

# Pickering A Return to Service Socio-Economic Conditions Technical Support Document

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**Ontario Power Generation**

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*GLL 20-144*

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- A. Contact List and Interview Guide
- B. Responses to Interview Guide
- C. Recreational Questionnaire
- D. Public Attitude Research
- E. Fall Recreational Fisheries Survey
- F. Socio-Economic Survey of Anglers and Boaters

# Pickering A-Return to Service Socio-Economic Conditions Technical Support Document

## 1. Introduction

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This Socio-Economic Conditions Technical Support Document is being submitted in support of the Pickering A (PNGS-A) Return to Service Environmental Assessment (EA). It has been prepared by Gartner Lee Limited, the member firm of the EA team with responsibility for the socio-economic component of the environment as defined for the EA.

The documentation associated with the EA is presented in a number of separate reports as described below:

- **Environmental Assessment Report (EA Report):** The EA Report is presented in two volumes. **Volume 1: Main Report** consolidates all aspects of the environmental assessment. In addition to process-related material, it includes a description of the project; a description of the existing environment; an assessment of potential effects associated with the project; and a discussion of the plan for a follow-up and monitoring program. **Volume 2: Appendices** contains a series of appendices that support the material in the Main Report. Collectively, Volumes 1 and 2 are referred to as the EA Report.
- **Annex Report on Issues From Pickering Environmental Review:** A report associated with the EA that describes the disposition of the 160 issues raised during the 1998 Pickering Environmental Review;
- **Technical Support Documents:** A series of nine separate reports; one for each component of the environment that was defined and adopted for EA purposes plus one for the community and stakeholder consultation program. The Technical Support Documents present the results of the studies and investigations conducted during the EA, and relevant details of the assessment of environmental effects.

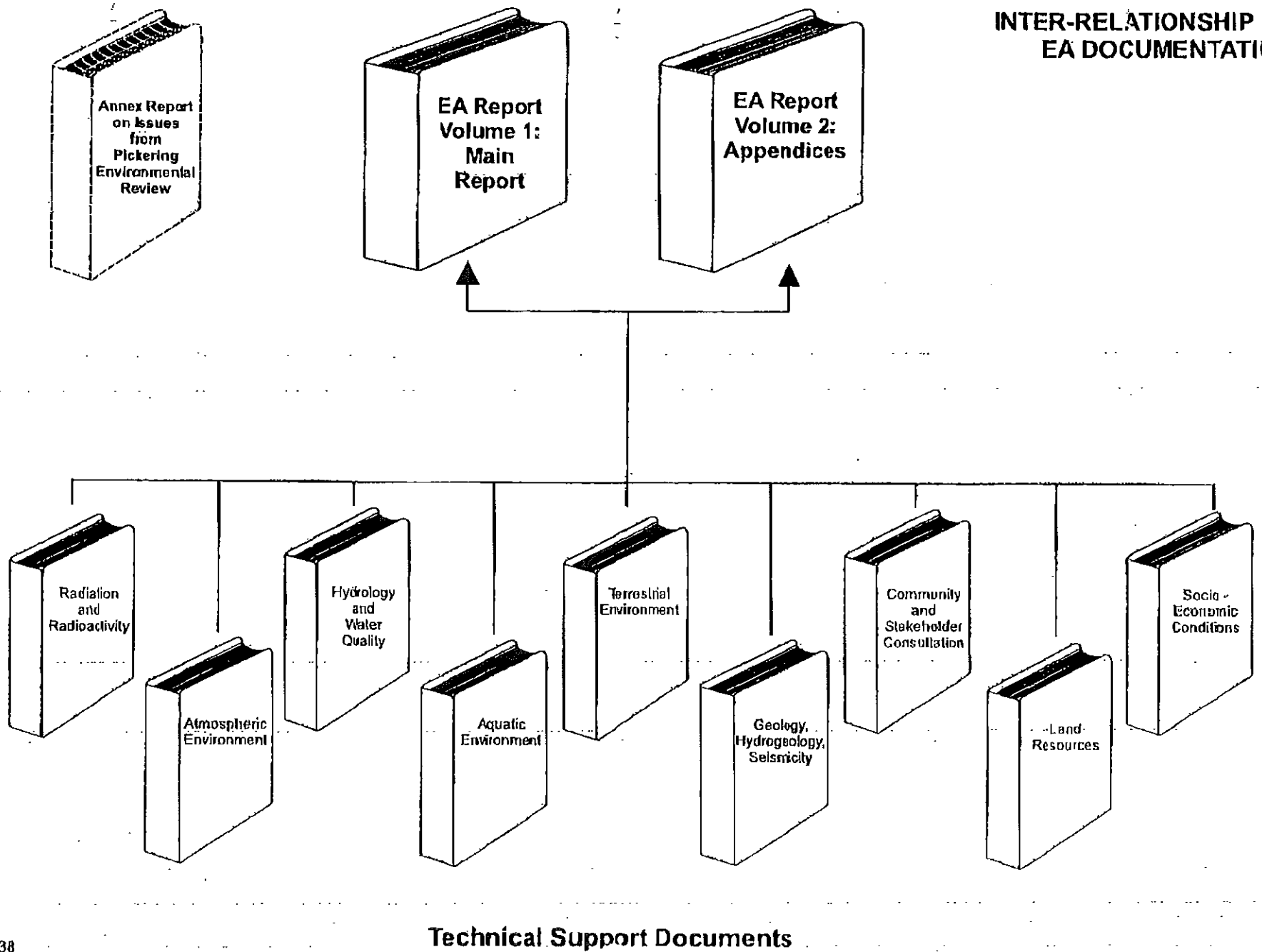
The relationship of the documents is shown on the following figure.

This Technical Support Document includes all of the data and information relevant to the socio-economic assessment. It duplicates the socio-economic information contained in Sections 6, 7 and 8 of the EA Report; however, it complements and augments such material, some of which has been condensed to better satisfy the requirements of an EA report.

To facilitate direct correlation between the relevant sections of the EA Report and this Technical Support Document, the section numbers in both are common. Text excerpted from the EA Report may be modified and augmented in this Technical Support Document.

All figures and tables from the EA Report that are relevant to the socio-economic assessment are duplicated herein. Where appropriate, additional figures have been added to this document for purposes of clarification or elaboration.

# INTER-RELATIONSHIP OF EA DOCUMENTATION



# Pickering A-Return to Service

## Socio-Economic Conditions Technical Support Document

### 1.1 Report Structure

The following table outlines the format of this report. In order to facilitate direct correlation between the EA Report and the Technical Support Documents, the section numbers in both are common.

<b>1.0</b>	<b>Introduction</b>	<ul style="list-style-type: none"> <li>This section discusses the relationship between this support document and other documents prepared for the PNGS-A return to service Environmental Assessment.</li> </ul>
<b>6.9</b>	<b>Existing Socio-Economic Conditions</b>	<ul style="list-style-type: none"> <li>This section describes existing baseline conditions with respect to the socio-economic aspects of the environment that may be relevant to the return to service project.</li> </ul>
<b>7.2.8</b>	<b>Likely Effects on Socio-Economic Conditions</b>	<ul style="list-style-type: none"> <li>This section describes the likely environmental effects, mitigation and residual effects (following mitigation) that would be anticipated as a result of the return to service project.</li> </ul>
<b>8.0</b>	<b>Significance of Effects</b>	<ul style="list-style-type: none"> <li>This section identifies the socio-economic residual effects of the project and assesses the significance of those effects in accordance with the methodology described in the EA report.</li> </ul>
	<b>Appendix A</b>	<ul style="list-style-type: none"> <li>Contact List and Interview Guide</li> </ul>
	<b>Appendix B</b>	<ul style="list-style-type: none"> <li>Responses to Interview Guide</li> </ul>
	<b>Appendix C</b>	<ul style="list-style-type: none"> <li>Recreational Questionnaire</li> </ul>
	<b>Appendix D</b>	<ul style="list-style-type: none"> <li>Public Attitude Research</li> </ul>
	<b>Appendix E</b>	<ul style="list-style-type: none"> <li>Fall Recreational Fisheries Survey</li> </ul>
	<b>Appendix F</b>	<ul style="list-style-type: none"> <li>Socio-Economic Survey of Anglers and Boaters</li> </ul>



## Pickering A-Return to Service Socio-Economic Conditions Technical Support Document

### 6.9 Existing Socio-Economic Conditions

This section describes existing socio-economic conditions that are relevant and useful in predicting environmental effects likely to result from the return to service of PNGS-A. The process for focusing on relevant environmental features involves a progressive screening of potential project/environment interactions to eliminate those that do not warrant further consideration. This process is described in Section 6.1. The description of existing conditions relates only to the potential interactions that have been determined through the initial screening (described in Section 4.8) and the further screening (carried out in this section) to warrant further consideration.

The following description of existing conditions is based largely on a review of available secondary source information, a separate economic study completed for OPG [467], sociological research conducted in support of the EA, and telephone and personal interviews with people familiar with and knowledgeable about their neighbourhoods and communities. Much of the sociological research focused on people's attitudes towards PNGS as a whole and does not differentiate between people's views regarding PNGS-A and other on-site operations.

The process for focusing on these aspects is described in Section 6.1 of the EA Report. It requires component-specific consideration of:

- spatial boundaries;
- interactions of the physical works and activities with the socio-economic conditions;
- important socio-economic factors; and
- linkages between project physical works and activities, potential environmental change and the socio-economic factors identified for this study.

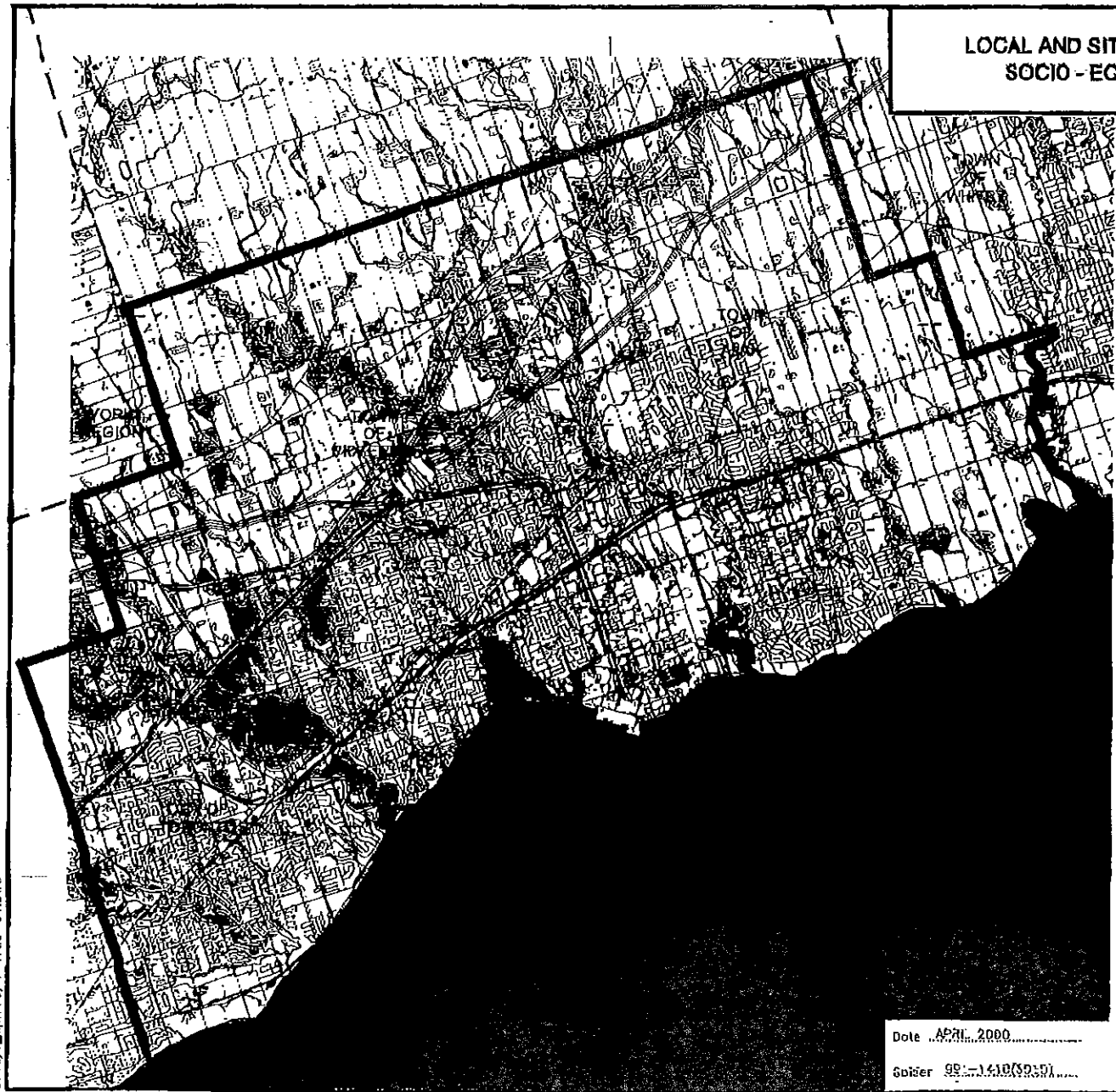
#### 6.9.1 Spatial Boundaries (Study Areas)

Section 3 of the main EA Report describes three general study areas to be considered in the EA. With these in mind, it was determined that the most effective assessment of likely effects from a socio-economic perspective consider four study areas. The four study areas are defined below and shown on Figures 6.9-1 and 6.9-2.








