CITY OF HAMILTON

PUBLIC WORKS DEPARTMENT
Environment and Sustainable Infrastructure Division

<table>
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<tr>
<th>TO:</th>
<th>Chair and Members Public Works Committee</th>
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<tbody>
<tr>
<td>WARD(S) AFFECTED:</td>
<td>CITY WIDE</td>
</tr>
<tr>
<td>COMMITTEE DATE:</td>
<td>April 19, 2010</td>
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<tr>
<td>SUBJECT/REPORT NO:</td>
<td>Randle Reef Sediment Remediation - (PW10042) - (City Wide)</td>
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<tr>
<td>SUBMITTED BY:</td>
<td>Mark Bainbridge 905.546.2424, Extension 5929</td>
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<tr>
<td></td>
<td>Jim Harnum 905.546.2424, Extension 4483</td>
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RECOMMENDATION

(a) That an additional funding commitment of $3 million by the City of Hamilton be approved for the Randle Reef sediment remediation project and that this funding is over and above the $5 million previously approved by Council;

(b) That the General Manager of Public Works be authorized to include $3,000,000 in the 2011-2015 Water and Wastewater Rate budget and forecast to support commitments to the Randle Reef sediment remediation project and that this commitment is recommended to be contingent on partnerships being established with the Region of Halton and/or the City of Burlington in the combined amount of $4,000,000 or greater.

EXECUTIVE SUMMARY

The City of Hamilton has been a partner and stakeholder in the process of Hamilton Harbour remediation since the development of the Remedial Action Plan (RAP) in 1987. The City has been a major contributor to this process over time through the implementation of Capital projects, participation of staff, sharing of data, and contributions of funding to ensure the ongoing success of the RAP work. It is undeniable that a successful remedial action program for Hamilton Harbour will have a direct positive influence on the City of Hamilton and the entire surrounding region. These influences will be a result of tangible improvements in water quality and ecological health that will translate into social, environmental, and financial benefits.
One of the largest Harbour issues that remains in the way of delisting objectives, relates to the historical deposit of toxic coal tar pollutants that rest at the site known as Randle Reef in Hamilton Harbour. This deposit is toxic to aquatic life and has been a concern for many years. As a result of the International Joint Commission declaring Hamilton Harbour as an Area of Concern, plans to remove this stigma have been undertaken by local stakeholders including the City of Hamilton. The cleanup of Randle Reef is one critical step in the RAP process focussed on future delisting objectives.

As one of a number of ongoing remedial action plan projects, it is proposed to contain in place, the most contaminated sediment found in the area of Randle Reef. This area is considered to be one of the more complex and highly contaminated sediment sites throughout the Canadian Area of Concern Sites on the Great Lakes. The solution to this legacy problem is a priority of the Hamilton Harbour RAP, supported through the Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem. In 2007, the government of Canada and the Province of Ontario committed to financially support one-third of the Randle Reef initiative, at the time estimated to be $90M. This translates to an investment of $30M from each senior level of government. Project cost has since been updated to $105M.

In light of updated cost information, Federal and Provincial staff are in the process of working to secure approvals within their organizations to cover increasing costs that are within the new estimated project value. All of the previous government support commitments, as well as any future increases are contingent on local stakeholders confirming a contribution of at least $30M. Current progress on the planning stages of the project is expected to be complete this year. This work includes completion of the Environmental Assessment, final design, and a planned peer review process. As these planning and design stages end, it is imperative that funding be secured in order to stage the implementation phase which currently forecasts field work to begin as of 2012. Further delays in securing funding will continue to move this timeline forward and may translate to further increased costs depending on future economic factors. In addition, delays will have an impact on Hamilton Harbour Remedial Action Plan goals and objectives, currently targeting delisting applications for 2015.

