL & GREASE	➤	Cool it, wipe it & toss it in your green cart
PAINT, CHEMICALS & OTHER HOUSEHOLD HAZARDOUS MATERIALS	➤	Take to HRM's Household Hazardous Waste Depot, 50 Chain Lake Dr.

Our Harbour Our Rivers Our Lakes Our Community Our Environment Our Responsibility



Naturally GREEN

SPECIAL EDITION

What do you think?

Please share with us any thoughts or comments that you may have about this Special Edition of the Naturally Green Newsletter. Hopefully, you enjoyed it and found it informative and easy to read.

What did you like most about it?

What features would you like to see included in future issues?

Please send your comments. The editor's contact information is located in the next column of this section.

If you have a question about something you've read in this newsletter, please refer to the contact information located in the last paragraph of each article.

Layout & Design: HRM Corporate Communications

Do you wish to give feedback or have a question about the newsletter itself?

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Naturally Green & Naturally Green Special Edition are Municipal newsletters reporting on environmental news and initiatives within the Halifax Region. The goal of the newsletters is to raise public awareness and provide a wide variety of useful information about environmental issues

Naturally Green is printed on 100% recyclable material made from some post-consumer fibres, using vegetable-based inks

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