1. The Local Study Area is contained within the municipal boundaries of the City of Pickering, including all neighbourhoods south of Highway 401 (Rosebank, West Shore, Bay Ridges and Brock Industrial). This area is comprised of the neighbourhoods immediately adjacent to PNGS that are within the municipal boundaries of the host community. Direct effects of the project on the environment that may result in socio-economic effects are not expected to be measured beyond these areas.

# LOCAL AND SITE VICINITY STUDY AREAS SOCIO-ECONOMIC CONDITIONS

FIGURE 6.8-1

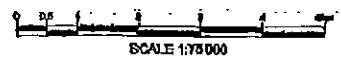


### LEGEND

-  WATER BODY
-  WOODED AREA
-  APPROXIMATE OPD PROPERTY BOUNDARY
-  APPROXIMATE 614m RADIUS EXCLUSION AREA
-  MUNICIPAL BOUNDARIES
-  LOCAL STUDY AREA
-  SITE VICINITY STUDY AREA (APPROX. 60km AREA AROUND PINGS)

### REFERENCE

BASE MAPPING FROM MINISTRY OF NATURAL RESOURCES, ONTARIO BASE MAPS (OBMS)



Date APRIL 2000

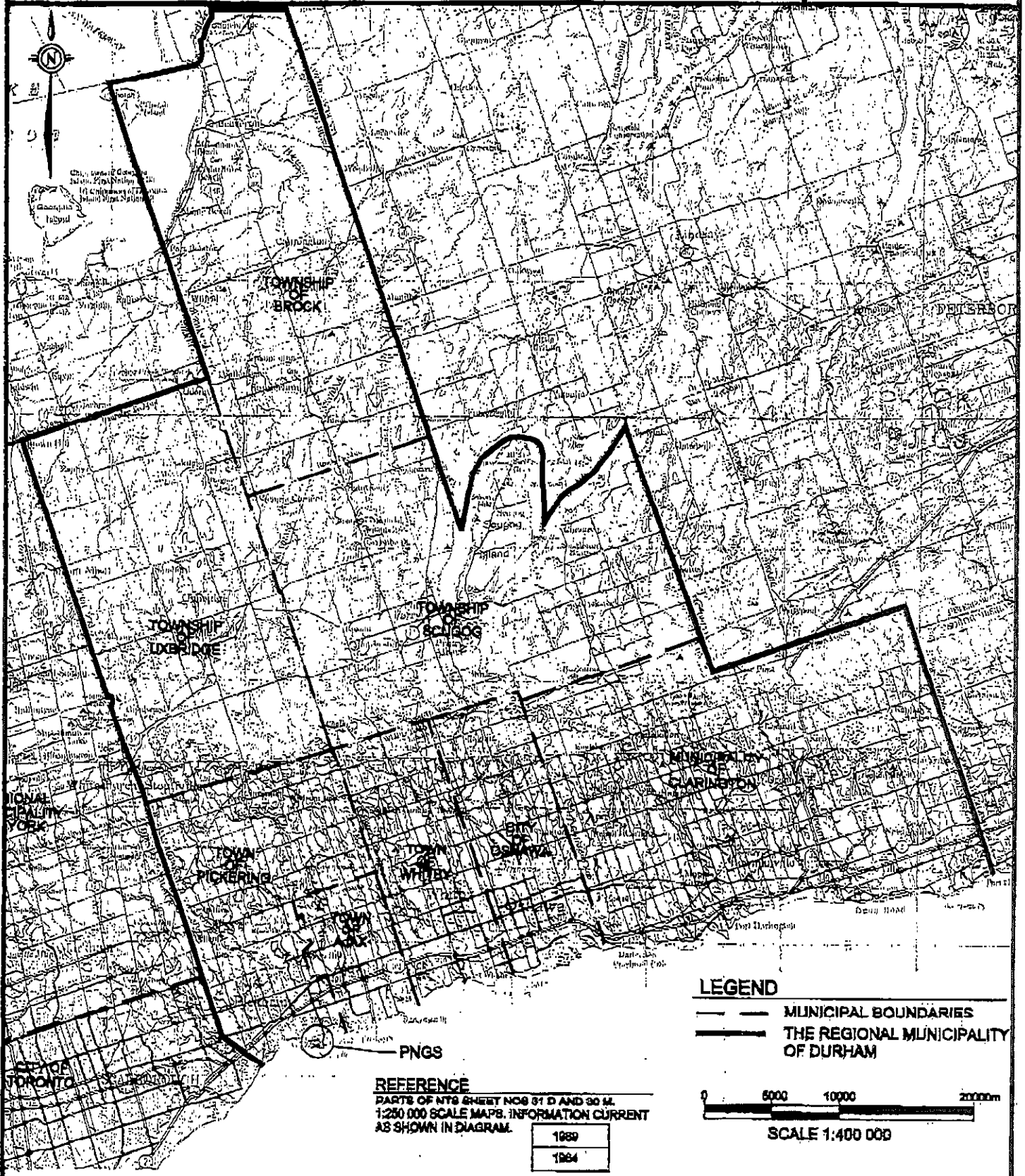
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# REGIONAL STUDY AREA SOCIO - ECONOMIC CONDITIONS

## FIGURE 6.9-2



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# ONTARIOPOWER GENERATION

## Pickering A-Return to Service Socio-Economic Conditions Technical Support Document

2. The Site Vicinity Study Area is within approximately 10 km of PNGS, bounded by Lynde Creek to the east, 5<sup>th</sup> concession to the north and the Durham-Toronto municipal boundary to the west. It also includes an area east of Toronto from the Durham-Toronto boundary west to Morningside Avenue and extending to Finch and Steeles Avenue to the north.
3. City of Pickering (Host Community) Study Area includes the area within the municipal boundaries of the City of Pickering. This area represents the host community for PNGS. The focus on 'host community' is consistent with socio-economic (SLA) professional practice and emphasizes the area that has the most direct relationship with PNGS and is anticipated to be the receptor for the majority of the socio-economic effects.
4. The Regional Study Area includes the areas within the Regional Municipality of Durham, including all constituent municipalities of: Pickering, Ajax, Whitby, Oshawa, Clarington, Brock, Uxbridge and Scugog.

### 6.9.2 Further Screening of Project/Environmental Interactions

Potential interactions between the project and socio-economic conditions are shown in Table 6.1-1 of the Environmental Assessment document. Each potential interaction identified in the EA has been considered (either individually or collectively) to determine if there is (or is not) a plausible mechanism by which the physical work or activity represented could affect the socio-economic conditions. Table 6.9-1 describes the criteria that were considered in the screening of likely effects. The results of this consideration are described below and summarized in Table 6.9-2.

**Table 6.9-1. Criteria Used in Further Screening of Likely Effects on Socio-Economic Conditions**

Effects Indicator	Evaluation Criteria
Population and Economic Base	<ul style="list-style-type: none"> <li>• Total values and incremental increase over baseline population, employment, industrial, commercial and institutional (ICI) floor space associated with PNGS-A.</li> <li>• Percentage of municipal averages.</li> <li>• Self assessment by municipal officials and others potentially affected.</li> <li>• Professional Judgement.</li> </ul>
Community Infrastructure	<ul style="list-style-type: none"> <li>• Total values and incremental increase over baseline housing stock levels associated with PNGS-A.</li> <li>• Percentage of municipal averages.</li> <li>• Relative performance in housing prices in selected municipalities.</li> <li>• Self assessment by municipal officials and others potentially affected.</li> <li>• Magnitude of changes relative to baseline.</li> <li>• Professional Judgement.</li> </ul>

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Effects Indicator	Evaluation Criteria
Community Services	<ul style="list-style-type: none"> <li>• Magnitude of changes relative to baseline.</li> <li>• Self assessment by municipal officials and others potentially affected.</li> <li>• Professional Judgement.</li> </ul>
Municipal Finance and Administration	<ul style="list-style-type: none"> <li>• Magnitude of changes relative to baseline.</li> <li>• Self assessment by municipal officials and others potentially affected.</li> <li>• Professional Judgement.</li> </ul>
Residents and Communities	<ul style="list-style-type: none"> <li>• Magnitude of changes relative to baseline.</li> <li>• Self assessment by those potentially affected.</li> <li>• Professional Judgement.</li> </ul>

### Municipal Servicing Requirements

The return to service of PNGS-A is anticipated to place additional demands on community infrastructure (i.e., hard services), including domestic water supply, sewage treatment and disposal, electricity and conventional waste disposal which may affect the level of service provided to the community. These effects are considered further in Section 7.

Because PNGS pays directly for these services and will continue to provide payments in lieu of taxes to the City of Pickering, no financial implications of these effects on service providers nor indirect effects on municipal finances are anticipated due to the project and do not warrant consideration.

### Workforce (project-related employment)

The return to service project is anticipated to result in the maintenance of existing jobs at PNGS-A through a redeployment of existing personnel from other duties at PNGS and elsewhere to operations at PNGS-A. Additional jobs will also be created and skilled workers will be required to assist in returning PNGS-A to service. The project-related employment may result in a corresponding change in the population that is associated with or dependent on PNGS-A (i.e., rather than with other activities at PNGS). Because the population is an important factor in determining the need for community infrastructure and services, and in maintaining the social structure and stability of communities, this effect is considered further in Section 7.

### Purchasing and Payroll

The return to service project is anticipated to result in an increase in purchasing and payroll spending to maintain operations. PNGS-A purchases and payroll spending is anticipated to result in a change in business activity in the industrial, commercial and institutional sectors of the economy which influence the economic development plans within the Regional Study Area. These changes are anticipated to result in other "spin-off" employment opportunities and change the proportion of population that is associated with or dependent on such employment. Because population and economic activities are important

## **Pickering A-Return to Service Socio-Economic Conditions Technical Support Document**

factors in maintaining the social structure and stability of communities, these effects are considered further in Section 7. Due to the diversified economy of the Province of Ontario, the purchasing and payroll spending effects outside any of the four study areas are not anticipated to be sufficiently large in magnitude to warrant consideration.

### **Station Administration**

PNGS pays municipal taxes through the provision of payments in lieu of taxes (PILs) to the City of Pickering, a portion of which is transferred to the Regional Municipality of Durham [467]. The PILs to be paid by PNGS and the administrative burden on municipal officials are considered further in Section 7. In addition, OPG must address questions people may have regarding PNGS-A and continue to play a role in maintaining community cohesion and culture through its own communications activities and community involvement programs. These effects are also considered further in Section 7.

As noted in Appendix E of the EA report, the Province is responsible for emergency planning and preparedness therefore the financial and administrative effects of the return to service project on the Province is not assessed.

### **Attitudes Towards the Station (represented by Malfunctions and Accidents, and Historical (Legacy) Issues)**

For some residents, PNGS as a whole may represent a feature that affects their sense of health, safety and well-being; and therefore, may have implications on people's feelings of personal security. These feelings are likely to be the result of attitudes and beliefs among residents that malfunctions and accidents (including serious nuclear accidents) can occur at PNGS. These feelings may also be reinforced by the historical (legacy) issues related to PNGS operations which have also served to define people's attitudes and beliefs towards PNGS as a whole, and may continue to do so in the future.

For the purpose of the socio-economic assessment, these two project/environment interactions (i.e., malfunctions and accidents and historical (legacy) issues) collectively represent the meaning people may attach to the presence of a nuclear facility in their community and the influence it may have on their feelings of personal security.

As such, people's feelings of personal security may ultimately be reflected in effects to their use and enjoyment of property and their satisfaction with the community as a place to live. These effects are considered further in Section 7.

