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Halifax Regional Council June 13, 2006

TO:

Mayor Kelly and Members of Halifax Regional Council

SUBMITTED BY:

Brad Anguish, Director, Environmental Management Services

DATE:

May 17, 2006

SUBJECT:

Harbour Solutions Project - Quarterly Report (January to March/06)

INFORMATION REPORT

ORIGIN

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

BACKGROUND

HRM has entered into four 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
- a development agreement for the construction of three advanced primary Wastewater Treatment Plants 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.

DISCUSSION

Halifax

The majority of the Wastewater Collection System (WCS) work which is not dependent on the operation of the Wastewater Treatment Plant (WTP) has been completed.

WCS work during the fourth quarter (January 1 to March 31) of 2006 concentrated on the electrical and mechanical installations of various pumping stations and diversion chambers.

Regarding the WTP, concrete placement in the wet well as well as masonry and architectural work continued with good progress. The Densadeg settling tanks are completed. The Motor Control Centre for the plant has been installed and other electrical and mechanical work continues.

Wet commissioning of the WTP is anticipated to start in late January 2007 with full completion and operation expected by April 2007.

Dartmouth

In order to ensure that the March, 2007 completion date for the Dartmouth WCS will be met, four work crews were assigned to the pipe installation work during the quarter. Construction has started on the Jamieson Street Pumping Station, Melva Street Pumping Station and diversion chambers. The WTP effluent diffuser was successfully installed on the Harbour bottom on April 25, 2006.

All site construction infrastructure for the WTP was mobilized and foundation slabs and sludge storage tanks were placed.

Completion of the Dartmouth WCS and WTP is expected by March and August 2007, respectively.

Herring Cove

Clearing work has been completed on the Herring Cove WTP access road and site. Real estate acquisition activities and design work for the Village Road Pumping Station have been initiated.

Completion of the Herring Cove WCS and WTP is expected by March and June 2008 respectively.

In addition to the Halifax Harbour Solutions Project, HRM is implementing water and sewer services in the Herring Cove area. Construction of Phase 1A ceased for the winter and is now back under way. Phase 1B was tendered in March 2006 and the detailed design of Phase 2A is about 80% complete.

Biosolids Processing Facility

The Biosolids Processing Facility is progressing well and is expected to be ready to process biosolids when the Halifax Wastewater Treatment Plant starts to operate.

The contract for the transportation of dewatered biosolids from the three Harbour Solutions Project Plants was approved by Council on March 21, 2006.

Summary

The overall Harbour Solutions Project remains on schedule and within budget; however, the completion milestone for the Halifax Wastewater Treatment has been moved from the original date of September 6, 2006 to April 24, 2007.

BUDGET IMPLICATIONS

The Harbour Solutions Project has spent \$63.96 million in fiscal year 05/06 and a total of \$139.96 million to March 31, 2006. Projections to meet the capital budget of \$332.7 million are still on target.

Inflation remains the most significant financial risk of the project. History of the Halifax Non-Residential Construction Index over the past twenty years shows average annual inflation of just over 2%. Staff conservatively estimated annual inflation at 2.8% for budget purposes, while fiscal year 2004/05 brought inflation of 7.87%. In the first quarter of 2005/06, annual inflation decreased to 6.3%, with further decreases to 4.15% in the second quarter and 4.06% in the third quarter. The inflation figures for the fourth quarter have not been released yet, as of the time of writing this report. Staff have revised the estimate to 6% per year over the life of the contract and has committed a substantial portion of the \$18.2 million contingency to address this issue.

FINANCIAL MANAGEMENT POLICIES / BUSINESS PLAN

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

ALTERNATIVES

N/A

ATTACHMENTS

Halifax Harbour Solutions Project - 4th Quarterly Report - From January 1/06 to March 31, 2006, Attachment 1.

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Halifax Harbour Solutions Project

Fourth Quarterly Report January 1, 2006 to March 31, 2006

Introduction

The intent of this document is to provide Council and staff with a general overview of the Harbour Solutions Project Quarterly Report covering the period between January 1/06 and March 31, 2006.

