

FEASIBILITY STUDY – RAW WATER FOR AGRICULTURAL IRRIGATION PURPOSES PROJECT REPORT

1.0 Introduction

1.1 GENERAL

Agriculture is one of the most important industries in the Region of Niagara (Region), with an estimated \$1.8 billion contribution to the Region's economy, a major portion of which is composed of high value crops such as grapes, tender fruits and greenhouse/nursery products. The last major Agriculture Census conducted in 2001, indicated that the Region had gross farm receipts of \$ 511.13 million with \$ 342.0 million (67%) coming from these high value sectors (Planscape, 2003). In recent years, extreme weather and the uncertainty of continued global warming have threatened this highly valued industry. Water for irrigation has been identified as one way of addressing these threats and contributing to the sustained viable operation of the agricultural industry.

The Region of Niagara has retained Stantec Consulting Ltd. to undertake a feasibility study for the use of raw water for agricultural irrigation purposes. Stantec has undertaken several tasks over the course of this study to systematically identify alternatives for providing irrigation water and evaluate these alternatives for their applicability to the Niagara Region. This report provides the results of this study.

1.2 PURPOSE OF THIS REPORT

The overall objective of this study, as stated in its terms of reference, was “to provide a single or a range of options for providing raw water to the agricultural community in a manner that is technically feasible, financially responsible, environmentally sustainable, and based on a workable and cost effective management.” This report aims to fulfill this overall objective.

1.3 SCOPE OF PROJECT

The Region is located between Lake Ontario and Lake Erie and covers 1,896 square kilometers. It consists of 12 local municipalities, varying from intensive urban centres such as the cities of St. Catharines, Welland, Port Colborne, Thorold and Niagara Falls, to smaller towns such as Niagara-on-the Lake, Lincoln, Grimsby, Pelham and Fort Erie, to the more rural settings within the Townships of West Lincoln and Wainfleet.

The study area for this project concentrates mainly on the grape, tender fruit and greenhouse growers primarily situated in the northern portion of the Region, within the Towns of Grimsby, Lincoln, Pelham, Niagara-on-the-Lake and the City of St. Catharines. Figure 1-1 shows these five municipalities which make up the major focus area of the study. Also the good grape and tender fruit areas of the Region as designated in the Regional Policy Plan are shown in Figure 1-1, although the actual areas where grapes and tender fruit crops are grown may vary from what is shown in this figure.

1.4 STUDY METHODOLOGY

The study proceeded through the following steps:

1. Data collection (published reports, digital data, and interview with various stakeholders).
2. Analysis of data to estimate peak and seasonal demands (Technical Memorandum 1 was issued at this point, covering items 1 and 2).
3. Review of existing irrigation models (Technical Memorandum 2 was issued at this point).
4. Review of applicable permits and approval requirement (Technical Memorandum 3 was issued at this point).
5. Formulation of alternatives and short-listing.
6. Analysis of short-listed alternatives (Technical Memorandum 4 was issued at this point, covering items 5 and 6).
7. Review of management options and potential financing sources.

The study was carried out in close consultation with stakeholders, mainly through the members of the project's Technical Advisory Committee. The following list presents some of the consultation activities:

- Four meetings with the Technical Advisory Committee (TAC).
- Two Public Information Centres.
- Meetings with the following organizations (in alphabetical order): Agriculture and Agri-Food Canada, Niagara Peninsula Conservation Authority, Ontario Ministry of Agriculture, Ontario Ministry of Environment, Ontario Power Generation (OPG), Regional Municipality of Niagara, St. Lawrence Seaway Authority, Tender Fruit Marketing Board, Town of Niagara-on-the-Lake, and Trouts Unlimited.
- Telephone, email and written communications with members of the Technical Advisory Committee, and several interested individuals.

The technical memoranda were thoroughly discussed with the members of the Technical Advisory Committee. This report incorporates the revisions to the technical memoranda based on the subsequent discussions with the TAC members, comments from the general public, and additional data obtained after issuing the initial drafts.

This report also provides general comments on the management of irrigation systems, sources of financing and next steps, issues that were not explicitly included in the technical memoranda,

but were discussed in various meetings with the Regional Municipality of Niagara, the TAC members, and the growers.