If such effects are of sufficient magnitude they may also influence people's decisions to move from their community and change local populations. Ultimately, if an adverse effect on local populations occurs and it is of sufficient magnitude, the overall economic base, community infrastructure and services may also be affected. These effects are considered in Section 7.

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### 6.9.3 Summary of Further Screening of Project/Environmental Interactions

The foregoing has presented a further screening of the potential interaction of the project and the socio-economic conditions that might lead to measurable environmental effects. Table 6.9-2 summarizes the results of the further screening process. Those interactions for which measurable environmental effects are likely to result are identified in bold. These are evaluated further in Section 7. All other potential interactions were determined to require no further consideration.

**Table 6.9-2. Summary of Project/ Socio-Economic Interactions Screening**

Project Physical Works and Activities	Screening Rationale
Municipal Servicing Requirements	<p><b>The effects of PNGS-A on levels of service provided to the community require further analysis (see Community Infrastructure).</b></p> <p>The financial implications of these effects on service providers and their indirect effects on municipal finances do not warrant consideration.</p>
Workforce (Project-Related Employment)	<p><b>Changes in project-related employment and population levels that are associated with or dependent on PNGS-A require further analysis (see Population and Economic Base).</b></p> <p>If effects on local populations are of sufficient magnitude, indirect effects on the economic base, community infrastructure and services also warrant further analysis.</p>
Purchasing and Payroll	<p><b>Changes in business activity and resultant effects on other direct, indirect and induced employment and population that is associated with or dependent on such employment require further analysis (see Population and Economic Base).</b></p> <p>Effects outside the Regional Study Area are not anticipated to be sufficiently large in magnitude to warrant further consideration.</p>
Station Administration	<p><b>The effect of PILs to be paid by PNGS and the administrative burden on municipal officials, and Ontario Power Generation's role in maintaining community cohesion and culture require further analysis (see Municipal Finance and Administration).</b></p> <p>The financial implications of changes in levels of service on municipal infrastructure and community service providers and their indirect effects on municipal finances do not warrant consideration. The financial and administrative effects of the return to service project on the Province and the emergency planning and preparedness organizations it funds are not assessed.</p>
Attitudes Towards the Station <ul style="list-style-type: none"> <li>• Malfunctions and Accidents</li> <li>• Historical (Legacy) Issues</li> </ul>	<p><b>Community character, use and enjoyment of property/satisfaction with community and community cohesion require further analysis (see Residents and Communities). Indirect effects of such changes on the population and economic base, community infrastructure and services will also be considered.</b></p>

*Note: Physical works and activities shown in bold are carried forward for further assessment in Section 7.*

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### 6.9.4 Linkages of Project Interactions and the Environment

Linkages between the socio-economic conditions and other components of the environment result from a complex set of interactions between the project and the community, environmental changes caused by the project, and how people respond to, or change their behaviour due to the project and its associated risks, benefits and environmental effects.

As required by the *Canadian Environmental Assessment Act*, the socio-economic effects resulting from changes in the environment require assessment. These changes in the environment include a number of nuisance effects and emissions to the air and surface waters, radioactive emissions and their resultant changes in environmental quality and resources. If these environmental effects are of a sufficient magnitude, or if residents change their behaviours in response to, or anticipation of the project, there is a likelihood that some change will occur in the existing socio-economic conditions.

The effects of changes in the environment on population and economic base (commercial fishing, resource/environmental quality related businesses); community services (community and recreational facilities/resource use, educational facilities, health and safety facilities and services); and, residents and communities (i.e., use and enjoyment of property/community satisfaction, community character, community cohesion and culture) are therefore considered. These changes are illustrated in Figure 6.9-3.

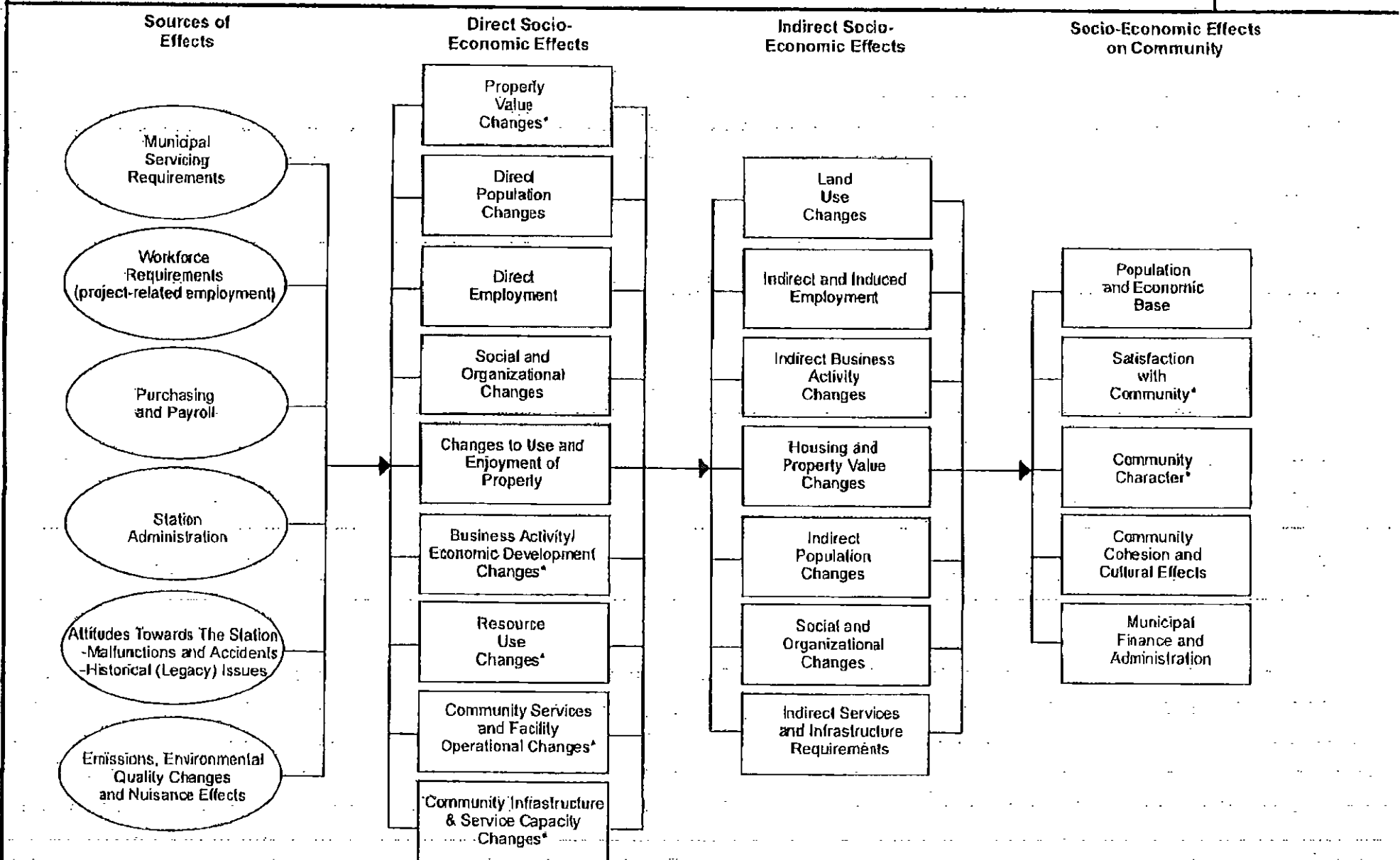
### 6.9.5 Important Socio-Economic Factors

Important socio-economic factors are those resources or features that are valued because of their uniqueness or importance in maintaining the economic base, levels of service, social structure and/or community stability and those that have been identified by community members as important to them. Based on the description of existing socio-economic conditions, and consultation with the community, the factors identified in Table 6.9-3 are considered to be important. The description of existing conditions and the assessment of effects of the PNGS-A return to service project are carried out according to these factors.



# LINKAGES BETWEEN PROJECT AND SOCIO - ECONOMIC CONDITIONS

FIGURE 6.9-3



\* Potential effects resulting from environmental change  
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**Table 6.9-3. Important Socio-Economic Factors**

Important Socio-Economic Factors	Potential Receptors of Concern	Rationale
Population	<ul style="list-style-type: none"> <li>• Local and Regional Municipalities</li> </ul>	Local and regional municipalities require a stable or growing population to maintain and/or improve the social and economic well-being of their constituents.
Employment	<ul style="list-style-type: none"> <li>• Employees</li> <li>• Employees at Local and Regional Businesses dependent on PNGS-A expenditures and household spending</li> </ul>	The economic base is susceptible to changes to PNGS-A associated employment. The economic base influences the social structure and stability of the community and defines its well-being, way of life and quality of life. These aspects influence the way a community is perceived including its attractiveness as a place to live and do business.
Business Activity	<ul style="list-style-type: none"> <li>• Local and Regional ICI Businesses</li> <li>• Resource/Environmental Quality Related Businesses</li> </ul>	The economic base is susceptible to changes to PNGS-A associated expenditures. Moreover, resource or environmental quality related businesses might be susceptible to changes in the environment caused by the project. The economic base influences the social structure and stability of the community and defines the way and quality of life of its residents.
Economic Development	<ul style="list-style-type: none"> <li>• Region of Durham</li> <li>• area municipalities</li> </ul>	Changes in employment and business activity influence the way a community or region is perceived. Consequently, such changes may affect the economic development of municipalities.
Housing and Property Values	<ul style="list-style-type: none"> <li>• Local and Regional Residents</li> <li>• Property owners</li> </ul>	Changes in the availability and quality of housing and the value of property will directly affect existing and prospective property owners, the economic base and stability of the community.
Municipal Services	<ul style="list-style-type: none"> <li>• Service Users</li> <li>• Service Providers / Facility Operators</li> </ul>	People living in, working in or visiting Durham Region and areas in the vicinity of PNGS rely on the availability and quality of municipal services and infrastructure to maintain their health and safety. The nature and level of use of facilities and services by people influence the need for and quality of the facilities and services that can be offered by service providers and individual facility operators. Levels of service are susceptible to changes to their availability, quality and use.
Recreational and Community Features/ Resource Use	<ul style="list-style-type: none"> <li>• Service Users</li> <li>• Service Providers / Facility Operators</li> <li>• Users of parks, beaches and trails in the vicinity of PNGS</li> </ul>	People living in, working in or visiting Durham Region and areas in the vicinity of PNGS rely on the availability and quality of recreational and other community facilities to conduct their activities and participate in community life. The nature and level of use of these facilities and services by people influence the need for and quality of the facilities and services that can be offered.
Recreational and Community Features/ Resource Use <i>(continued)</i>	<ul style="list-style-type: none"> <li>• Recreational anglers and boaters</li> </ul>	Therefore, they are susceptible to changes to their availability, quality and use. The parks, beaches and trails nearest PNGS are particularly valued by residents and are used regularly by people both within and outside the study areas for a variety of recreational pursuits. Similarly, the outfalls of PNGS, the shoreline of Lake Ontario and Frenchman's Bay are used by residents for recreational fishing. Changes in environmental quality may affect the use and enjoyment of these recreational amenities.

