Central Welland River Watershed Plan

Terms of Reference

Introduction

The *Niagara Water Quality Protection Strategy* (2003), now known as the *Niagara Water Strategy* (*NWS*) (2006), has identified the need to manage Niagara's watersheds in such a manner as to "sustain healthy rural and urban communities in harmony with a natural environment, and rich in species diversity". The *Provincial Policy Statement* (*PPS*), issued under the *Planning Act*, now includes policies whereby Planning Authorities shall protect, improve or restore the quality and quantity of water by using the watershed as an ecologically meaningful scale for land use planning. The Central Welland River Watershed Plan will make recommendations to Planning Authorities on the best way to protect, improve and restore water quality and quantity in the land use planning process as well as recommend a restoration program and associated strategies to achieve the *NWS* (2006) vision.

A Watershed Plan is a proactive document created cooperatively by government agencies and the community to manage the water, land/water interactions, aquatic life and aquatic resources within a particular watershed to protect the health of the ecosystem as land uses change. The Central Welland River Watershed Plan will update the existing *Welland River Strategy* (1999) and provide strategies that will allow the community to care for water resources, natural heritage, settlement and agriculture in the context of land use planning documents (e.g., Official Plans). It will also provide strategies for implementing the watershed initiatives and specify who is responsible for remedial actions outside of the land use planning process (e.g., restoration opportunities on public and private lands). The Central Welland River Watershed Plan will generally follow the process described in *Water Management on a Watershed Basis: Implementing an Ecosystem Approach*, (MOEE, MNR 1993).

The Central Welland River watershed primarily includes Local Management Areas 2.6, 2.7, 2.10, and 2.12 as identified in the *NWS* (2003), which fall within West Lincoln, Wainfleet, City of Welland, Town of Pelham and the City of Port Colborne. Numerous subwatersheds form the Central Welland River watershed including Beaver Creek, Black Ash Creek, Parkers Creek, Unnamed Creek, Sucker Creek, Coyle Creek, Drapers Creek, Little Forks Creek, Lyons Creek Drain, Indian Creek Drain, Biederman Drain #1 and Biederman Drain #2, as well as Welland River Between Canals, Welland Canal and a portion of Welland Canal North (Figure 1).

The Central Welland River watershed falls within the Niagara River Area of Concern. The Niagara River has been designated by the federal and provincial governments in cooperation with the International Joint Commission (IJC) as one of 43 Areas of Concern (AOC) in the Great Lakes basin. This designation is due to degraded water quality, which impairs complete use of the River's resources. In response to concerns over the health of the entire Niagara River ecosystem, a *Remedial Action Plan* (*RAP*) was developed. Recommendation 23 (p.17) of the Implementation Annex states: "Municipal planning documents incorporate ecologically based policies and design criteria". In

addition, page 12 of the report includes habitat targets that could be included in Municipal Official Plans (e.g., 30% of the watershed should be natural forest and/or wetland, 10% of the land in each tributary as wetland, 30 metre natural vegetative buffers on streams, and so forth). The Central Welland River Watershed Plan will address the Niagara River RAP.