Local funding obligations under the program have still not met a mandatory minimum threshold of $30M. The following local commitments have already been made to the project:

- Steel Product $12M ($7M US Steel, $5M reduction in steel cost)
- Hamilton Port Authority $ 6M
- City of Hamilton $ 5M
- Total $23M

In order to encourage a resolution for this lack of local commitment, staff have been engaging additional local stakeholders. The City of Burlington and the Region of Halton are aware of the partnership strategy that has been an integral part of the overall RAP process and that the partnership principle continues to be applied to the Randle Reef project. These agencies have been contacted due to a mutual interest in improving the image of our region and working toward future prosperity of the local area.
proposed that the City of Hamilton make a commitment of $3M in addition to the $5M committed in 2009 from the Water and Wastewater Rate budget. This funding will be applied directly to the implementation of the solution identified under the Environmental Assessment process for cleanup of Randle Reef. This commitment is recommended to be contingent on a partnership being developed whereby the City of Burlington and the Region of Halton agree to provide partnership funding for the project in the amount of at least $4M as a combined contribution. Funding commitments can be allocated over a number of years to reflect the estimated pace of implementation. The size and complexity of this project will demand a long-term window of implementation covering a timeframe between 7 and 10 years. The investment can be programmed over this term to minimize the impact on any given budget term. The key aspect of this financial commitment is to encourage the security of funding necessary to allow the implementation phase to begin. Local minimum funding of $30M has the potential to be met as follows:

- **Steel Product**: $12M ($7M US Steel committed, + $5M reduction in steel cost)
- **Hamilton Port Authority**: $6M (Committed)
- **City of Hamilton**: $8M ($5M committed + $3M addition)
- **Halton Region**: $2M (To be Negotiated)
- **City of Burlington**: $2M (To be Negotiated)
- **Potential Total**: $30M

Project implementation is currently planned between 2012 and 2021 if current funding issues can be resolved efficiently.

**Alternatives for Consideration - See Page 8**

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**FINANCIAL / STAFFING / LEGAL IMPLICATIONS**

**Financial:** Accepting this recommendation will commit funds in the amount of $3,000,000 from the future water and wastewater rate based budget. This investment is expected to have a positive local impact which will translate to improved future prosperity in the form of income generation related to property values, tourism, and business opportunities which will benefit all levels of government.

**Staffing:** N/A

**Legal:** A legal agreement will need to be established between involved funding partners. This agreement will identify the nature of relationships between project partner agencies and identify established financial commitments.

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**HISTORICAL BACKGROUND**

The recommendations contained within this Report have City wide implications.

In the early part of the 20th Century, Hamilton Harbour was a commercial and recreational wonder. Commercial fishermen caught thousands of tonnes of trout, whitefish and herring, while bathers flocked to enjoy the warm waters of the Harbour, rather than brave the rocky beaches of nearby Lake Ontario. More recently,
urbanization and the destruction of wetlands dramatically altered the Harbour ecosystem.

The Hamilton Harbour Area of Concern was designated in 1987. This Area is home to the second most contaminated coal-tar site in Canada after the Sydney Tar Ponds in Nova Scotia. In 1989, a detailed sampling study of the sediment in the area of Randle Reef identified serious coal tar contamination. The contaminated sediment is bounded by piers 15 and 16 at the mouth of the Sherman inlet. This placement is in the centre of the south shoreline of Hamilton Harbour and is surrounded by a major Canadian shipping centre supporting one of the largest concentrations of heavy industry in the country. The resident contamination is a result of historical industrial deposits of coal tar, containing polyaromatic hydrocarbons (PAH), and heavy metals which are a major concern to human users and aquatic life in Hamilton Harbour. The polluted sediments cover an area greater than 10 ha named Randle Reef after Harvey T. Randle, a local boater and member of the Royal Hamilton Yacht Club who ran aground on the raised coal tar reef in 1964. The area at issue is a lifeless zone, containing PAH concentrations that reach over 73,000 ppm. The water lot where contaminated sediments are found is owned by the Hamilton Port Authority.