## Pickering A-Return to Service Socio-Economic Conditions Technical Support Document

**Table 6.9-3. Important Socio-Economic Factors (continued)**

Important Socio-Economic Factors	Potential Receptors of Concern	Rationale
Educational Facilities	<ul style="list-style-type: none"> <li>• Service / Resource Users</li> <li>• Service Providers / Facility Operators</li> </ul>	<p>People living in the study areas rely on the availability and quality of schools and other educational facilities. Most of these facilities are entrusted with the care of children, whose health and safety are important to all parents and residents alike.</p>
Health and Safety Facilities and Services	<ul style="list-style-type: none"> <li>• Service / Resource Users</li> <li>• Service Providers / Facility Operators</li> <li>• Ajax-Pickering Health Centre</li> </ul>	<p>People living in, working in or visiting Durham Region and areas in the vicinity of PNGS rely on the availability and quality of health and safety services and facilities to maintain their health, safety and well-being. The Ajax-Pickering Health Centre is the primary hospital serving the study areas. Levels of service are susceptible to changes to the availability, quality and use of these facilities and services.</p>
Municipal Finance and Administration	<ul style="list-style-type: none"> <li>• Municipal Government</li> <li>• Service Providers</li> </ul>	<p>Municipal governments are vulnerable to changes in costs and revenues in managing their financial and administrative affairs. The ability of a municipal government to secure revenue and manage cost and administrative efforts has a direct bearing on the level and quality of services which it is able to provide. Therefore, both governments and service providers are susceptible to changes in revenues and costs.</p>
Community Character	<ul style="list-style-type: none"> <li>• Residents, Groups and Organizations</li> <li>• Local Communities</li> </ul>	<p>The distinctive and unique qualities of the community (e.g., existing land uses, population levels, structure and distribution, community cohesion, economic base) give a community its character. Major changes to these qualities will influence the attractiveness of the community.</p>
Use and Enjoyment of Property/Community Satisfaction	<ul style="list-style-type: none"> <li>• Residents</li> </ul>	<p>Residents rely on their homes and property for a variety of indoor and outdoor social activities. Their use and enjoyment of property which is a major determinant of their overall satisfaction with community are susceptible to changes in the environment, whether such changes are biophysical (e.g., air quality, traffic) or socially based (e.g., community character). People's homes and their neighbourhoods provide a sense of security to residents.</p>
Community Cohesion and Culture	<ul style="list-style-type: none"> <li>• Residents, Groups and Organizations</li> <li>• Local Communities</li> </ul>	<p>The characteristics of residents, their individual behaviours and activities, and those of the groups and organizations they interact with influence the cohesiveness and culture of their communities which in turn, affect the social structure and community stability.</p>

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### 6.9.6 Description of Existing Conditions: Population and Economic Base

This description of the existing population and economic base in the study areas and the assessment of effect is largely based on information acquired during the preparation of a recent economic study [467], completed for OPG. Other secondary source data has been obtained from Statistics Canada from the 1991 and 1996 census to augment this data as required.

#### Methodology

Community profile data were collected and summarized for the Regional Municipality of Durham and its area municipalities including the Cities of Oshawa and Pickering, the Towns of Ajax and Whitby, the Townships of Brock, Scugog and Uxbridge, and the Municipality of Clarington. These data included past, current and projected values for population, employment and industrial/commercial/institutional (ICI) floor space. This data allowed for the establishment of a baseline and for the identification of trends over the time frame considered in this Environmental Assessment. In addition a study was reviewed and summarized which provided the results of interviews conducted with selected businesses, suppliers to OPG, and economic development officers [467].

#### Economic Model

In order to carry out an analysis of the economic influence of the return to service of PNGS-A on the Regional Municipality of Durham and each of its area municipalities an economic model based on Excel (version 97) was used. The model was used to analyze municipal projections of population growth, employment, and industrial/commercial floor space in order to establish the current influence and likely potential of PNGS-A in its lay-up state and as a result of its return of service.

Calibration of the model was based on a number of inputs. There are three key aspects to the model. These are:

1. The municipal population, employment and ICI floor space projections are based on available municipal data and growth expectations.
2. The distribution of the PNGS workforces by place of residence over the projection period is assumed to remain proportionate to the distributions in 1998.
3. The distribution of direct<sup>1</sup> and spin-off employment reflect the current pattern of station spending (1998) captured by Durham Region municipalities.

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1. Direct employment in this study refers to:  
a) OPG personnel at PNGS-A; and  
b) construction workers employed at PNGS-A.

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Multipliers are an integral part of the model and are used to calculate other direct<sup>2</sup>, indirect<sup>3</sup> and induced<sup>4</sup> employment for both OPG staff and other workers. The Statistics Canada Input Output model was used to derive multipliers to enable calculation of direct and indirect employment. Household expenditure patterns were used as a basis for calculating induced employment.

Municipal forecasts for employment, population, housing and ICI floor space for each of the Durham Region area municipalities comprise the first tier of information entered into the model. The second and third tier of input information is comprised of workforce projections provided by OPG for both on-site OPG staff and other workers at PNGS-A.

Once the data sets had been entered into the model subsequent tiers of the model perform calculations using the forecast data and the multipliers. The model performs calculations in tiers. A set of ratios was calculated from the municipal forecasts over the projection period to predict likely future conditions and/or to quantify the likely effects. Details on these calculations and other aspects of the economic model are provided a separate economic study completed for OPG [467].

### Interviews

As part of this EA, a number of telephone interviews were conducted with selected businesses in order to investigate the potential influences of PNGS on local business activities. A copy of the contact list and interview guide are provided in Appendix A. A sample of 15 businesses in the Local, Site Vicinity and Region of Durham study areas were contacted out of a total of 65 "indicator" businesses that were identified across the Region. These businesses were selected from the Durham Region 1999 Industrial Directory [466] and the Town of Pickering 1999 Business Directory [465]. They were selected as 'indicators' of business sectors that were most likely to be dependent on environmental resources or on environmental quality. The responses from the telephone interviews are provided in Appendix B.

#### 6.9.6.1 Population

The Regional Municipality of Durham (Durham Region) is one of the largest municipalities in Canada and is also among the fastest growing. Durham Region includes the Cities of Oshawa and Pickering, the Towns of Ajax and Whitby, the Townships of Brock, Scugog and Uxbridge, and the Municipality of Clarington.

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2. *Other direct employment in this study refers to:*
    - a) *employment created at supply and service companies through facility related expenditures for goods and services.*
  3. *Indirect employment in this study refers to:*
    - a) *employment created in companies that provide goods and service to the companies that directly supply OPG.*
  4. *Induced employment in this study refers to:*
    - a) *employment created as a result of wage spending by OPG staff and construction workers employed at PNGS-A.*

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Population growth in Durham Region has been closely linked to development and economic growth in Toronto and surrounding regions (i.e., Peel and York Regions). The rate of population growth for many regions outside of Toronto slowed during the 1991-1997 period compared to previous years. Buoyed by the strong economy in the Toronto area, strong population and economic growth is projected for the Region of Durham and its area municipalities.

The City of Pickering, the Region of Durham, and other area municipalities have recently prepared population forecasts as part of their background work in preparation for implementing new development charges [222]. Table 6.9-4 and Figure 6.9-4 identify projected population growth from 1998 through to the year 2021 for the City of Pickering and other area municipalities within the Region.

**Table 6.9-4. Existing and Projected Population Growth — Durham Region and Area Municipalities (1998 – 2021)**

Durham Region	1998	2009	2021	Growth 1998-2009 (%)	Growth 1998-2021 (%)
Ajax	67,597	93,784	122,890	39	82
Brock	11,902	13,731	16,034	15	35
Clarington	64,132	97,883	141,430	53	121
Oshawa	140,463	155,932	181,800	11	29
Pickering	82,233	108,425	136,232	32	66
Scugog	19,443	23,839	26,542	23	37
Uxbridge	16,555	20,812	22,747	26	37
Whitby	77,969	115,119	162,233	48	108
<b>Total Region</b>	<b>480,296</b>	<b>629,525</b>	<b>809,908</b>	<b>31</b>	<b>69</b>

Source: [222]

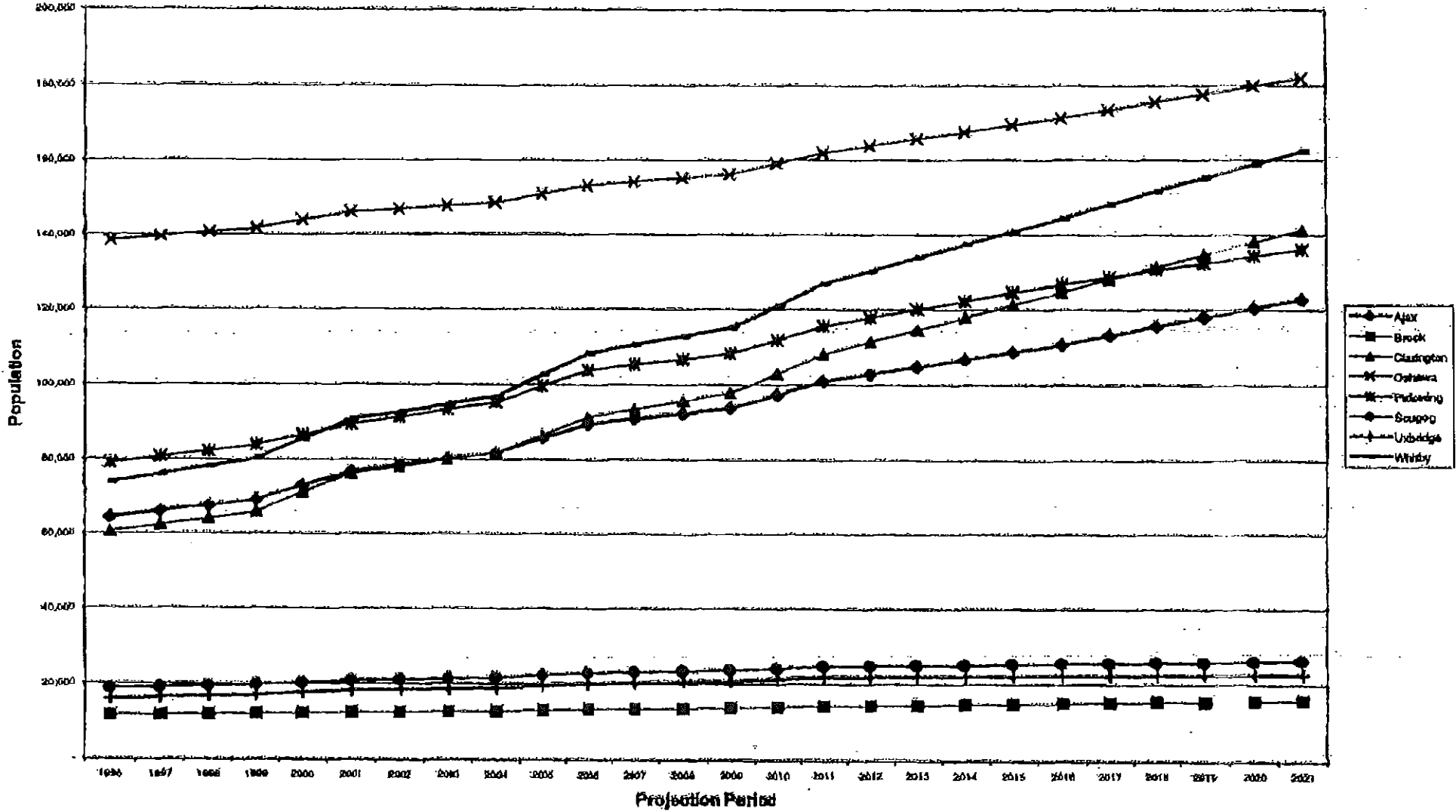
This Table and Figure show strong growth projections for Pickering, Ajax, Clarington, and Whitby. All are in excess of 65% by the year 2021. The remaining municipalities are projected to have more modest growth in the 30% to 40% range. Overall, the Region's growth is projected to be in the order of 69%. Pickering's growth reflects the Regional average.

Tables 6.9-5 to 6.9-7 provide statistics on the age, family size and household size for the Local, Site Vicinity and City of Pickering Study Areas in conjunction with corresponding statistics from Durham Region and the Province of Ontario. These tables show that the demographic make-up of residents living nearest PNGS is not substantially different (i.e., typically within 5%) from other areas in the City of Pickering, Durham Region or the Province of Ontario.