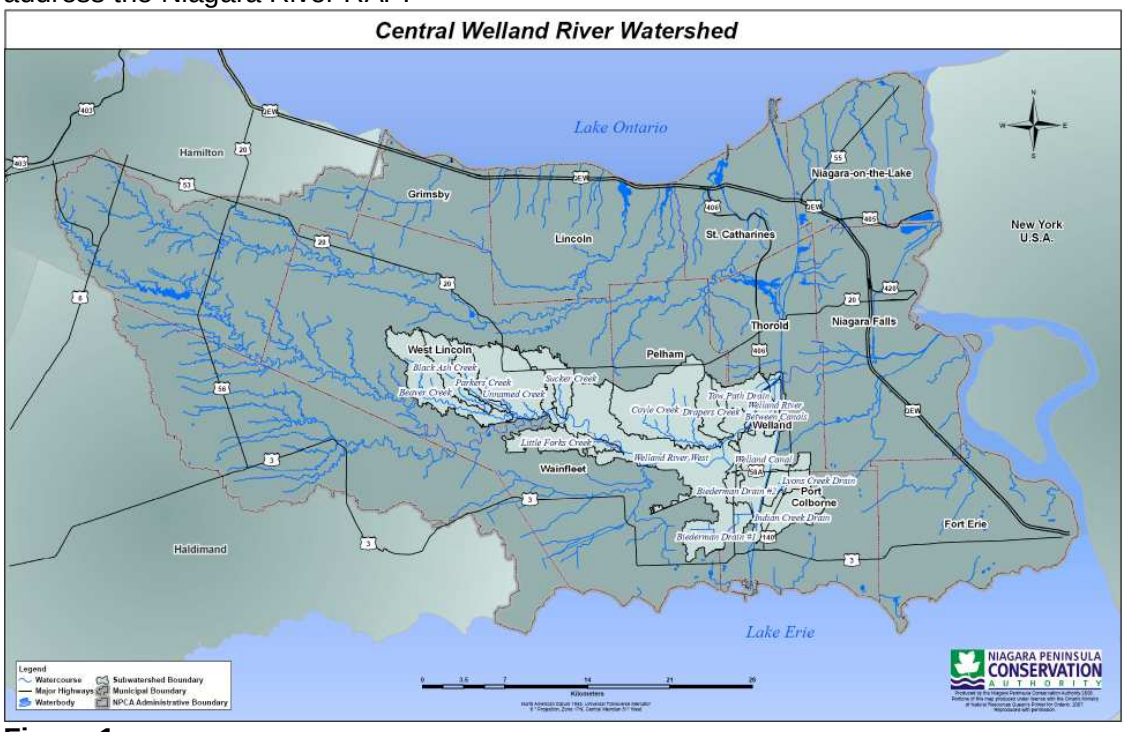

Figure 1

The Central Welland River Watershed Plan will also take into consideration any changes resulting from Phase 2 of the *RAP* (e.g., updated delisting criteria), which will be completed in 2007.

There are five water quality monitoring (chemical and biological) stations in the watershed; Beaver Creek, Coyle Creek, Drapers Creek and 2 stations in Welland River West. Based on the results from the 2007 sampling season, all of these creeks have impaired water quality primarily from nutrient enrichment where total phosphorus routinely exceeds the Provincial Water Quality Objective (PWQO). Water quality at Coyle Creek and Drapers Creek also report exceedances of *E. coli*. Benthic invertebrate samples were collected from Coyle and Drapers Creeks using the BioMAP protocol. Analysis of the samples indicates that water quality is impaired at both sites.

Aquatic habitat is considered good in the watershed. For example, Drapers Creek, Coyle Creek, Sucker Creek, Black Ash Creek, Beaver Creek, Parkers Creek, Little Forks Creek, Welland River West and their tributaries are classed as critical and important fish habitat by the Ministry of Natural Resources. Biederman Drain #1 and #2 are municipal drains, which have been classified as Type B and E fish habitat under the Department of Fisheries and Oceans classification system. This system is based on such variables as flow conditions, temperature, fish species present, and the length of time since the drain was cleaned out.

Recreational uses in the watershed consist of the Old Welland Canal, and the Welland River is also used for outdoor activities such as canoeing and fishing. Several golf courses are located in the watershed including Hunter Point Golf Club, Riverview Golf and Country Club, The Water Park Golf and Country Club, and the majority of the Sparrow Lakes Golf Course.

Scope of the Study

The intent of this project is to produce a watershed plan developed in consultation with appropriate **government agencies, landowners and interest groups** (e.g., Welland River Keepers) that assists with the management of water, land/water interactions, aquatic life and aquatic resources to protect and improve the health of the watershed ecosystem. The Central Welland River Watershed Plan will provide a systematic strategy to guide development, identify and recommend alternative and preferred restoration programs, and strengthen stewardship and partnerships in the watershed. Once complete, the Central Welland River Watershed Plan will characterize the watershed; identify and prioritize key issues in the watershed and recommend strategies based on the key issues.

Specific Components of the Study

Public Consultation

The purpose of public consultation is to ensure that concerns and issues are identified early and addressed appropriately. The public consultation plan will be based on an open and participatory process and will aim to create public awareness about the project.

