STATUS REPORT
POLLUTION CONTROL PLANNING
BAY OF QUINTE MUNICIPALITIES
Napanee
Deseronto
County of Prince Edward

Submitted to:

Bay of Quinte Remedial Action Plan
Restoration Council
c/o Lower Trent Conservation
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INTRODUCTION

The Bay of Quinte RAP Restoration Council has commissioned a study of progress being made by Bay of Quinte municipalities in limiting bacteriological contamination of recreitional waters from urban drainage systems. The intent of the study is to document progress being made by Quinte West and Belleville in implementing PCPs prepared for these municipalities some years ago and to encourage pollution control planning in the other Bay of Quinte municipalities of Napanee, Picton and Deseronto. This report, prepared by XCG Consultants Ltd., documents the status of pollution control planning (PCP) in the municipalities of Greater Napanee, Deseronto and the County of Prince Edward (Picton). Also included are recommendations to enable these municipalities to move the PCP process forward in their communities.

1. GREATER NAPANEE

1.1 Pollution Control Status

The town of Greater Napanee currently has no stormwater management or pollution control plan in place. The former town of Napanee prepared a report on stormwater in 1996 which included mapping of the storm drainage system for the urban area (Figure 1). Since amalgamation in 1997 the new town of Greater Napanee now includes several neighbouring townships, areas not covered by the 1996 work.

The municipality currently handles stormwater management for new development on a case-by-case basis with technical advice supplied by the Towns’ consulting engineers. Requirements for stormwater management are reviewed for approval by Quinte Conservation Authority.

1.1.1 Downtown Core

The downtown core of Napanee is drained by curb and gutter, which conveys runoff into a storm-sewer network. This area is also serviced by sanitary sewers. The majority of the storm sewers outfall into the Napanee River, with little opportunity for interception or control of storm-water before it enters the river. Storm water runoff from the northern part of the town near the Richmond and Industrial Boulevard areas is conveyed by storm sewers and open ditches into Selby (Sucker) Creek, which flows towards Deseronto and the Bay of Quinte.

Two stormwater control ponds are utilized for runoff quantity control. One has been constructed on private property behind the A&P Grocery store on Centre Street. Discharge from this pond flows into Sucker Creek. The other pond is located to the north of County Road #1 by Ann Street. See Figure 1 for the location of these ponds.

1.1.2 Suburban Area

The older residential areas adjacent to the town are serviced by ditch or road drainage. Several areas were identified as having insufficient drainage capacity. These areas have no pronounced ditching, with flows travelling over low sloped residential lots to the roadway.
In two cases the areas with insufficient drainage capacities are also areas directly down-gradient of proposed new development.

The problem associated with storm water runoff in the above areas is primarily one of quantity, not quality as low sloped ditches and sheet flows over grassed areas may be providing adequate treatment. Significant changes to the flow routing may create the need for additional quality treatment in some areas.

New suburban developments are required to provide stormwater treatment subject to approval by the Town and the Quinte Conservation Authority. There is no overall or master SWM plan covering the area slated for development and as a result there is no opportunity to plan larger centralized facilities versus ones dedicated to each development. A plan has been prepared for SWM in the new industrial area north of Highway 401; there is provision for SWM ponds.

1.2 Napanee River

The Napanee River is the receiving water body for the majority of the urban runoff from the Town of Napanee. The river discharges into the Bay of Quinte and is therefore included in the area of concern for the Bay of Quinte Remedial Action Plan. The Napanee River has no beaches or swimming areas but is a popular fishing spot. The effects of the Zebra mussels have been evident in the past decade with the water clarity being significantly increased.

The Napanee WPCP (Water Pollution Control Plant) discharges treated effluent directly to the Napanee River. The 2001 Ministry of the Environment Annual Inspection Report for the plant stated that, “there is a concern with bacteria levels in the final effluent.” It should also be noted that the plant is frequently overloaded hydraulically during storm events, with 22 bypass events of partially treated sewage recorded in 2000. The effluent during the bypass events receives primary clarification and disinfection prior to discharge to the river. The plant is consistently meeting RAP directives for maximum phosphorous discharge concentrations of 0.3mg/L.

The absence of beaches and swimming areas on the Napanee River lessens the apparent impact of bacteriological loading with respect to recreational uses.

1.3 Unresolved Issues

Although Napanee is not a large urban area there is the potential for contaminant impacts on the receiving waters.

• Industrial and commercial areas drain directly into the storm system and may require a level of treatment;
• Urban runoff from the downtown core is conveyed directly to the Napanee River with little opportunity for treatment or interception;
• The town currently has no overall drainage plan, initiatives are considered on a site by site basis;
• Potential for cross connection between the sanitary and storm systems;
• Bacteria loading to the river from WPCP and urban drainage;
• Significant new residential developments.

1.4 Recommendations

The Town of Greater Napanee should consider developing an appropriate form of a Pollution Prevention and Control Plan, which would include the following components;

• Completion of drainage system mapping and inventory. Build on the 1996 work to complete an up-to-date inventory of urban drainage systems, including mapping of drainage areas and land use. This would ideally be done in a GIS environment.

• Implementation of a sampling program of stormwater flows in both wet and dry weather, along with background sampling of the Napanee River, to identify hotspots and evaluate need for remedial measures such as stormwater treatment.

• Outfall Prioritization and Monitoring. Based on the completed system inventory, prioritize storm outfalls based on considering tributary land area, imperviousness and land use. Carry out field investigations to determine which outfalls carry significant dry-weather flow. Sample all flowing outfalls in dry weather for priority parameters (e.g. E.Coli), and sample top-priority outfalls in wet weather to determine degree of wet-weather contamination.