It is presented in sections:

- Section 1 Wastewater Collection Systems
- Section 2 Wastewater Treatment Plants
- Section 3 Biosolids Processing Facility
- Section 4 Pollution Prevention Program
- Section 5 Water Quality Sampling Program
- Section 6 Financial Information
- Section 7 Public Involvement and Information Program

Halifax Harbour Solutions Project

Fourth Quarterly Report January 1, 2006 to March 31, 2006

Introduction

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Section 1

Wastewater Collection Systems

Halifax Wastewater Collection System

Work during the 4th Quarter 2005/06 concentrated on completing the remaining mechanical and electrical work at the various flow diversion structures. In particular, a great deal of mechanical and electrical work was performed at the Pier A Pumping Station, and mostly completed at the Balmoral and AST pumping stations.

Remaining work at the various drop shafts to the tunnel was completed as well as remaining work at the flow diversion chambers on Prince, George, and Sackville Streets.

The Duke/Salter sewer separation work package will be completed in the 1st quarter 2006/07 with the completion of the work on Upper Water Street. The work in this area was coordinated with Aliant upgrade work which was planned for future years.

A key element of the remaining work is the installation of diversion piping that connects the flow diversion chambers, pump stations to the Halifax Wastewater Treatment Plant (WTP). This work will occur during the summer and fall of 2006. Completion of this work is dependent on the ability of the Halifax WTP to accept the flows. Planning and coordination of this work continues.

Dartmouth Wastewater Collection System

Real estate acquisition continues to progress and a number of property acquisition agreements were finalized during the quarter. Regulatory approvals are keeping pace with the work progress.

In order to ensure that the Date Certain for the DartmouthWastewater Collection System would be met, a full work program was carried out in the 4th quarter 2005/06. Four crews were assigned to the pipe installation work during the quarter. Pipe installation work was performed in a number of areas including Ferguson Street to Wallace Street, Wallace Street to Grove Street, Grove Street to Jamieson Street, and Woodside Ferry Terminal to Cuisack Street.

Work was carried out on a number of flow diversion chamber structures, including the Jamieson Street Pumping Station and the Melva Street Pumping Station.

Preparation for the installation of the Dartmouth WTP outfall continued with installation scheduled for April. (*Note, installation was completed on April 25, 2006*).

Pipe installation work will continue as well as work on the flow regulation structures.

Herring Cove Wastewater Collection System

Clearing work has been completed on the Herring Cove WTP access road. Real estate acquisition activities have been initiated and design work has started.

Work will begin on the access road as well, and design and real estate acquisition activities will continue.

Wastewater Collection System - Overview

The land agreement between CN and HRM remains outstanding. The contractor, at its own risk, continues to work on CN land while attempting to finalize an agreement which must be in a form acceptable to HRM and subject to Council approval.

Section 2

Wastewater Treatment Plants

Halifax Wastewater Treatment Plant

During the 4th quarter 2005/06, concrete placement in the wet well continued with solid progress being made. Hydro testing of the Densadeg Tanks was completed after the tanks were lined and the leaks repaired. Coating of the UV Channels and scrubbers was also started. Masonry, architectural work (i.e., door frames, etc.), miscellaneous metals (i.e., stairway installation) continue.

Mechanical and electrical work is progressing in several areas of the plant with piping and cabling activities underway. Major equipment continues to arrive such as the Motor Control Centre (MCC) which has been installed.

The remaining concrete work will continue and the mechanical and electrical equipment installation work will assume the greater portion of the work activity.

Dartmouth Wastewater Treatment Plant

All site construction infrastructure for the Dartmouth Wastewater Treatment Plant was mobilized and foundation slabs and sludge storage tank were put into place.

The 2nd quarter 2006/07 will feature concrete formwork with some electrical work such as cabling.

Herring Cove Wastewater Treatment Plant

Geotechnical work has been completed. Site clearing was substantially completed during the quarter. Although, the exact coordinates of the location of the sewage treatment plant has not been finalized, it is essentially completed. Design work on the civil guide drawings continued during the quarter.