Since 1995 a focus has been placed on developing solutions for contamination at Randle Reef. In the fall of 2001 a formal stakeholder project advisory group (PAG) consisting of 17 members led by Environment Canada was formed. In December 2002, this group of stakeholders arrived at a conceptual design for an in-situ containment structure that would cover approximately 640,000 m³ of the most concentrated toxic sediments. This represented a stakeholder consensus decision which provided a cost-effective approach toward remediation. The cleanup of Randle Reef in conjunction with improvements in municipal wastewater treatment are currently the two most important aspects of delisting Hamilton Harbour, a goal targeted for 2015. On November 7, 2007, the governments of Canada and Ontario committed $30M each to the Randle Reef Project.

**Randle Reef Preferred Solution**

The area has been studied and broken down into three levels of contamination. Hot spots represent high contamination greater than 800 ppm, Medium contamination areas are between 200 and 800 ppm, and Lower contamination areas that are less than 200 ppm. Remediation strategies are being based on these three zones. The highly contaminated sediments or "hot spots" should be removed from contact with the Harbour environment; medium contaminated sediments should be removed from biological contact or remediated in place to lower toxicity; and lower contaminated sediments may be left in place and allowed to degrade naturally over time.

The preferred remediation option is to build a 7.5 ha twin cell engineered containment facility (ECF) around the most highly contaminated “hot spot” sediment. This option was selected after a lengthy process, which began in 1995. Several options were considered in consultation with the Project Advisory Group (PAG) set up for Randle Reef. Building a containment facility, at an estimated cost of $105M, is considered to be the most cost-effective way to address the site. The containment area will become
an above-water port facility with an expected lifespan of 200 years before the containment structure will need attention. Lesser contaminated material outside of the 7.5 ha zone will be extracted using hydraulic and mechanical dredges generating fill for the upper layers of the ECF. A total of 500,000 m³ is planned for relocation. Construction will consist of the installation of a double steel sheetpile wall, debris removal, dredging, and capping with clean materials.

**Funding and Timelines**

The Randle Reef project is estimated to cost a total of $105M. The estimated cost is broken down by activity below and as of January 2010 is scheduled to take place between 2012 and 2021:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Containment Structure</td>
<td>$39.2M</td>
</tr>
<tr>
<td>Dredging and Sediment Management</td>
<td>$17.2M</td>
</tr>
<tr>
<td>Capping and Landscaping</td>
<td>$24.3M</td>
</tr>
<tr>
<td>Structural Wall</td>
<td>$4.9M</td>
</tr>
<tr>
<td>Project Management and Contracting</td>
<td>$15.2M</td>
</tr>
<tr>
<td>Monitoring</td>
<td>$4.2M</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$105M</strong></td>
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This project is currently nearing completion of the planning and design phase. This preparation for implementation includes environmental assessment, Pre-design, Final Design, and a planned Peer Review process. All of these activities are currently scheduled for completion in 2010.

Local funding obligations under the program have still not met a minimum mandatory threshold of $30M. The following local commitments have already been made to the project:

<table>
<thead>
<tr>
<th>Commitment</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>Steel Product</td>
<td>$12M ($7M US Steel, $5M steel market savings)</td>
</tr>
<tr>
<td>Hamilton Port Authority</td>
<td>$6M</td>
</tr>
<tr>
<td>City of Hamilton</td>
<td>$5M</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$23M</strong></td>
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Under the current total project cost allocation, steel prices have a direct impact on the project since implementation estimates include a fixed requirement for $12M in steel product. This steel is a key part of the construction for the confined disposal facility strategy. Market trends currently provide a favourable advantage to local stakeholders as steel prices have dropped significantly over the past few years. This drop in price allows the local funding portion to meet the nominal $12M allocation for steel in the budget for a lower cost. US Steel Canada will be able to assist in sourcing steel product which can currently be met by their cash commitment of $7M to cover the $12M budgeted product cost. As time goes by however, fluctuations in the steel market may drive the cost of steel above the $7M mark. Steel costs over $7M will generate a future gap in funding. Securing this aspect of the project can only be through a purchase of steel. This can only be considered once funding commitments meet total project costs. Market prices are therefore another reason to get the local funding portion established while there is an opportunity to realize reduced product costs to the project. Future increasing costs may translate to a larger unfunded gap.
Economic Benefits of Harbour Cleanup

