SUBJECT: Hannon Creek/North Glanbrook Industrial Business Park Subwatershed Study (PW08031(b)) - (Wards 6, 7, 9, and 11)

Public Works Outstanding Business List

RECOMMENDATION:

(a) That the Acting General Manager, Public Works Department and the General Manager, Planning and Economic Development Department, be authorized and directed to use the Hannon Creek/North Glanbrook Industrial Business Park Subwatershed Study as the guiding document for stormwater management and drainage, and environmental management for the lands within the study area.

(b) That the General Manager, Planning and Economic Development Department be authorized and directed to include the recommendations of the Hannon Creek/North Glanbrook Industrial Business Park Subwatershed Study in Planning processes for the area covered by the Subwatershed Study, as appropriate.

(c) That, not withstanding Recommendations (b) and (c) above, the Acting General Manager, Public Works and the General Manager, Planning and Economic Development be authorized and directed to allow for amendments to the Subwatershed Study, or to require more detailed studies for part or all of the study area, to reflect future development and intensification patterns.

(d) That the item relating to the Hannon Creek Sub-watershed be removed from the Public Works Committee Outstanding Business List.
EXECUTIVE SUMMARY:

The North Glenbrook Industrial Business Park (NGIBP) is primarily located within the Hannon Creek Subwatershed; a small portion of the NGIBP is within the Twenty Mile Creek Subwatershed. A subwatershed study has been prepared for Hannon Creek and for the NGIBP to provide guidance to future drainage and stormwater servicing for these lands. This plan will be a supporting document to other ongoing Planning and Public Works initiatives, including master drainage reports and stormwater management reports for new development, and the construction of stormwater management facilities.

Key findings of the study include:

- There are a number of karst features throughout the Hannon Creek Subwatershed.
- Most of the streams in the study area provide little or no in-situ fish habitat, and there is little riparian vegetation, except along the main branch of Hannon Creek.
- There are a number of barriers to fish movement downstream of the study area, including a karst feature and bedrock ledges.
- Historical stream modification has eliminated aquatic habitat in many of the tributaries.
- Significant erosion of four reaches downstream of Rymal Road was noted. These streams will need to be protected, rehabilitated or enhanced in their current location, and the function of these streams is to be preserved.
- A stream classification system was developed as part of this study. Recommendations for the high and medium constraint streams include re-establishing a functioning floodplain, providing a low-flow channel, re-establishing a “natural” meander planform and re-establishing riparian vegetation. Agencies including the Hamilton Conservation Authority and the Department of Fisheries and Oceans participated in, and approved, the classification of the streams within the study area.
- Fifteen stormwater management ponds are identified to serve the Hannon Creek/North Glenbrook Industrial Business Park Subwatershed Study area.

BACKGROUND:

Study Purpose and Goals

The Hannon Creek/North Glenbrook Industrial Business Park Subwatershed Study area includes the entire Hannon Creek subwatershed and the portions of the Twenty Mile Creek subwatershed that are within the limits of the North Glenbrook Industrial Business Park. The North Glenbrook Industrial Business Park is located on the drainage divide between the Hannon Creek subwatershed and the Twenty Mile Creek subwatershed. The study area is shown in Appendix A.

The Hannon Creek Subwatershed represents approximately 20% of the Red Hill Creek Watershed. It is entirely within the City of Hamilton and is within Hamilton Conservation Authority jurisdiction. Land use in the Hannon Creek area is primarily rural. The majority of the NGIBP is located within the Hannon Creek Subwatershed.

The southern portion of the NGIBP is within the Twenty Mile Creek subwatershed, which is within the jurisdiction of the Niagara Peninsula Conservation Authority.
The Hannon Creek/North Glenbrook Industrial Business Park Subwatershed Study was undertaken to assess current environmental and watershed conditions and to provide guidance to future stormwater servicing requirements. Completing the study in this fashion allowed for a comprehensive approach to siting required stormwater management facilities for the entire subwatershed, and for the Industrial Business Park, instead of reviewing stormwater just on a site by site basis.

Study Process

The study steps included:

- A review of background information
- Additional collection of field information to augment available data, including:
  - Aquatic surveys
  - Terrestrial surveys
  - Fluvial geomorphological data
  - Topographic information
  - Hydrogeologic surveys
- Characterization of streams and terrestrial conditions
- Identification and evaluation of stormwater management options
- Development of an overall drainage and stormwater management plan.

The Hannon Creek/North Glenbrook Industrial Business Park Subwatershed Study will constitute the basis for the planning and design of future stormwater management infrastructure. The Hannon Creek study was prepared under the direction of a Technical Steering Committee consisting of City staff, the Hamilton Conservation Authority, the Niagara Peninsula Conservation Authority, the Ministry of Natural Resources and the Department of Fisheries and Oceans.

Policies and Standards

The Hannon Creek/North Glenbrook Industrial Business Park Subwatershed Study has been prepared following the guidelines and criteria of the agencies listed above. In addition, the implementation plan of this study is in line with the recommendations of the Red Hill Creek Watershed Plan (1998) and the Hamilton Harbour Remedial Action Plan.