# Population Projections

6.9-4

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**Table 6.9-5. Age Profiles (1996)**

Categories	Local Study Area		Site Vicinity		City of Pickering		Region of Durham		Ontario	
	#	%	#	%	#	%	#	%	#	%
0-4 years	1,315	7.5	15,987	7.9	6,292	8	37,428	8	733,845	7
5-18 years	3,456	19.6	45,405	22.5	18,294	23.1	98,766	22	2,037,531	19
19-29 years	2,466	14	28,375	14.1	10,483	13.2	62,169	14	1,613,644	15
30-65 years	9,050	51.3	99,905	49.6	39,646	50.1	221,560	48	5,109,680	48
>65 years	1,342	7.6	11,946	5.9	4,421	5.6	38,693	8	1,258,873	11
<b>Total</b>	<b>17,629</b>	<b>100</b>	<b>201,618</b>	<b>100</b>	<b>79,136</b>	<b>100</b>	<b>458,616</b>	<b>100</b>	<b>10,753,573</b>	<b>100</b>

Source: [461]

**Table 6.9-6. Family by Size (1996)**

Categories	Local Study Area		Site Vicinity		City of Pickering		Region of Durham		Ontario	
	#	%	#	%	#	%	#	%	#	%
2 persons	1,920	38.5	17,655	31.8	6,970	31.9	47,435	37	1,232,515	42
3 persons	1,180	23.7	13,425	24.2	5,190	23.7	29,280	23	653,015	22.3
4 persons	1,335	26.8	17,045	30.7	6,840	31.3	35,200	28	695,380	23.7
5 or more persons	550	11	7,345	13.3	2,875	13.1	15,190	12	326,910	12
<b>Total</b>	<b>4,985</b>	<b>100</b>	<b>55,470</b>	<b>100</b>	<b>21,875</b>	<b>100</b>	<b>127,455</b>	<b>100</b>	<b>2,922,885</b>	<b>100</b>

Source: [461]

**Table 6.9-7. Private Household by Size (1996)**

Categories	Local Study Area		Site Vicinity		City of Pickering		Region of Durham		Ontario	
	#	%	#	%	#	%	#	%	#	%
1 person	762	13.1	6,122	10	2,091	8.7	24,140	15	893,138	22.6
2 persons	1,717	29.4	15,068	24.6	5,957	25	44,668	29	1,227,020	31.1
3 persons	1,199	20.5	12,590	20.5	4,973	20.8	29,356	19	670,973	17
4-5 persons	1,890	32.4	23,755	38.7	9,526	39.8	50,218	33	1,009,475	25.6
6 or more persons	270	4.6	3,800	6.2	1,368	5.7	5,896	4	143,749	3.7
<b>Total</b>	<b>5,838</b>	<b>100</b>	<b>61,335</b>	<b>100</b>	<b>23,915</b>	<b>100</b>	<b>154,278</b>	<b>100</b>	<b>3,944,355</b>	<b>100</b>

Source: [461]



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Population associated with PNGS-A is correlated to project-related employment, whether direct, indirect or induced. Because OPG is one of the largest single employers in the Region, the population that is dependent on this employment is a contributor to social structure and community stability in the Region. The population associated with PNGS-A amounts to 1,175 or 0.24% of the total population in Durham Region in its lay-up state.

### First Nation Communities

Five First Nation Communities have been identified by OPG as having a potential interest in the return to service project because of their proximity to PNGS or relationship to the study areas through Treaties. These are: the Alderville, Curve Lake (formerly Mud Lake), Hiawatha (members were formerly known as Rice Lake members), Scugog Island First Nation and the Georgina Island Chippewa First Nation. Information on each of the First Nations communities is provided in Table 6.9-8. A brief description of the relevant treaties is provided in Section 6.9.8.3.

**Table 6.9-8. Locations of Selected First Nation Communities**

First Nation	Approximate Location	Size of Reserve / Settlement Area	Type	Approximate Distance from PNGS
Alderville FN	• 23 km southeast of Peterborough	1,200 ha	Urban	135 km
Curve Lake FN	• 14 km north of Peterborough	957 ha	Urban	135 km
Hiawatha FN	• 12 km southeast of Peterborough	790 ha	Urban	120 km
Scugog Island FN	• 50 km northeast of Pickering and 35 km north of Oshawa	321 ha	Urban	70 km
Georgina Island Chippewa FN	• Georgina Island is 70 km north of Pickering • Located on Georgina Island in Lake Simcoe	1,353 ha	Rural	103 km

Source: [356]

The Alderville First Nation was a signatory of the 1923 Williams Treaty. The First Nation has an elected Council comprised of a Chief and four Councillors. They are elected every two years. The First Nation is a member of the Ogemawahj Tribal Council, and is associated with the Union of Ontario Indians - Southeast Region and the United Anishinabek Council. Although First Nation members are of the Algonkian cultural and linguistic group, all of the reserve population identified their home language as English [356].

The Curve Lake First Nation was also a signatory of the 1923 Williams Treaty and is currently governed by an elected Council comprised of a Chief and eight Councillors, who are elected every two years. The First Nation is associated with the Union of Ontario Indians - Southeast Region and the United Anishinabek Council. The Council operates the Curve Lake School for kindergarten to grade 3, and it is a

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participant in the Ontario First Nations Policing Program. Although First Nation members are of the Algonkian cultural and linguistic group, about 90% (560 people) of the reserve population identified their home language as English only. About 10% indicated that Ojibway was their home language [356].

The Hiawatha First Nation members were represented by the Rice Lake First Nation in the 1923 Williams Treaty but currently have an elected Council comprised of a Chief and four Councillors. They are elected every two years. The Hiawatha First Nation is a member of the Association of Iroquois and Allied Indians and the United Anishinabek Council. Although First Nation members are of the Algonkian cultural and linguistic group, all of the reserve population identified their home language as English [356].

The Scugog Island First Nation was a signatory of the 1923 Williams Treaty and is governed by an elected Council comprised of a Chief and two Councillors who are elected every two years. The First Nation is a member of the Ogemawahj Tribal Council and the United Anishinabek Council and is associated with the Union of Ontario Indians - Southeast Region. First Nation members are of the Algonkian cultural and linguistic group [356].

The Georgina Island Chippewa First Nation was a signatory of the 1923 Williams Treaty and currently is governed by an elected Council comprised of a Chief and four Councillors. They are elected every two years. The First Nation is a member of the Ogemawahj Tribal Council and the United Anishinabek Council. All of the reserve population identified their home language as English [356].

As shown in Table 6.9-9, Curve Lake has the largest population of the five First Nations with a Status Indian population of 1,612 (667 living on-reserve). The Scugog Island First Nation is the smallest of the five First Nations with a Status Indian population of 154 (31 living on-reserve) [356].

**Table 6.9-9. First Nation Population Statistics**

First Nation	Registered Aboriginal Population		Non-aboriginal Population	Total Aboriginal Population
	On Reserve	Off Reserve	On Reserve	On and Off Reserve
Alderville FN	284	645	80	929
Curve Lake FN	667	943	260	1610
Hiawatha FN	172	257	105	429
Scugog Island FN	31	123	N/A	154
Georgina Island Chippewa FN	163	460	30	623
<b>Approximate Totals</b>	<b>1317</b>	<b>2428</b>	<b>475</b>	<b>3745</b>

Source: [356]  
N/A - Not Available

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### 6.9.6.2 Employment

The City of Pickering and Durham's economies are founded on a diverse manufacturing base. This base is in turn supported by good infrastructure, skilled labour and a solid range of available community amenities and housing. The region has developed an industrial platform with cornerstone industries in energy, automotive manufacturing, plastics/packaging, pharmaceuticals, aerospace/defense, chemicals/rubber and environmental technologies [466, 465].

In the private sector, major regional employers in the Region of Durham include General Motors of Canada Ltd., Chrysler Canada Ltd., Lear Seating Canada Ltd. and OPG. In the public sector, the Durham Board of Education, Region of Durham and the Oshawa General Hospital are the largest employers [466].

OPG is a major employer within the Region. In 1998, approximately 3,100 persons were employed at the site [220]. Because PNGS-A was in lay-up state OPG reassigned the majority of PNGS-A employees to other duties, primarily to PNGS-B. OPG estimates that in 1998, approximately 250 persons were actively engaged in work at PNGS-A. In its lay-up state, the approximately 250 persons associated with PNGS-A represent approximately 940 jobs created through direct, indirect and induced means. This is approximately 8% of the total employment estimated to be created by all facilities at PNGS. In the context of municipal employment, PNGS-A in its lay-up state contributed 0.2% to the 1998 employment levels in Durham Region.

Table 6.9-10 provides data on place of residence for the employees at PNGS who reside within Durham Region. Approximately 12% of those residing in Durham Region live within the City of Pickering. Ajax, Clarington and Whitby are estimated to capture the greatest share of the total employment (direct, indirect, induced) created by PNGS-A in its lay-up state.

**Table 6.9-10. Place of Residence of PNGS Employees (1998)**

Municipality	%
Ajax	15
Brock	1
Clarington	22
Oshawa	21
Pickering	12
Scugog	2
Uxbridge	1
Whitby	26

Source: [221]

Note: Table represents 69% of PNGS employees. Approximately 31% of PNGS employees reside outside of the Regional Study Area.

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Overall, expectations are for the local economy to grow aggressively for the foreseeable future. Consequently, economic projections are very optimistic for the City of Pickering and the Region. In addition, growth in the City of Toronto and other surrounding regions are also expected to positively stimulate the local economy.

The proximity of the City of Pickering and Durham Region to Toronto and other large regional municipalities (i.e., Peel, York) ensures the availability of a large and mobile workforce of both skilled and unskilled workers for local projects, and vice versa. The most recent census data (1996) indicates that the total labour force resident in the City of Pickering and Durham Region is approximately 43,900 and 225,000 persons, respectively. The table below provides a breakdown of this labour force by industry group for the Local, Site Vicinity, City of Pickering and Regional Study Areas. In the Local Study Area, 30 persons (0.3%) were involved in fishing related (i.e., primary industry) activities [461].

**Table 6.9-11. Total Labour Force 15 Years and Over by Industry Divisions (1996)**

Categories	Local Study Area		Site Vicinity		City of Pickering		Durham Region	
	#	%	#	%	#	%	#	%
Primary	125	1.3	615	0.61	355	0.9	5,120	2.3
Manufacturing	1,500	15	16,865	15	6,230	14.2	47,550	21.1
Construction	590	5.9	5,340	4.8	2,280	5.2	14,435	6.4
Transportation and Storage	285	2.8	3,455	3	1,350	3.1	7,405	3.3
Communication and Other Utility Industries	490	4.9	6,450	7.2	2,510	5.7	12,990	5.8
Wholesale Trade/Retail Trade	2,030	20.3	19,865	17.7	8,345	19.0	38,545	17.1
Finance, Insurance and Real Estate	980	9.7	11,910	10.6	4,740	3.6	16,965	7.5
Government Service	525	5.3	5,600	5	2,300	5.2	14,720	6.5
Educational Service	555	5.6	6,800	6	2,580	5.9	13,750	6.1
Health and Social Service	745	7.4	9,660	8.7	3,525	8	17,115	7.6
Other Industries	2,185	21.8	24,775	22.2	9,695	22	36,595	7.6
<b>Total</b>	<b>10,010</b>	<b>100</b>	<b>111,335</b>	<b>100.81</b>	<b>43,910</b>	<b>92.8</b>	<b>225,190</b>	<b>91.3</b>

Source: [461]

With respect to Aboriginal communities, available data [356] indicates that the majority of Aboriginal persons participate in the wage economy and local labour force, primarily in the construction, transportation and local service industries. The Alderville, Curve Lake, Hiawatha First Nations located near Peterborough, Ontario and Scugog Island First Nation, located on Lake Scugog north of PNGS; are

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considered to be urban reserves. Only the Alderville First Nation reported that 10 members of their community are employed in primary industries that may rely on natural resources. Similarly, the Georgina Island Chippewa First Nation is located in Lake Simcoe, with no employment in primary industries.

Over the period 1996 to 2021, employment growth across the Region is expected to be in the order of 83% which equates to an annual average of approximately 4%. The following table and Figure 6.9-5 present employment projections for the City of Pickering and other area municipalities within the Region. Pickering, Ajax, Clarington, and Whitby are projected to show very strong employment growth. Employment in the Region is expected to grow 35% during the period 1998-2009 and by 83% over the period 1998-2021. The corresponding statistics for Pickering are 47% and 103% respectively.