There are many direct benefits to the community from the remediation of Randle Reef, including creating a new and positive image for Hamilton Harbour. Economic benefits will result from cleaning up Randle Reef, improving municipal sewage treatment, and controlling non-point sources, leading to the de-listing of Hamilton Harbour as an area of concern. Success will generate large returns as estimated by a previously published York University study. York's computer model predicts the Randle Reef project will generate a direct economic for the port, industry and tourism, and a much larger return for many stakeholders when work results in the International Joint Commission taking the Harbour off its list of Great Lakes pollution hot spots, helping to change the image of Hamilton and the surrounding area. Increased property values near the Harbour have also been cited as a future benefit. Non-economic returns include many intangible aspects and quality of life improvements including, improved fish habitat, better Harbour health, better water quality, and improved opportunity for recreational activities in the Harbour. These renewed aspects of the Harbour will attract commercial businesses, and residents to the shoreline leading to ongoing benefits for the greater community.

City of Hamilton Leadership

The City of Hamilton has a direct interest in the success of this project and has the opportunity to encourage other stakeholders to see the value and opportunity in this undertaking. The project has attracted provincial and national investment commitments, an opportunity that will benefit all local agencies. Staff are recommending an additional investment of $3M to be allocated from future Water and Wastewater Rates. This amount will be in addition to the $5M which has been allocated by the City of Hamilton in 2009. Increasing the funding contribution of this City toward a key project in the remediation of Hamilton Harbour indicates the dedication this community has for its local environment, a signal that should indicate the value of this process to other municipal stakeholders. As a result, these additional funds should be considered contingent on establishing a partnership with the City of Burlington and the Region of Halton for a combined commitment of at least $4M to reflect their regional interest in the project. Further investment is therefore a reflection of the intent to secure the project for implementation. The resulting formula will establish how our minimum required local $30M portion will be met as follows:

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<td>$2M</td>
</tr>
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<td>Potential Total</td>
<td>$30M</td>
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Similarly this commitment is also dependent on Provincial and Federal authorities increasing their contributions to fund increased project costs related to inflation and updated engineering estimates.
POLICY IMPLICATIONS


The recommendations from this Report will assist in meeting Public Works’ key goal, to be recognized as the centre of environmental and innovative excellence in Canada. In addition, implementing the recommendations will also assist Public Works in building on our four Strategic Vision Drivers as follows:

- **Communities (Services our communities connect with and trust)** -
  Approval of this additional funding will show the commitment this City has toward improvements in the quality of life afforded to our community by ensuring that water quality in our environment is protected and remains a high priority. Randle Reef has national significance but its impact is greatest on local communities. Contributing to the Randle Reef solution with the intent to encourage a complete local funding formula will benefit residents and many businesses in Hamilton by mitigating a well known area of pollution. These efforts will go a long way in repairing the image of this community, and protecting both public and environmental health.

- **People (Skilled teams ready for any situation)** -
  This program demonstrates the ability of our City staff to engage and assist our community in protecting property, public health, and the environment. The Environment and Sustainable Infrastructure Division is a leader in the process of cooperating with other local agencies to affect the process and successful resolution to Randle Reef funding. This recommendation supports the continued partnerships that are being formed between local, provincial, and federal government agencies. Providing an additional level of commitment and encouraging others to become partners in this significant issue demonstrates valuable local leadership by the City and its staff.