• Creation of a “cash-in-lieu” fund by which the municipality can choose to have new land developments either provide on site stormwater management, or contribute to a fund based on area, percent imperviousness, etc. This will allow the municipality to take a prioritized approach to implementing new stormwater measures, as well as providing funding for the associated construction projects.

The above recommended program could be undertaken in co-operation with Greater Napanee Utilities which manages the sewage collection systems and has GIS capabilities which could be utilized in developing databases.
Figure 1
2. DESERONTO

2.1 Pollution Control Status

Deseronto has an urban area along the Bay of Quinte of several hundred homes served by sanitary sewer and piped water. The sanitary works have recently been taken over by Greater Napanee Utilities. There is an extensive storm sewer system which provides for connection for approximately 150 homes in the urban area. These connections were made in order to eliminate foundation and downspout connections to the sanitary system and has resulted in reduced Water Pollution Control Plant (WPCP) by-passing during wet weather events. The storm system discharges untreated into the Bay of Quinte.

In discussions with the municipality it was determined that little urban growth is anticipated and development would be in the form of medium density adjacent to the bay. All development approvals are reviewed by the town’s consulting engineers and by Quinte Conservation. No SWM or PCP is currently in place.

2.2 Unresolved Issues

Given the small size of the urban area and limited prospects for growth, it is improbable the Deseronto requires elaborate pollution control plans. However the fact that there is an extensive storm sewer system and that it has not been monitored suggests that issues such as cross-connection could be occurring undetected.

2.3 Recommendations

A first step would be obtain mapping of both the sanitary and storm systems and then sample the outlets during dry and wet weather to determine contamination. Given the Towns’ lack of technical staff this program would be best undertaken in conjunction with others who have capabilities in areas such as GIS. Two possibilities; Greater Napanee Utilities or a joint PCP development with the adjacent (to the Bay of Quinte) municipalities of Greater Napanee and County of Prince Edward. It is recommended that:

- Deseronto undertake the first stages of a PCP by documenting the sanitary and storm sewer systems and monitoring storm outlets for contamination. For program efficiency it is recommended that this be done co-operatively with other interested municipalities or agencies.

3. COUNTY OF PRINCE EDWARD (PICTON)

3.1 Pollution Control Status

The former town of Picton has an extensive urban area, and an ageing sanitary and storm sewer system, much of which discharges into the headwaters of Picton Bay. There is no stormwater management or pollution control plan in place; in fact much of the drainage system is not documented. It is known that there are environmental issues such as contaminant sources contributing to the creeks and drainage systems.
The major drainage system is Marsh Creek. It receives water at the upper reach from Picton Heights, an area with considerable residential development. The area south of the cemetery (County Rd. 22) including the airport drains into a large pond. Another major tributary Macaulay Creek has a runoff volume control pond and enters the lower reach from the west. At the cemetery a large system enters from the southwest and discharges into a pond. The downtown area discharges into Marsh Creek through a large (54 inch diameter) pipe. A pond located at York Street was constructed about 10 years ago and is sized to retain the initial flush of stormwater. An abandoned landfill is located in the channel area of the creek as is the discharge from the WPCP.

The other major urban drainage system is Hospital Creek which rises in the west and discharges into Picton Bay near the water plant. Some SWM planning has taken place in the watershed including provision for detention ponds. A pond receiving drainage from the industrial area was constructed but has not been completed.

Sanitary sewage from the Picton collection system is treated at a WPCP located to the west of Marsh Creek. Expanded in 1995 to accept sewage from Picton Heights, the plant is near capacity and is currently under MOE order. By-passing during wet weather occurs but is becoming less frequent as the collection system constructed in the 1950’s is rebuilt. Consideration is being given to planning for expansion or replacement of the plant.

3.2 Unresolved Issues

The geography of Picton presents potential problems in terms of contamination from urban sources. Picton Bay ends at Marsh Creek and has no other source for flushing. The fact that the creek has a cemetery, an abandoned landfill and a WPCP contributing to it poses a major risk for contamination. This is especially important because Picton Bay is the source for the municipality’s drinking water as well as an important recreational asset. Other concerns:

• No recent data exists regarding contamination of the storm drainage system or receiving waters making it difficult to estimate the location or severity of the problems, or the cause of water quality problems,
• The Hospital Creek watershed is an area of urban growth and does not have a completed SWM plan,
• The storm and sanitary systems for the most part are old and lack documentation; there is a potential for undetected cross-connection,
• The STP may at times be contributing to impaired conditions in Picton Bay.

3.3 Recommendations

The number and severity of issues facing Picton suggest that it would be desirable to examine these issues within the context of a pollution control planning framework. This would be especially timely in that the municipality is also dealing with performance issues related to the Picton WPCP. In fact the environmental review process associated the WPCP could more efficiently and effectively carried out in conjunction with a PCP study. Another important aspect of the study is to ensure participation and co-operation among municipal
departments. This would include public works, environmental services, parks and planning. Some aspects of the study:

1. Develop accurate mapping and inventory of the urban storm drainage and sanitary sewer system, ideally within a GIS environment*,

2. Develop an initial list of priorities by considering storm outlet drainage areas, land use and potential for future urban growth,

3. Conduct field investigations to determine dry-weather flow conditions at all storm outfalls and ditches, conduct dry-weather sampling of all flowing outlets, and sample top-priority outfalls in wet-weather.

4. Conduct sampling of bacteriological water quality in Picton Bay during the summer to assess the current extent or degree of bacteriological contamination and resulting public health risk associated with recreational use of the Bay.

*Obtaining information regarding the storm drainage system could be a laborious and expensive exercise. There is however good GIS capability in the municipalities’ planning department and this could support a field project utilizing summer students with a lower cost labour. Savings could also result from undertaking the PCP study jointly with the municipalities of Deseronto and Greater Napanee.