A minimum of three public meetings/presentations that allow for further public input as required at critical stages of the project shall be included in the public consultation process. The format for public meetings will present opportunities for information exchange and feedback in the form of Open Houses and Stakeholder Workshops.

A project committee (with membership yet to be determined) shall be composed to provide guidance throughout the course of the study. NPCA staff will take appropriate minutes, and document concerns and action items as required.

Watershed Inventory and Actions

All available information pertaining to the Central Welland River watershed will be reviewed and field surveys will be conducted as necessary to produce a complete characterization and inventory of the watershed and watercourse conditions (including natural channels and municipal drains). The study components will include but not be limited to the following:

Floodplain Mapping

This component of the study will be sub-contracted to perform the necessary hydrologic and hydraulic analysis in order to generate 100 year return period floodlines for Drapers Creek, Biederman Drain #1, Little Forks Creek, Beaver Creek, Parkers Creek, Black Ash Creek, Unnamed Creek, Sucker Creek, Coyle Creek and Towpath Drain. All components of this analysis shall be consistent with the Ministry of Natural Resources and the Flood Damage Reduction Program requirements.

Stream Morphology

This component of the watershed study will confirm reach boundaries and channel sensitivities through a historic assessment and rapid geomorphic assessment. During the field survey, any sites where bank erosion is taking place or could potentially occur, will also be identified for all watercourses including municipal drains in the watershed. Recommendations for both structural and non-structural rehabilitation and restoration measures to establish natural levels of erosion in the watershed will be provided.

Fish and Aquatic Habitat

This component of the study will assess existing fish communities and fish habitat conditions in the watershed. In addition, factors that limit the distribution (e.g., fish barriers) and abundance of healthy fish communities will be identified.

Fish habitat falls into 1 of 3 categories in Niagara: Type 1, Type 2 or Type 3. Habitat type is based on the sensitivity and significance of current or potential habitats in a water body. Type 1 habitat is the most sensitive habitat of the 3 types. As a result, it requires the highest level of protection. Type 2 habitat is less sensitive and requires a moderate level of protection. Type 2 areas are considered “ideal for enhancement or restoration projects” and include feeding areas for adult fish and unspecialized spawning habitat. The focus of this component of the watershed plan will be on aquatic habitat restoration opportunities in these areas of the watershed, including recommendations on priority areas and strategies to improve fish habitat.

Even though their purpose is to remove excess water from the land, municipal and agricultural drains do contain fish habitat. Therefore, drains are classed (A through F) according to flow, temperature, species, and the length of time since they were last cleaned out. For example, a Class A drain has permanent flow with cold or cool water temperature and no presence of trout or salmon present. Class E drains also have a permanent flow with warm water temperatures and top predators (e.g., bass, pike, and crappie) present in the drain. Therefore, environmental and habitat conditions of municipal drains in the watershed will be reviewed and recommendations on priority areas and strategies to improve fish habitat will be provided.

Natural Heritage

This component of the watershed plan will include the study of existing wetlands, woodlands, wildlife travel corridors and wildlife habitat areas as well as the relationship between wildlife and natural areas as conducted through the *Natural Areas Inventory* (NAI) project currently underway between the NPCA and Peninsula Field Naturalists. In

addition to the information obtain through the NAI, this component of the watershed planning process will identify the resource management role of existing wetlands and woodlands with respect to flood attenuation, wildlife habitat and water quality enhancement. Historic locations of wetlands and woodlands will also be reviewed. Based on NPCA restoration suitability mapping, sites for remediation will be identified in the watershed. In addition, suitable sites to increase forest and wetland cover in the watershed will be proposed.

Water Quality

This component of the watershed study will assess the existing water quality of the creeks and tributaries within the Central Welland River watershed. NPCA water sampling data (2007) indicate that nutrient enrichment is the most prevalent type of water quality impairment found in the sampled creeks in this watershed. Specifically, concentrations of total phosphorous routinely exceed the Provincial Water Quality Objective. In addition, BioMAP samples indicate that water quality is impaired at two of the sites in this watershed. Therefore, this component of the study will assess water quality in the watershed, noting existing sources of pollution and make recommendations for remedial actions. In addition, opportunities for water quality enhancement will be identified where it is feasible to do so. A set of recommended water quality objectives based on stream use (e.g., aesthetics, fishery, recreation) will also be developed.