ANALYSIS/RATIONALE:

The Hannon Creek/North Glenbrook Industrial Business Park Subwatershed Study was completed to develop a management approach for key resources within the study area. The study included hydrology and hydraulics, hydrogeology, fisheries, and terrestrial and natural heritage resources, and identified constraints and issues associated with these disciplines.

The Hannon Creek/North Glenbrook Industrial Business Park Subwatershed Study also includes a table of monitoring parameters and a management strategy for:

- Stream corridor and floodplain protection and enhancement;
- Natural heritage systems;
- Stormwater management;
- Hydrogeology/karst feature management; and
- Monitoring.
Key Findings and Recommendations of the Study

- There are a number of karst features throughout the Hannon Creek Subwatershed. Most of the karst features found were located in or around creek tributaries. Additional study of the impact on these features on groundwater is required as part of future planning studies.
- All the watercourses in the study area are headwater systems originating in the study area.
- Most of the streams in the study area provide little or no in-situ fish habitat, with the exception of Hannon Creek itself and one other reach.
- There are a number of barriers to fish movement downstream of the study area, including a karst feature and bedrock ledges.
- There is natural riparian vegetation along the main branch of Hannon Creek, but not along most of the tributaries.
- Historical stream modifications including realignment, removal of vegetation and plowing has eliminated aquatic habitat in many of the tributaries.
- Significant erosion of four reaches downstream of Rymal Road was noted. Further geomorphic study of these areas is required as part of future development planning.
- A stream classification system was developed to determine which tributaries were to be maintained as natural channels in their current location, which tributaries could be relocated, and which tributaries did not need to remain open. The classification of each reach was reviewed and agreed to by the Department of Fisheries and Oceans, the Ministry of Natural Resources and the Conservation Authorities (Hamilton and Niagara Peninsula). Recommendations for the high and medium constraint streams include re-establishing a functioning floodplain, providing a low-flow channel, re-establishing a “natural” meander planform and re-establishing riparian vegetation.
- Fifteen stormwater management ponds are identified to serve the Hannon Creek/North Glanbrook Industrial Business Park Subwatershed Study area. The recommended stormwater management system for the study area includes source controls (capturing stormwater on site and providing stormwater quality and quantity control), conveyance controls (capturing on site and roadway runoff), and end-of-pipe controls (providing water quality, erosion and flood control for the study area). Previously proposed stormwater management facilities have been carried forward in this study; these ponds were approved in the Mountain Brow Boulevard Crossing and Central Mountain Stormwater Management Class Environmental Assessment. The proposed stormwater management pond locations are shown in Appendix B.
- During the course of the study, a potential sighting of American Badger (an endangered species) was made. Additional fieldwork was undertaken, in consultation with the Ministry of Natural Resources’ Badger Recovery Team, but no badgers or badger dens were found. At the draft plan stage though, additional field searches for American Badger should be carried out.
ALTERNATIVES FOR CONSIDERATION:

**Alternative 1 - Do Not Use the Hannon Creek/North Glanbrook Industrial Business Park Subwatershed Study as the Guiding Document for Stormwater Servicing for the Study Area**

This alternative is not recommended. The Hannon Creek/North Glanbrook Industrial Business Park Subwatershed Study includes valuable information on the natural and social environments, existing and future drainage conditions, and guidelines for future implementation and monitoring. The stream classification has been approved by agencies including the Hamilton Conservation Authority and the Department of Fisheries and Oceans. If the Hannon Creek/North Glanbrook Industrial Business Park Subwatershed Study is not used as the guiding document for this area, new data will need to be collected on a site-by-site basis, leading to additional time and money being spent prior to development of these lands.

FINANCIAL/STAFFING/LEGAL IMPLICATIONS:

**Financial**

The identified stormwater management facilities and creek works will need to be included in future Capital Budgets, and in the upcoming Development Charges Study (2009). The Hannon Creek/North Glanbrook Industrial Business Park Subwatershed Study will be forwarded to the Development Charges Co-ordinating Committee for inclusion in the next update of the Hamilton Development Charges Background Study.

**Staffing**

There are no staffing implications associated with the recommendations of this report.

**Legal**

There are no legal implications associated with the recommendations of this report.

The Hannon Creek Subwatershed study has not been prepared as a Master Plan under the Municipal Class EA process. The projects outlined in the Hannon Creek Subwatershed study are not subject to Municipal Class EA requirements. However, the Study generally followed the Class EA process to ascertain reasonable and feasible alternatives that have been evaluated based on their impacts on the natural environment, economics and the social environment.