**Table 6.9-12. Projected Employment Growth — Durham Region and Area Municipalities 1998 – 2021**

Durham Region	1998	2009	2021	Growth 1998-2009 (%)	Growth 1998-2021 (%)
Ajax	20,044	31,995	51,029	60	155
Brock	3,040	3,704	4,498	22	48
Clarington	13,170	21,587	32,476	64	147
Oshawa	58,686	66,401	79,098	13	35
Pickering	27,517	40,519	55,894	47	103
Scugog	5,370	6,528	7,796	22	45
Uxbridge	4,747	6,447	8,257	36	74
Whitby	26,210	37,467	52,048	43	99
<b>Total Region</b>	<b>158,784</b>	<b>214,648</b>	<b>291,096</b>	<b>35</b>	<b>83</b>

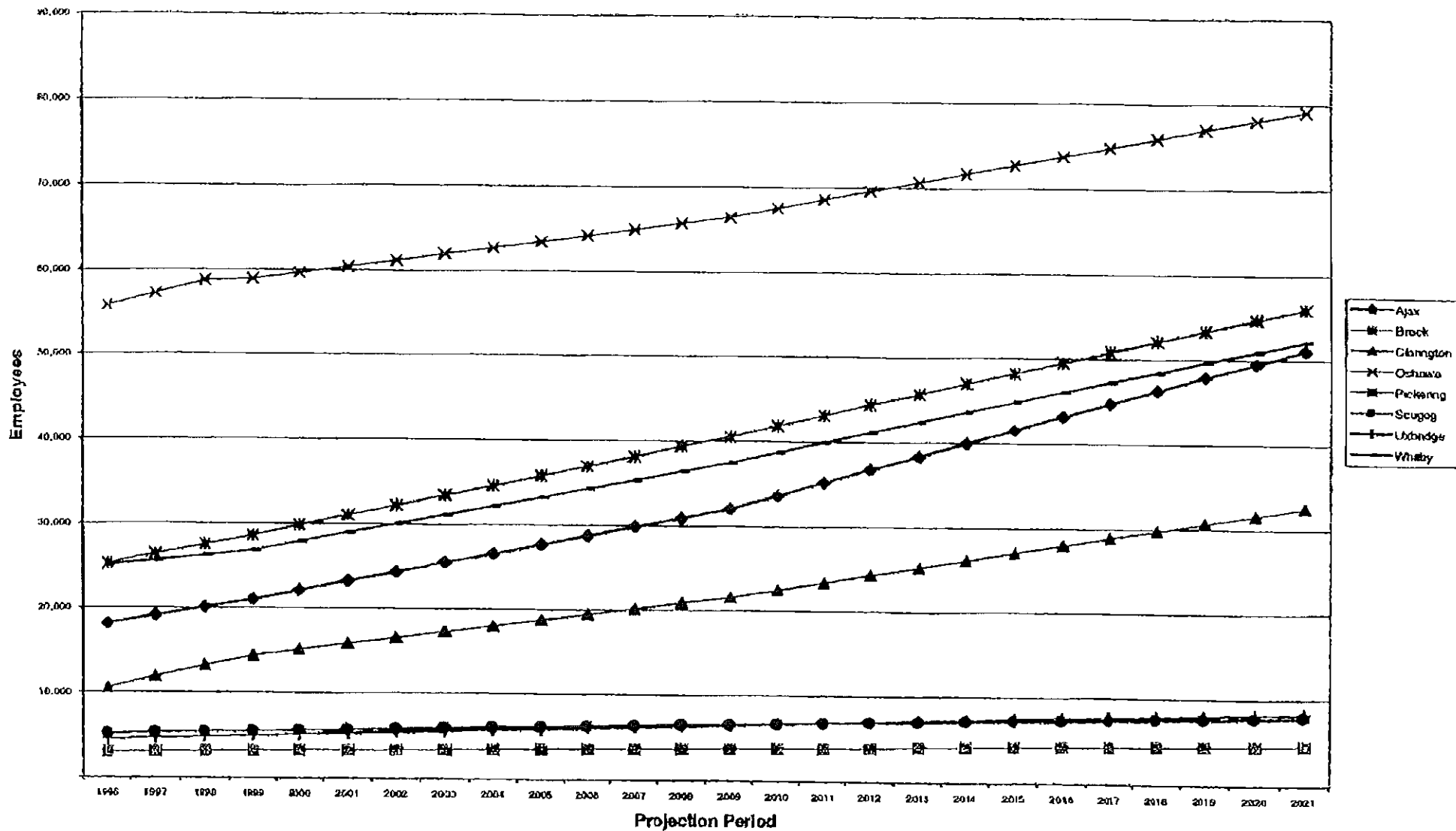
Source: [222]

### 6.9.6.3 Business Activity and Local Economic Development

As an indicator of business activity and economic development, inventory forecasts of industrial, commercial and institutional (ICI) square footage within the City of Pickering and Durham Region have also been examined. Municipalities continue to use imperial rather than metric units for their ICI floor space projections. The following table and Figure 6.9-6 present current and projected information regarding business activity.

# Employment Projections

FIGURE  
6.9-5



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business activity were the economy (46%), weather (15%), population (31%), and competition (8%). The majority (69%) of owners indicated that their business activity had generally increased over the past two years.

The presence and operation of PNGS appears to have little, if any, effect on resource/environmental quality related businesses. Approximately (92%) of those interviewed stated that PNGS does not affect their business activity. One respondent indicated that the lay-up of PNGS-A in 1997 reduced the number of individuals fishing in Frenchman's Bay and Lake Ontario which indirectly affected his fishing and tackle business.

The fish farm operator, Coolwater Canada, located in the Hydro Marsh area adjacent to PNGS-A responded that over a six week period in July and August, when southeasterly winds and higher air temperatures raise water temperatures into the 23°C to 24°C range, the mortality and disease rates among fish at this facility increases. Similarly in winter when temperatures decline below 9°C fish growth is substantially reduced. In response, the operator takes steps to reduce the number of fish in the farm during these periods. The interview also indicated that because the vast majority of the fish harvested is sold to wholesale dealers outside Ontario, customers are not likely to link this product with PNGS [257].

The importance of environmental quality to these businesses was evident in all the interviews. However, few (5 out of 14) business operators interviewed indicated that their customers link their product or service with environmental quality in general. None of the business operators indicated that their customers are likely to link their products and services with PNGS itself. A summary of responses to these interviews is provided in Appendix B.

### 6.9.7 Description of Existing Conditions: Community Infrastructure

The description of community infrastructure in the study areas and the assessment of effects is largely based on information contained in a separate economic study [467].

Community profile data for housing and property values were collected and summarized for the Regional Municipality of Durham and its area municipalities including the Cities of Oshawa and Pickering, the Towns of Ajax and Whitby; and where available for the Townships of Brock, Scugog and Uxbridge, and the Municipality of Clarington. These data allowed for the establishment of a baseline and for the identification of significant trends in housing and property values. In addition, the results of interviews conducted with regional and local municipal service providers and local realtors as part of a separate study are summarized.

A detailed description of the economic model used to characterize the housing stock and assess effects can be found in the previous Section 6.9.5.

## Pickering A-Return to Service Socio-Economic Conditions Technical Support Document

### 6.9.7.1 Housing and Property Values

Between 1996 and 1998 the housing stock in the City of Pickering increased 4% from approximately 24,000 units to 25,000 units. The table below provides statistics on the housing stock for the City of Pickering and other area municipalities within the Region for the years 1996, 1998 and 1999.

**Table 6.9-16. Durham Region Housing Stock — 1996, 1998, 1999**

Municipalities	Housing Stock			Growth	
	1996	1998	1999	1996-1998 (%)	1996-1999 (%)
<i>Durham Region</i>					
Ajax	20,365	21,334	21,818	5	7
Brock	4,165	4,216	4,241	1	2
Clarington	20,080	21,153	21,689	5	8
Oshawa	49,640	50,491	50,916	2	3
Pickering	24,030	25,032	25,553	4	6
Scugog	6,445	6,654	6,759	3	5
Uxbridge	5,390	5,583	5,680	4	5
Whitby	24,037	25,238	25,839	5	7
<b>Total Region</b>	<b>154,152</b>	<b>159,701</b>	<b>162,495</b>	<b>4</b>	<b>5</b>

Source: [222]

Relative to the Region as a whole, the City of Pickering has demonstrated strong housing growth in pace with or exceeding the regional average. Table 6.9-17 provides statistics on the types of housing available in the Local, Site Vicinity and City of Pickering study areas in conjunction with statistics from Durham Region and Ontario [461]. This table shows that the type of housing available to residents living nearest PNGS is not substantially different from other areas in the City of Pickering, Durham Region or Ontario, but has a greater proportion of semi-detached and duplex type housing and a smaller proportion of high rise buildings.

**Table 6.9-17. Private Dwelling (1996)**

Categories	Local Study Area (%)	Site Vicinity (%)	City of Pickering (%)	Region of Durham (%)	Ontario (%)
Detached	66.8	70.3	72	67	57
Semi-Detached	10	5.8	7.6	6.9	5.8
Row House	9	8.9	10.2	7.6	6.5
Apartment, Detached Duplex	6.9	3.5	3.5	2.7	2.8
Apartment, 5 or more storeys	3.3	7.1	4.1	8.5	16.4
Apartment, less than 5 storeys	3.5	4.1	2.4	7	10.8
Other Single Attached House	0	0.03	0.04	0.2	0.3
Moveable Dwelling	0.5	0.05	0.1	0.1	0.4
<b>Total</b>	<b>100</b>	<b>99.78</b>	<b>99.94</b>	<b>100</b>	<b>100</b>

Source: [461]



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Housing stock associated with persons gaining employment as a result of PNGS-A is minor. In its lay-up state, PNGS-A is associated with about 0.24% of the housing available in Durham Region. Housing stock in Clarington (21%), Ajax (20%) and Whitby (19%) have the strongest ties with PNGS-A [222].

Looking to the future, housing forecasts present a healthy growth picture. As shown in the Table below and Figure 6.9-7, the total projected growth for the Region as a whole to 2021 is 68%. The City of Pickering exceeds this value by 5% [222].

**Table 6.9-18. Projected Housing Growth — Durham Region and area municipalities (1998 –2021)**

Durham Region	1998	2009	2021	Growth 1998-2009 (%)	Growth 1998-2021 (%)
Ajax	21,334	29,818	40,218	40	88
Brock	4,216	4,784	5,628	13	33
Clarington	21,153	29,297	40,332	39	91
Oshawa	50,491	56,666	69,994	12	39
Pickering	25,032	33,663	43,308	34	73
Scugog	6,654	8,067	9,121	21	37
Uxbridge	5,583	6,959	7,806	25	40
Whitby	25,238	36,759	52,830	46	109
<b>Total Region</b>	<b>159,701</b>	<b>206,013</b>	<b>269,237</b>	<b>29</b>	<b>68</b>

Source: [222]

An analysis of housing prices in Durham Region and surrounding municipalities was reviewed and the results are summarized below. The price of a standard two-storey home was tracked over the period 1991 to 1998. Within Durham Region data were available for four municipalities; namely, Pickering, Ajax, Oshawa and Whitby. The information is provided in Table 6.9-19 and Figure 6.9-8. The table shows that in each of these municipalities housing prices dipped in the 1992 to 1995/1996 period and then increased thereafter. Pickering demonstrated very strong recovery; and by the end of the period, of the four municipalities, it had the highest average price, in the order of \$185,000.

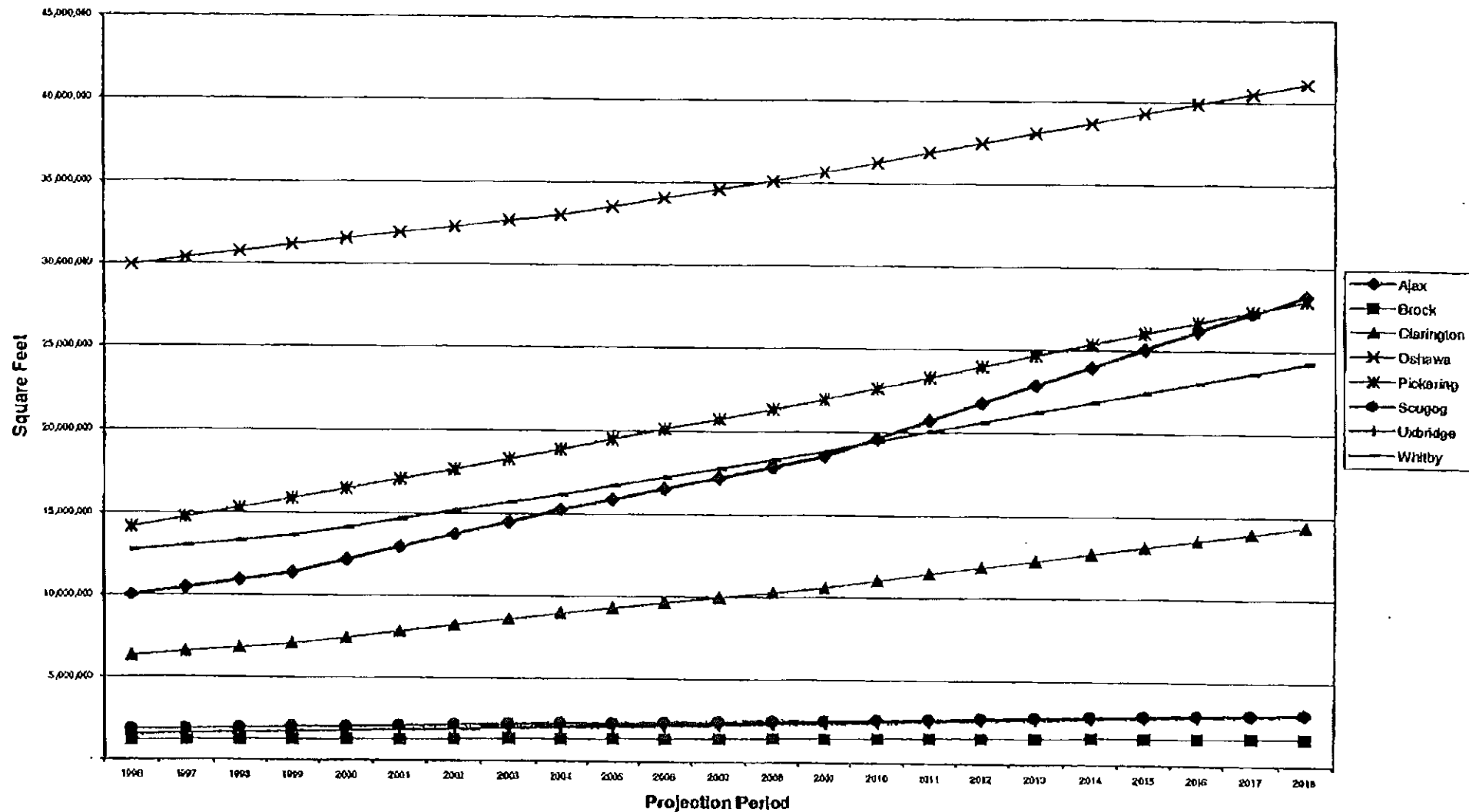
**Table 6.9-19. Average House Prices \$— Durham Region Municipalities  
(Standard Two Storey Detached Home 1991 –1998)**