Section 3

Biosolids Processing Facility

During the 4th quarter 2005/06, site work continued on the installation of wall and roof cladding, electrical power distribution and interior block walls and the award of mechanical and equipment installation.

Due to the completion date for the Halifax Wastewater Treatment Plant is expected by April 2007 instead of September 2006, the proposed substantial completion date (dry commissioning) for the Biosolids Processing Facility is being moved to July 2007and other measures are being investigated to further lessen the impact on the Biosolid Processing Facility. The Biosolids Processing Facility is expected to be ready to process biosolids when the Halifax Wastewater Treatment Plant starts to operate.

The contract for the supply of all necessary equipment and labour for the transportation of dewatered biosolids from the three Harbour Solutions Project Plants was approved by Council on March 21, 2006 and ready to be executed. (Note: contract signed by contractor in May 2006).

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 have previously provided updates to Council on the status of this program. Since the last update provided to Regional Council at its meeting of February 7, 2006, activities that P2 staff have undertaken or completed include the following:

- Staff, having completed inspections of all HRM owned buildings and workplaces as well as businesses in the Halifax STP sewershed have begun inspections of businesses within the Dartmouth STP sewershed for compliance with HRM's By-Law W-101. These inspections have commenced within the Burnside Business Park area and will extend to all businesses within the Dartmouth sewershed. It is the intent of staff to have this phase of activities completed prior to the completion and commissioning of the Dartmouth STP. To date, 300 inspections in Dartmouth have been completed.
- P2 staff responded to 53 environmental incidents or related investigations since the previous report.
- Staff from TUG's have observed and reported a reduction in the number of sewer problems such as blockages or accumulations related to fat, oil and grease. This reduction is attributed to P2 activities in the food preparation sector. Reduction of the amount of fat, oil and grease that is discharged to municipal sewer systems will correspond to a reduction in Soluble and Total BOD influent loadings to the HSP STP's and may result in a reduction of system operation and maintenance costs.
- With the assistance of Clean Nova Scotia and fourth year core science students, a waste chemical management program has been implemented for all laboratories within the Dalhousie University campus. This program is ongoing with the objective to educate laboratory users, faculty, staff and students on the proper disposal procedures for liquid waste chemistries. Drain markers have been adhered to all laboratory sinks and proper disposal information has been provided at each laboratory work station. Chemicals and reagents commonly used and previously discarded to the HRM sewer system from these laboratories may have been a source of soluble and total BOD as well as having toxic or corrosive characteristics which may damage wastewater infrastructure.
- P2 staff assisted in the development of HRM's Stormwater Management Guidelines.
- P2 staff provided 3 presentations on Pollution Prevention to school assemblies of the Halifax Regional School Board. These educational presentations are focussed on identifying the need for compliance by industries, institutions such as schools and individuals to the provisions of By-Law W-101 and the objectives of the P2 program.
- P2 staff have initiated an intergovernmental pollution prevention project entitled "HRM Best Management Practices (BMP's) for Industry" for 12 industrial sectors located in HRM which will involve HRM's P2 staff, Environment Canada, DOE and the Canadian Centre for Pollution Prevention. The on-going 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.

- The Pollution Prevention web site was maintained and updated.
- P2 staff completed and produced an information brochure entitled "Preventing Stormwater Pollution: A Guide for Residents of Halifax Regional Municipality". Copies of this brochure is made available during educational seminars, public displays and HRM Customer Service Centres. This brochure will be electronically available in the near future.

P2 staff have produced and delivered a recent pollution prevention television advertisements, four radio advertisements, newspaper articles including regular use of HRM's Naturally Green newsletter, public presentations and industry seminars to educate and promote pollution prevention to ICI locations and to the general public. Educational information will be continued to be provided through related media opportunities to provide for public education and enhanced stewardship of our surface water resources.