POLICIES AFFECTING PROPOSAL:

The Hannon Creek/North Glanbrook Industrial Business Park Subwatershed Study addresses the Red Hill Creek Watershed Action Plan (1998) recommendations for the Hannon Creek subwatershed of aquatic restoration, stable creeks with normal levels of erosion, and riparian vegetation enhancement. This study has also been completed in accordance with the City’s Storm Drainage Policy (2004) and the draft Criteria and Guidelines for Stormwater Infrastructure Design (2006), and the policies and guidelines of the Hamilton Conservation Authority, the Niagara Peninsula Conservation Authority, the Ministry of the Environment, the Ministry of Natural Resources and the Department of Fisheries and Oceans.
The Hannon Creek/North Glanbrook Industrial Business Park Subwatershed Study supports the Public Works Strategic Plan by being a leader in the "greening" and stewardship of the City, through the stormwater management practices that are proposed, and through the comprehensive planning approach that was taken during this study.

The Hannon Creek/North Glanbrook Industrial Business Park Subwatershed Study also addresses the Environmental Stewardship Focus Area of our Corporate Strategic Plan. The Hannon Creek study has been developed with protection of existing natural resources as a key component.

**RELEVANT CONSULTATION:**

**Agency Consultation**

The following City of Hamilton Departments were involved in this project:

- Planning and Economic Development (Airport and Industrial Park Development, Community Planning and Design, Development Engineering and Development Planning)
- Public Works (Capital Planning and Implementation)

The following agencies were involved in developing the strategy for the study area:

- Department of Fisheries and Oceans (DFO)
- Ministry of the Environment (MOE)
- Ministry of Natural Resources (MNR)
- Hamilton Conservation Authority (HCA)
- Niagara Peninsula Conservation Authority (NPCA)

First Nations were also contacted as part of the consultation process for this project. A site meeting with Councillor Tom Jackson was also held as part of this process, in November 2008.

Three Public Information Centres (PICs) were held during the course of the Hannon Creek/North Glanbrook Industrial Business Park Subwatershed Study. The first one was held in conjunction with the PIC for the Dartnell Road realignment, and was attended by 57 people. The second PIC was held on July 19, 2007 and was attended by 33 people. The second PIC was held to present overall study findings and the proposed stormwater management approach. Based on the feedback from second PIC modifications were made to the alternatives under consideration. To present the final recommendations, the third PIC was held on November 3, 2008; 34 people attended this PIC.

Many of the comments received at the Public Information Centres did not relate to the Hannon Creek study; these comments were forwarded to the appropriate Departments for responses. Of the comments that did relate to the Hannon Creek study, there was general agreement with the proposed plan and an appreciation for minimizing the number of stormwater management ponds.

Comments were also received from the development community about the effects of the proposed plan on future development of lands at the east limit of the subwatershed (Rymal Road Planning Area). Proponents for these lands asked about the potential of
adjusting the drainage pattern proposed in the study. Recognizing that this is a higher level plan, there is the opportunity for some adjustments as more detailed studies are undertaken, however, changes that would impact the stream classification identified in this report will require approval from City staff, as well as the relevant Conservation Authority, the Ministry of Natural Resources and the Department of Fisheries and Oceans.

Report PW08031 was presented to the Public Works Committee on March 31, 2008, but was tabled as a developer had concerns with the location of one of the stormwater ponds. The Hamilton Conservation Authority (HCA) also expressed concerns with the removal of some of the previously proposed stormwater management ponds (from the Mountain Brow Boulevard and Central Mountain Stormwater Management EA) and the replacement of those ponds with ones further upstream. Staff had discussions with the developer in April, May and November 2008 and with HCA in May 2008. The developer has provided an alternative that appears to address both their concerns about having a pond on their lands, as well as the HCA concerns about needing a quality control facility closer to the high constraint portions of Hannon Creek. The proposal put forward by the developer includes locating a stormwater management facility (quantity control) in an existing park (Broughton West Park), and providing quality control downstream on industrial lands. Impacts to the park function still need to be investigated prior to implementing this alternative, as do the impacts on industrial land and implementation. Discussions between staff, the Developer and Ward Councillor provided clear direction that should the developer’s proposal not be approved, an alternative location or means of controlling stormwater from his site would be required.

Meetings with other development proponents have also been held throughout the study. Comments from these groups have also been addressed in the final version of the Hannon Creek/North Glanbrook Industrial Business Park Subwatershed Study.

**CITY STRATEGIC COMMITMENT:**

By evaluating the “Triple Bottom Line”, (community, environment, economic implications) we can make choices that create value across all three bottom lines, moving us closer to our vision for a sustainable community, and Provincial interests.

**Community Well-Being is enhanced.** ☑ Yes ☐ No
The preferred alternative allows for enhanced water quality and quantity in the subject area.

**Environmental Well-Being is enhanced.** ☑ Yes ☐ No
Ecological function and the natural heritage system are protected.

**Economic Well-Being is enhanced.** ☑ Yes ☐ No
Hamilton's high-quality environmental amenities are maintained and enhanced.

Does the option you are recommending create value across all three bottom lines?  ☑ Yes ☐ No

Do the options you are recommending make Hamilton a City of choice for high performance public servants?  ☑ Yes ☐ No
APPENDIX A - Study Area Map
APPENDIX B - Location of Proposed Stormwater Management Facilities