	1991	1992	1993	1994	1995	1996	1997	1998
Ajax	170,000	168,000	173,000	165,000	165,000	163,000	175,000	180,000
Oshawa	145,000	144,000	140,000	141,000	141,000	140,000	143,000	155,000
Whitby	165,000	165,000	160,000	155,000	160,000	160,000	165,000	175,000
Pickering	165,000	165,000	165,000	158,000	162,000	175,000	175,000	185,000
<b>Average</b>	<b>161,250</b>	<b>160,500</b>	<b>159,500</b>	<b>154,750</b>	<b>157,000</b>	<b>159,500</b>	<b>164,500</b>	<b>173,750</b>

Source: [467]

# ICI Floor Space Projections

FIGURE  
6.9-6



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**Table 6.9-13. Existing and Projected Industrial, Commercial, Institutional Square Footage —  
Durham Region and Area Municipalities (1998 – 2018; Thousands of sq. ft.)**

Durham Region	1998	2009	2018	Growth 1998-2009 (%)	Growth 1998-2018 (%)
Ajax	10,916	18,538	28,296	70%	159%
Brock	1,226	1,444	1,640	18%	34%
Clarington	6,804	10,615	14,411	56%	112%
Oshawa	30,723	35,640	41,097	16%	34%
Pickering	15,323	21,971	28,019	43%	83%
Scugog	1,963	2,515	3,103	28%	58%
Uxbridge	1,670	2,384	3,049	43%	83%
Whitby	13,312	18,836	24,233	41%	82%
<b>Total Region</b>	<b>81,937</b>	<b>111,947</b>	<b>143,850</b>	<b>37%</b>	<b>76%</b>

Source: [222]

Projections for the Region to the year 2018 indicate growth in the inventory of ICI floor space in the order of 76%. Corresponding projections for Pickering and Clarington exceed this figure; Pickering by 7% and Clarington by 36% [222].

OPG issues contracts to businesses across Canada and internationally for a wide variety of goods and services which generate business activity in the ICI sector of Durham's economy. In 1998, PNGS expended approximately \$87M in Canada and internationally on goods and services for capital projects and ongoing operations. Approximately 85% of this was spent within the Province of Ontario. Approximately \$9.5M was spent locally within Durham Region, while spending within the City of Pickering was approximately 8.5% of the Durham Region total [229]. Local purchases from the PNGS range from specialized services and equipment that support nuclear operations to office supplies. In its lay-up state, spending by PNGS-A is estimated to help sustain approximately 191,000 sq. ft. of ICI floor space in Durham Region. This represents approximately 0.23% of the 1998 total ICI floor space in Durham Region. Businesses in Oshawa (27%), Ajax (20%) and Whitby (20%) have the strongest ties to PNGS-A.

Payroll spending by OPG and household spending by persons gaining employment (direct, indirect and induced) will also generate business activity in the ICI sector. In 1998, payroll and household spending within Durham Region was approximately \$22 million [220].

A review of the 1997 Canadian Nuclear Association's annual Nuclear Canada Yearbook and Buyer's Guide [396] indicates that most of the nuclear service industry in Canada is located outside Durham Region (e.g., City of Toronto, Peel Region). The following table provides data on the geographical distribution of businesses in the nuclear service industry in 1997.

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**Table 6.9-14. Nuclear Service Industry Distribution (1997; # of Businesses)**

Location	#	% Total
Durham Region	4	2.3
City of Toronto	23	13
York Region	4	2.3
Peel Region	31	17.6
Other Ontario	33	18.8
Other Canada	37	21
United States	44	25
<b>Total</b>	<b>176</b>	<b>100</b>

Source: [396]

The table below provides the total value of contracts and purchase orders issued by PNGS to business operations within Durham Region and area municipalities, including the City of Pickering.

**Table 6.9-15. PNGS Local Spending (1998)**

Municipality	\$	% Durham
Ajax	6,073,327	63.6
Brock	0	0
Clarington	401,266	4.2
Oshawa	1,124,670	11.8
Pickering	824,515	8.6
Scugog	0	0
Uxbridge	157,470	1.6
Whitby	973,606	10.2
<b>Total Durham Region</b>	<b>9,534,857</b>	<b>100</b>

Source: [229]

- Note:
1. Historically, PNGS did not keep spending data for PNGS-A, PNGS-B and the UFDSF separately.
  2. The analysis of historic spending within Durham Region was based on purchase order data only. Other routes such as 'procurement cards' and 'direct invoice payments' for low value acquisitions were not included and may contribute an additional 5% to 10% to the historical capital and operational spending values. Utilities and telephones are major components of the no purchase order expenditures.

The results of a separate economic study in which major Durham Region suppliers to OPG and economic development officers were interviewed and summarized below [467].

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The results of this study are summarized below. Results indicate that suppliers to OPG provided a wide range of goods and services, including:

- engineering support for nuclear safety;
- painting services;
- conventional industrial equipment (e.g., fasteners, cutting tools, hand tools and maintenance products);
- electrical equipment; and,
- paving/concrete services.

Although an important source of revenue, most of the local suppliers to PNGS are not likely to be dependent upon contracts issued by OPG for the majority of their annual revenues. The majority of the interviewees reported that contracts from PNGS account for less than 25% of their total annual revenues [467]. The growing local economy and large geographic service areas appear to allow local businesses to have a diverse clientele. Local businesses that provide specialized services to the nuclear industry tend to rely on OPG contracts for more than 50% of their annual revenues. Only two of the businesses indicated that contracts from PNGS help maintain their overall economic viability [467].

The most important economic development issue facing the City of Pickering and Durham Region as a whole is achieving a balance between residential, commercial and industrial development. In all cases, the economic development officers in Durham Region anticipated continued growth in their municipalities provided that they can continue to expand their transportation and communications infrastructure (e.g., 401/Pickering Beach Road Interchange, Highway 407, fibre optic cables), and water and sewage facilities to meet increased demand. To date, most municipalities have been able to meet their increasing demands. Reasonable interest rates and land development charges/taxes will also help maintain economic growth [467].

The major suppliers and the economic development officers credit PNGS as contributing positively to local economic growth, largely in terms of employment and the spin-offs associated with employee spending [467]. This is confirmed by sociological research conducted for this EA [Appendix D]. Approximately 70% of Pickering residents indicated that PNGS has contributed a great deal or somewhat to employment opportunities and stability, and 57% indicated a moderate or major contribution to business activity. Similar results were also achieved in a 1991 survey [268].

Major suppliers to PNGS and the economic development officers did not feel that PNGS has had an adverse effect on their local economies. Most of the suppliers to PNGS did not notice any adverse effects that could be linked to operations at PNGS. Only two operators noticed a slow down in their business activity due to the lay-up of PNGS-A in 1998. They indicated that during this period, work normally conducted by contractors at PNGS-B was taken over by reassigned members of OPG's unionized workforce [467]. The economic development officers disagreed as to whether or not PNGS

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has provided any significant competitive advantage to local area businesses over those from other communities in southern Ontario. For example, some indicated that industries are attracted to Durham Region because of the availability of a highly skilled labour force. Others, however, suggested that the presence of the nuclear station and other major industries (e.g., the automotive industry) may, in fact, detract from the attractiveness of the area if it is viewed as a location with high wages and strong labour unions. In addition, one economic development officer indicated that the presence of numerous transmission corridors detracts from the local aesthetics [467].

Overall, the presence of PNGS has not directly influenced the economic development plans in the City of Pickering or other area municipalities within Durham Region. Area municipalities have established and are in the process of implementing their economic development policies and plans.

### **Commercial Fishing**

The commercial fishery in Lake Ontario and throughout the Great Lakes has declined over the last few decades [30] and the types of fish harvested has also changed. One fish that has increased in the Lake Ontario catch is Lake Whitefish, whose populations have recovered during the late 1980s and early 1990s. Data from 1997 indicates that Lake Whitefish represent the greatest amount of fish caught by weight. Over 98% of all commercial fishing done in Lake Ontario occurs in the eastern half, beyond Cobourg, mainly in the Bay of Quinte [480]. One hundred and seventeen commercial fishing licences were issued in 1999 for Canadian waters. PNGS is located within Quota Zone 8 for which there were four commercial fishing licenses issued, all of which were in the St. Catharines-Niagara area. There is no commercial fishing on Lake Ontario within any of the study areas identified for this EA [58].

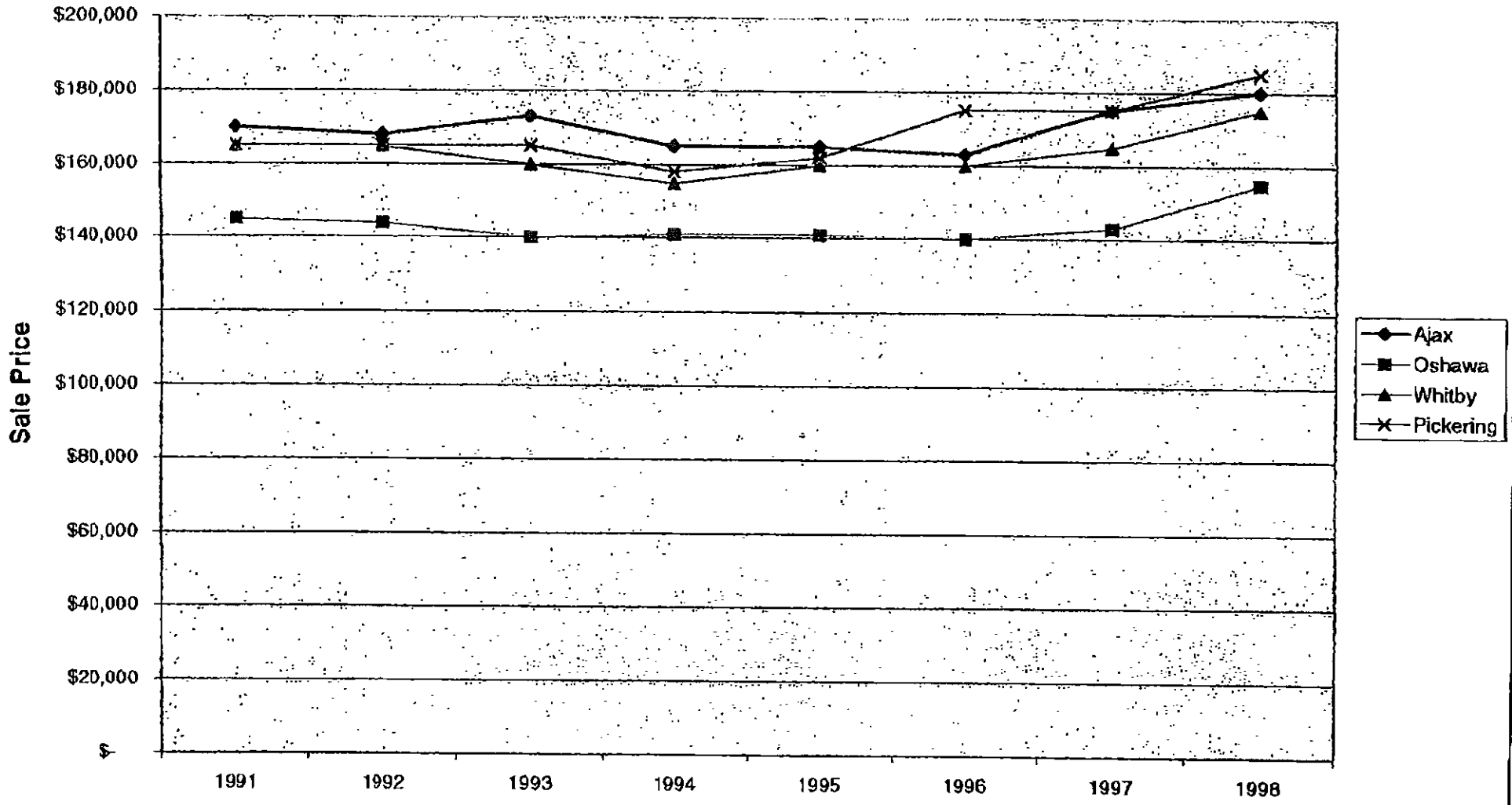
### **Other Resource / Environmental Quality Related Businesses**