This study will also examine issues related to public concerns raised about the impact of existing development on watershed health including the impacts of stormwater discharge on water quality, biological diversity and productivity, downstream peak flows, and channel erosion.

The Niagara Peninsula Conservation Authority's *Groundwater Study* (2005) will also be reviewed to determine high sensitivity groundwater sites in the study watershed, and recommendations will be provided to protect groundwater resources.

Water Quantity

The watershed plan will include an assessment pertaining to water quantity in the Central Welland River watershed. For example, the watershed study will include an evaluation of the ability of watercourses (including municipal drains) to sustain healthy populations and other aquatic life, as well as recreational uses (e.g., fishing). In addition, the impact of excessive flows (nuisance flooding) and inadequate flows (if/when they occur) on the concentration of pollutants, and increases in stream temperatures will form part of the study. Recommendations to enhance surface water quality during low water conditions in the watershed will be included in the watershed study.

Rural Point and Non-Point Source Pollution

The *NWS* (2006) identified the need to assess the impacts of agriculture on water quality through an inventory of rural best management practices (BMP). Information was lacking in the watershed in terms of the significance of rural non-point source pollution problems such as livestock access, feedlot runoff, discharge of septic systems or livestock/farmstead wastes to watercourses, and municipal drains through the field tile drainage works.

To accomplish this component of the watershed plan, the results of a landowner survey that has been administered to rural landowners to identify any rural non-point source problem areas and identify rural BMPs will be included in the study.

Urban Development

The *NWS* (2006) has identified issues associated with urban development for portions of this watershed (e.g., growth pressure on the west side of the City of Welland). In addition, the City of Welland has been identified as an "Economic Gateway Centre" in the *Growth Plan for the Greater Golden* Horseshoe (2006). Urban development can result in an increased frequency of flooding and peak flow volumes, decreased base flow, increased sediment loadings, changes in stream morphology, increased organic and inorganic loadings, increased stream temperature, and loss of aquatic/riparian habitat. Existing and future areas designated for urban development with respect to these potential impacts will be investigated in the watershed, and recommendations to protect, improve and restore water quality and quantity in these areas recognizing the recent changes to Provincial legislation (e.g., *Planning Act, Provincial Policy Statement, and Greater Golden Horseshoe Plan*).

Project Phases and Deliverables

Develop a Watershed Plan and Restoration Strategy

The Central Welland River Watershed Plan will have a specific focus on restoring and rehabilitating the creeks and their tributaries within the Central Welland River watershed. Consideration will be given to the input and issues brought forth through the public consultation process, the *NWS* (2006), the *Welland River* Strategy (1998) and the NPCA's findings. The watershed planning process will provide a systematic strategy to guide development, identify and recommend alternative and preferred restoration programs, and strengthen stewardship and partnerships in the watershed. It will be completed in 2 Phases including, but not limited to the following:

Phase 1: Background Study and Issues Identification

- Background data collection and synthesis (e.g., watershed characterization) including, but not limited to:
  - Floodplain Mapping
  - Natural Areas Inventory
  - Fluvial Geomorphology Study
  - Water Quality Study.
- Identification of key issues in the watershed.
- Identification of any technical studies to fill in any information gaps in the watershed study area.

Phase 2: Watershed Strategy

- Recommendations on stream rehabilitation and restoration measures, structural and non-structural, municipal and regional policies, educational and outreach programs, and long and short term objectives.

- Identification and recommendation of restoration sites based on key issues in the watershed. Where applicable, all recommendations shall be separated based on ownership, whether publicly owned (Municipality or Regional Niagara) or private.
- A priority list including estimated costs for projects, activities, policies or other recommendations that are developed through the creation of the Watershed Plan.
- Recommendations regarding a monitoring program and performance indictors to assist in determining the effectiveness of Watershed Plan implementation.
- Recommendations for financial and information assistance programs that could be considered to assist in the implementation of the Watershed Plan.

Timing

The project is targeted to be completed within 36 months of initiation.