Section 5

Water Quality Sampling Program

The Harbour water quality monitoring program was initiated 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. Samples are collected at the surface and 10 metre depth, and analysed weekly for bacterial levels, and bi-weekly for chemistry and nutrients. The data are compiled into weekly and quarterly summary reports. Preliminary results indicate for example that bacterial levels throughout the inner Harbour exceed the recreational guideline limits, particularly in winter months. Testing for metals, 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 are being investigated. 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 Dartmouth) and 2008 (Herring Cove). The 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.

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

Section 6

Financial Information

As of March 2006, the Harbour Solutions Project has spent \$139.96 million of its \$332.7 million capital budget. Spending for the quarter just completed was \$29.82 million which is largely comprised of \$11.69 million for the Wastewater Collection System, \$14.71 million for the Wastewater Treatment Plants, and \$0.73 million for the new Biosolids Processing Facility. Contract negotiation and management, the Public Involvement & Information Program, Aggressive Pollution Prevention, water quality monitoring, inflation, and administration totalled \$2.36 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 and third \$0.05 increases became effective in March 2005 and October 2005, respectively. The next increase of \$0.05 will become effective in October 2006. 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		
Total Increase		\$0.29		

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.

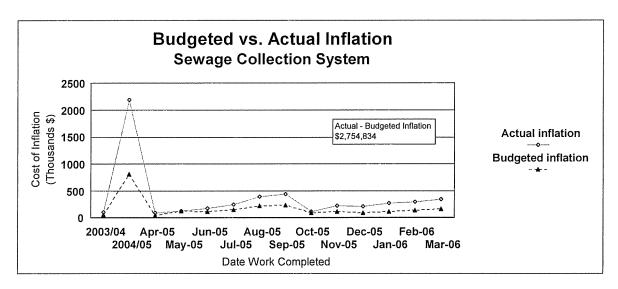
All revenues collected are recorded in the Environmental Protection Reserve. Staff maintains an administrative split of reserve balances.

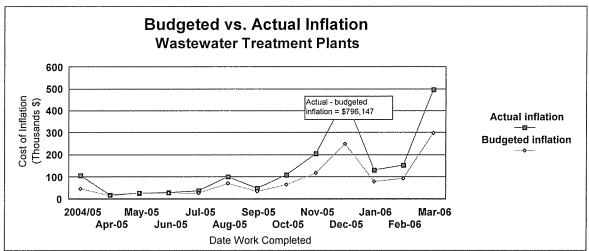
Inflation

Although 2004/05 was an extraordinary year for construction-related inflation in HRM in terms of its strong increase, the inflation trend for the year 2005/06 stabilized somewhat in the first and second quarters. However, in the third and fourth quarters, inflation experienced a rise above 6%

again. Staff is monitoring the inflation closely; although at times the experienced inflation has exceeded 6%, on the average, it still remains in line with the projected 6% figure.

The impact of inflation in terms of dollars is demonstrated in the two charts below for the Wastewater Collection System and the Wastewater Treatment Plants. The difference between the actual and budgeted inflation represents the amount which must be taken from the contingency funds. As of March 2006, \$3.55 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. Actual and planned spending of contingency funds is as follows (shown in millions):

Realized inflation in excess of b	oudget \$ 3.55)
Contract amendments	0.50	1
Projected inflation in excess of	budget 11.12)
Uncommitted	3.03	
5	Γotal \$18.20)

Harbour Solutions Project 4th Quarter 2005/06 (in millions of dollars)