- **Process (Smart processes to match our needs)** -
  Public Works continues to leverage best practices to ensure that programs are efficient and directly benefit the community. Maintaining strong working relationships with other agencies will not only benefit the Randle Reef program but will also benefit all other projects where multiple agencies are involved. Partnerships and smart processes are a key element of success for the future.

- **Finances (Sound financial management for the long haul)** -
  Expenses associated with additional contributions to this remediation program are proposed to be sourced through the 2011 Water and Wastewater Rates Budget. Taking this measure to encourage implementation of the Randle Reef work will hopefully address the issue before costs again rise within the planned program. In addition, steel product costs are considered low at this time. This provides an advantage to the local funding portion due to established project budget figures which include $12M for steel costs, the same quantity of material can now be sourced for much less. Future increases in steel costs will reduce this advantage and potentially create a funding gap.
if costs rise over the planned $12M. Finally, this region cannot afford to lose the Federal and Provincial contributions to this program. The Randle Reef project contributes directly to the Hamilton Harbour Remedial action plan which, when complete, will have significant local benefits both in terms of future revenue generation and in terms of less tangible aspects of public perception and local image. Investments in the short term will provide benefits in the long term.

RELEVANT CONSULTATION

Background information and issues surrounding the Randle Reef project have been discussed between City of Hamilton staff, City of Burlington staff, and Region of Halton staff. This contact was provided to indicate that there is interest in partnering with all of the local public authorities for financial support and political support for the program.

ANALYSIS / RATIONALE FOR RECOMMENDATION

N/A

ALTERNATIVES FOR CONSIDERATION

This recommended course of action is intended to encourage stakeholders to bring forward enough financial funding necessary to proceed with the implementation of solutions to the Randle Reef problem. Continued delays in the process impact the ability to delist Hamilton Harbour from the International Joint Commission’s list of areas of concern. The benefits of sediment remediation will extend to all levels of government as well as local residents and businesses. Council can decide against additional financial commitments to this project. This may result in continued lack of local leadership, delaying the implementation of solutions and prevention of movement toward the delisting objective. Total project costs in the meantime may continue to rise.

CORPORATE STRATEGIC PLAN


Skilled, Innovative & Respectful Organization

• Council and SMT are recognized for their leadership and integrity

This proposed action provides an opportunity for the City of Hamilton to take a greater role in the cleanup of Hamilton Harbour.

• Sustainable Tri-parti Government Agreement

The proposed action reflects a commitment to the support of intergovernmental partnerships. These partnerships are strong alliances that allow several agencies to work together in complex cases where individually it is difficult to succeed. The
proposed course of action is an attempt to encourage local partners to meet the requirements for a fair sharing arrangement.

**Intergovernmental Relationships**

- Maintain effective relationships with other public agencies

Local government agencies have the opportunity under this recommendation to partner with Federal and Provincial authorities on a complex nationally-significant issue. A successful project will strengthen the concept of multi-government collaborations. The City of Hamilton will be seen as a productive and valuable partner in the process of building a team that is strong enough to accomplish the significant goals that will benefit all agencies involved.

**Environmental Stewardship**

- Natural resources are protected and enhanced

Randle Reef is a nationally recognized site that represents the environmental abuse of days gone by. A successful assembly of local stakeholders with enough financial commitment to meet a local funding threshold will permit the process of implementation to begin. The construction of effective solutions to the Randle Reef problem will mitigate the impact of toxic sediments that have been affecting our local ecological and water resources for decades. Partnering with others to build the Randle Reef solution will represent tangible protection of our local natural resources for many decades into the future.

- Remove Hamilton Harbour from Great Lakes area of concern list by 2015

Toxic sediment slowly spreading from the Randle Reef site is impacting water quality, fish populations, and public perception of Hamilton Harbour. All of these issues are affecting our ability to delist Hamilton Harbour. Randle Reef is one of the top priorities identified by the Hamilton Harbour Remedial Action Plan in order to remove Hamilton Harbour from the Great Lakes area of concern list.

**APPENDICES / SCHEDULES**

None