	4th Quarter (Jan . 1, 2006 to March 31, 2006)	Year to Date (April 1, 2005 to March 31, 2006)	Project Total (Start of Project to March 31, 2006)	Budget
Firm Price Contracts				
Sewage Collection System	11.69	28.27	74.40	112.3
Sewage Treatment Plants	14.71	24.89	36.01	136.9
Biosolids Processing Facility	0.73	3.03	3.95	12.5
Net HST	<u></u>	-	-	9.6
Community Liaison Committees	0.32	2.56	2.67	7.0
Land	-	-	4.92	4.8
Pre-Construction Contract	-	-	7.11	7.1
Total Firm Price Costs	27.46	58.75	129.06	290.20
Variable Costs				
Admin., Contract Mgmnt., Communication	0.59	1.41	4.75	12.0
Contingency	-	-	-	18.2
Inflation	1.77	3.80	6.15	12.3
Total Variable Costs	2.36	5.21	10.90	42.5
Harbour Solutions Project		10 P 10 2 - V/2 P		
Total Cost	29.82	63.96	139.96	332.7
Funding	4 0.4			
EP Reserve Levies	15.61	37.17	96.76	160.2
Long-term debt:			440.00	
N.S. Municipal Finance Corporation	-	-	110.00	110.0
Federation of Canadian Municipalities	-		20.0	20.0
Cost Sharing:	2.0	ا ۾ ا	2.64	40.0
Province*	2.0	2.0	6.01	10.0
Canada Strategic Infrastructure Fund	10.55	10.9	18.1	30.0
Potential short-term debt	-	-	-	2.5
Total Funding	28.16	50.06	250.87	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.
- ** The project total EP Reserve Levies received were inadvertently understated in all prior quarterly reports by approximately \$4 million. This has now been corrected.

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

The Harbour Solutions continues to be a major player in the Naturally Green Newsletter. This environmentally focussed in-house produced publication is distributed to approximately 162,000 households in HRM. The last edition was released in February 2006. The most recent edition was released in late May 2006.

Corporate Communications recently won 2 international awards for it's Naturally Green publication and the "Special Harbour Edition of Naturally Green".

Corporate Communications has just completed the production of a 30 second Harbour Solutions TV advertisement running on ATV. The ad has been very well received and continues to make the link between HSP and HRM's Pollution Prevention Program.

Community Liaison Committees (CLC)

The Halifax CLC and the Herring Cove CLCs continue to meet regularly to deal with the integration of the WTP's into their communities.

The Herring Cove CLC, working with Councillor Adams, Corporate Communications and Environmental Management Services staff, brought the long awaited first phase of municipal services to parts of Herring Cove. The next phase is scheduled to get underway later this spring. The Herring Cove CLC is now focusing its efforts on WTP exterior design and landscaping. Corporate Communications staff will continue to regularly attend meetings to help this process move along.

HRM staff continue to liaise with and attend Halifax meetings when requested by the CLC's. The Halifax Group, through meetings with representatives from D&D Water Solutions Inc, have settled

on a final exterior building design for the Halifax WTP. The Halifax CLC continues to look at a proposal for the Community Integration Fund.

In Dartmouth, construction continues on the Wastewater Collection System (WCS), WTP and trail. Residents have been 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.

Staff from Real Property and Asset Management, Harbour Solutions and Corporate Communications continue to work with the Harbourfront Trails Association, area Councillors and residents on the waterfront trail running through the Woodside area. In April, a community information session was held to discuss HSP related topics.

Corporate Communications staff also continue to work with Councillor Becky Kent to keep area residents informed of activities regarding the Dartmouth WTP. Local construction notices are delivered door to door to residents in the area where construction is to take place.

Communication Plan

Public Information and Involvement Program staff developed and continue to implement a detailed communication plan for the Harbour Solutions Project.

Presentations

Presentations are developed on an on-going basis for conferences, workshops and community groups.

The presentations are updated regularly to correspond with project progress. These presentations have all been made available on compact discs as well.

Three new Harbour Solutions display units have been developed for use 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. They have been on display in Historic Properties since early April in association with HSP related construction in the area.

As part of our presentation materials, Mayflower Models was 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 WTP, the first model, is scheduled for completion in mid 2006.

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 also features a large photo gallery.

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, and ensure communications are developed to address these impacts. A PIIP member also attends, whenever 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.

A media tour of the Halifax and Dartmouth WTP sites was conducted in April. All local media were in attendance. More events are planned for the future.

Signage

PIIP staff liaised with the federal and provincial governments to design, produce and install signage for the sites of the three Wastewater Treatment Plants. A new sign has also been recently developed for the Halifax WTP and is awaiting stakeholder approvals.

Correspondence

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