To further investigate the influence of PNGS on local business activities, interviews were conducted with a sample of 15 businesses located in the Local, Site Vicinity, City of Pickering and Regional Study Areas (see Appendix A and B for more details). These businesses were selected as 'indicators' of business sectors that were most likely to be dependent on environmental resources (e.g., recreational fishing related) or on environmental quality (e.g., air or water quality). These businesses were primarily boat building and repair, fishing tackle, food producers (e.g., fruit growers, mushroom growers), and beverage producers (e.g., wine producers, juice producers, microbreweries). Using the (former) Town of Pickering Business Directory [465] and the Durham Region Industrial Directory [466] a total of 65 businesses were identified across Durham Region that could be dependent on environmental resources or quality.

Interview results indicate that all of the businesses primarily serve Durham Region, with a few serving other areas as well, including Toronto (31%), other communities in Southern Ontario (23%), Canada (23%), the Caribbean (15%) and the UK (8%). Interviews suggest that these business owners/operators are prospering across Durham Region. The main issues that respondents identified as affecting their

# Average House Price

FIGURE  
6.9-8



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In the study reviewed, a trend analysis was carried out for both Pickering and for the four municipalities combined. The results indicated that in Pickering, Whitby and Ajax, house prices experienced significantly stronger growth than the composite average over the period considered [467]. Housing prices in Oshawa appeared to have experienced slower growth and periods of decline relative to the composite average.

Local real estate agents in Pickering indicated that some prospective home buyers are "not comfortable" about living in a community that is host to PNGS. In contrast, no such concerns were expressed by realtors in Clarington, that is also host to a nuclear generating station. To this end, realtors in Clarington credit the location of the facility south of Highway 401 which provides a perceptual and visual buffer, while the visibility of PNGS from neighbouring residential developments is a reminder to local residents and prospective buyers of the presence of a nuclear facility. Local realtors in Pickering also indicated that PNGS has not influenced the number of sales as the turnover of properties nearest PNGS appears to be comparable to other communities and neighbourhoods in the City of Pickering [467].

### 6.9.7.2 Municipal Services

#### Water Supply

Domestic water is supplied to many Durham Region residents and businesses through three water treatment plants that draw water from Lake Ontario: Pickering/Ajax Water Supply Plant, Whitby Water Supply Plant and the Oshawa Water Supply Plant. Two other water supply plants which supply Toronto are located within 25 km of the Pickering station: the Toronto Easterly Plant and the R.C. Harris Plant. Most other areas of Durham Region (e.g., Bowmanville, Newcastle, Port Perry, Uxbridge, Cannington) are supplied by individual water supply systems from either surface water intakes or groundwater wells. These existing water treatment plants are generally operating below capacity.

A raw water intake and a potential treatment plant have been proposed in Durham Region to supply water to York Region and possibly unserved areas of Durham Region via a pipeline. The location of the water intake is approximately 2 to 4 km offshore from the Petticoat Creek Conservation Area. The proposal calls for an in-service date of 2002. Domestic water is supplied to PNGS by a pipeline connected to the region's water distribution system. In 1998, PNGS purchased 315,349 m<sup>3</sup> of potable water from Durham Region; a decrease of approximately 23% over 1997 levels [264].

#### Sewage

Durham Region operates four major water pollution control plants with discharges to Lake Ontario: the Duffins Creek WPCP, Whitby Corbett Creek WPCP, Pringle Creek WPCP, and Harmony Creek WPCP. The Highland Creek WPCP located approximately 8 km west of PNGS services a portion of



## Pickering A-Return to Service Socio-Economic Conditions Technical Support Document

Metropolitan Toronto. Most other areas of Durham Region (e.g., Bowmanville, Newcastle, Port Perry, Uxbridge, Cannington) are serviced by smaller individual water pollution control plants. These existing systems are generally operating below capacity. All sewage from PNGS is collected on-site, monitored and released to the Regional Municipality of Durham's sewage system for treatment at the Duffins Creek WPCP.

### Conventional Solid Waste Management

PNGS tests essentially all waste materials for radioactivity prior to release from the site for recycling or disposal. The 'non-detectable' threshold (defined in Section 4 of the EA report) is used at PNGS to differentiate active from non-active waste materials. Radioactive solid waste is transported to OPG's centralized Radioactive Waste Operations Site (RWOS) at the Bruce Nuclear Power Development in Bruce Township. All such waste is stored and monitored at their facility.

In terms of non-radioactive solid non-hazardous solid waste, PNGS-A generated 2,005 tonnes in 1997 [256]. Throughout 1998, PNGS-A generated only 800 tonnes of this type of solid waste. During the lay-up of PNGS-A a decrease in waste generation of approximately 60% over 1997 levels was experienced. An integrated recycling system is currently being put into place at PNGS.

A waste audit conducted in 1999 concluded that all buildings have demonstrated some reduction in waste generation, with waste reduction rates ranging from 15% to 44% contributing to an annual reduction of about 30%. Waste diversion rates ranged from 78% to 92% [463]. In 1998, approximately 36% of all waste generated by PNGS-A was recycled [256].

All non-radioactive non-hazardous solid waste is transported off site for recycling, processing and/or disposal at facilities licenced to handle such materials. Wood, cardboard, paper, cans, glass, and concrete/asphalt are processed at private sector facilities located within the Brock Industrial Area. Polystyrene, organic food waste and non-recyclables are transported for processing and/or disposal at facilities outside Durham Region [256].

### Internal Energy Supply

As a generating station, PNGS supplies its own electricity for internal use at all of its on-site buildings. Exceptions are buildings largely used for administration or general support functions at PNGS, such as the Central Maintenance Facilities and Engineering Services Building which rely on the local utility. PNGS pays for this supply at the current commercial/industrial rate.

PNGS's typical internal energy use is 27 MW per reactor unit (approximately 5% of gross generation). In its current lay up state, electricity use is significantly reduced to an average of 3.6 MW per unit [265].

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OPG has established an energy efficiency program aimed at reducing its internal energy use. From 1994 to 1997, this corporate-wide program resulted in a savings of 1.6 billion kWh, of which over 31% was achieved by the nuclear division. These savings were achieved through changes in thermal production equipment and processes, and changes to conventional electrical equipment [265].

### 6.9.8 Description of Existing Conditions: Community Services

The description of the existing community service in the study areas and the assessment of likely effects is largely based on information acquired from interviews [Appendix B], a recreational questionnaire [Appendix C], sociological research [Appendix D], and a fall recreational fisheries survey [Appendix E and F]. These data sources and applicable methodologies for data collection and analysis are described below.

#### Interviews

Telephone interviews were conducted during the fall of 1999 with a number of community and recreational facility operators (i.e., churches, schools, arenas, and community centres) located in the Local Study Area to obtain their perspectives regarding the influence of current PNGS operations on their facilities; and to get their evaluation of the likely effects of the PNGS-A return to service project on their operations. The results of these telephone interviews are provided in Appendix B.

#### Recreational Questionnaire

To investigate the relationship between PNGS and local (non-facility based) recreational activities conducted near PNGS, a recreational questionnaire was conducted during late September and early October, 1999. A total of 53 people using local parks, beaches and trails were interviewed and asked a few questions regarding their recreational activities; their perspectives regarding the relationship between the community and the nuclear station and the effects they anticipate from the return to service project. The results of the questionnaire are provided in Appendix C.

#### Sociological Research

Sociological research played an important role in this study. The overall objective of the research was to assist in the assessment of potential social and economic effect of the Pickering A return to service project on people and their community. This research was not an opinion poll regarding the project. The research focused on the current status of operations at PNGS and on the return to service project. The objectives of the research were to:

- a) identify attitudes and perceptions of the community, including community satisfaction, major community issues, and community strengths and weakness;

## Pickering A-Return to Service Socio-Economic Conditions Technical Support Document

- b) identify characteristics of the local residents (from length of residence in the community to household demographics) and their use of various community facilities/amenities(from park use to fishing activities);
- c) gauge public attitudes and perceptions towards PNGS in their community, including awareness of the facility, its current status, plans for Pickering A. and any contributions of PNGS as a whole to local problems and benefits;
- d) identify potential effects on daily life associated with the current station and likely changes with regard to the return to service project;
- e) assess the potential effects of the return to service project on people's behavioural activities and intentions, and on community life;
- f) identify public interactions with PNGS including current contact mechanisms, information needs and sources, and assessments of Ontario Power Generation's ability and responsiveness in addressing community questions; and
- g) determine (where feasible) any likely changes in perceptions about community, use of services, and behavioural activities and intentions that may be attributable to the current situation and the return to service of PNGS-A.

The research instrument (i.e., the questionnaire administered to respondents) was comprised of 65 questions, including five open-ended questions. The survey was administered by telephone in October 1999 and took approximately 20 minutes to answer. Further details regarding the design and methodology can be found in Appendix D.

The study areas identified for this research approximated those for this socio-economic study and were identified by postal codes that in turn are linked to census information for population counts. The total number of interviews was 750 and the weighted final sample yielded results that are accurate within  $\pm$  4.1 percentage points.

The samples within each area were selected proportional to the population distribution. Telephone numbers were drawn at random, and an adult resident who was 18 years of age or older was selected within the household. The sample was split between men and women in order to examine difference in opinions by gender, along with selected other socio-demographic factors. Copy of a report with the results of the survey is provided in Appendix D.

### Fall Recreational Fisheries Survey

To investigate the potential effects of the project on recreational fishing activities a recreational fisheries survey was conducted. The objectives of this survey was to:

## Pickering A-Return to Service Socio-Economic Conditions Technical Support Document

- a) establish if offshore fall fishing is different at PNGS compared to a similar shoreline area along Lake Ontario;
- b) establish if there is any difference between the two discharge areas (PNGS-A and PNGS-B) with respect to fishing during the fall;
- c) establish if fall shoreline fishing in publicly accessible areas is higher in the vicinity of PNGS (i.e., at Frenchman's Bay/Liverpool Road) than at a similar coastal site;
- d) establish if target or harvested species during fall are different at PNGS than could be expected elsewhere along the Lake Ontario shoreline; and
- e) provide an estimated fall harvest rate to assist with the determination of likely effects to local populations of fish.

The duration of the study was over a period of 39 days from September to November 1999. A total of 16 days were surveyed at four sample locations. These areas included: two for boat surveys (offshore of PNGS and offshore of Bluffer's Park) and two for shoreline surveys (Frenchman's Bay/Liverpool Road and the Rouge River). In order to capture angling patterns the survey sampling was undertaken in the morning and the afternoon. When an angler was observed within the study area they were approached and asked questions from the standardized MNR creel survey. Additional data was obtained by asking socio-economic related questions (refer to Appendix F). The fisheries data obtained during the surveying was entered into the Ontario Ministry of Natural Resources "FISHNET" database. The results of the fisheries and socio-economic surveys are provided in Appendix E and Appendix F.

### 6.9.8.1 Community and Recreational Facilities / Resource Use

Figure 6.9-9 identifies the location of the community and recreational facilities (i.e., parks, trails, schools, places of worship, etc.). These facilities play an important role in maintaining community cohesion and the satisfaction of residents with their community by providing space for individuals and groups to participate in and contribute to community life.

#### Community Facilities

There are 18 community facilities located within the Local Study Area. The facilities identified include:

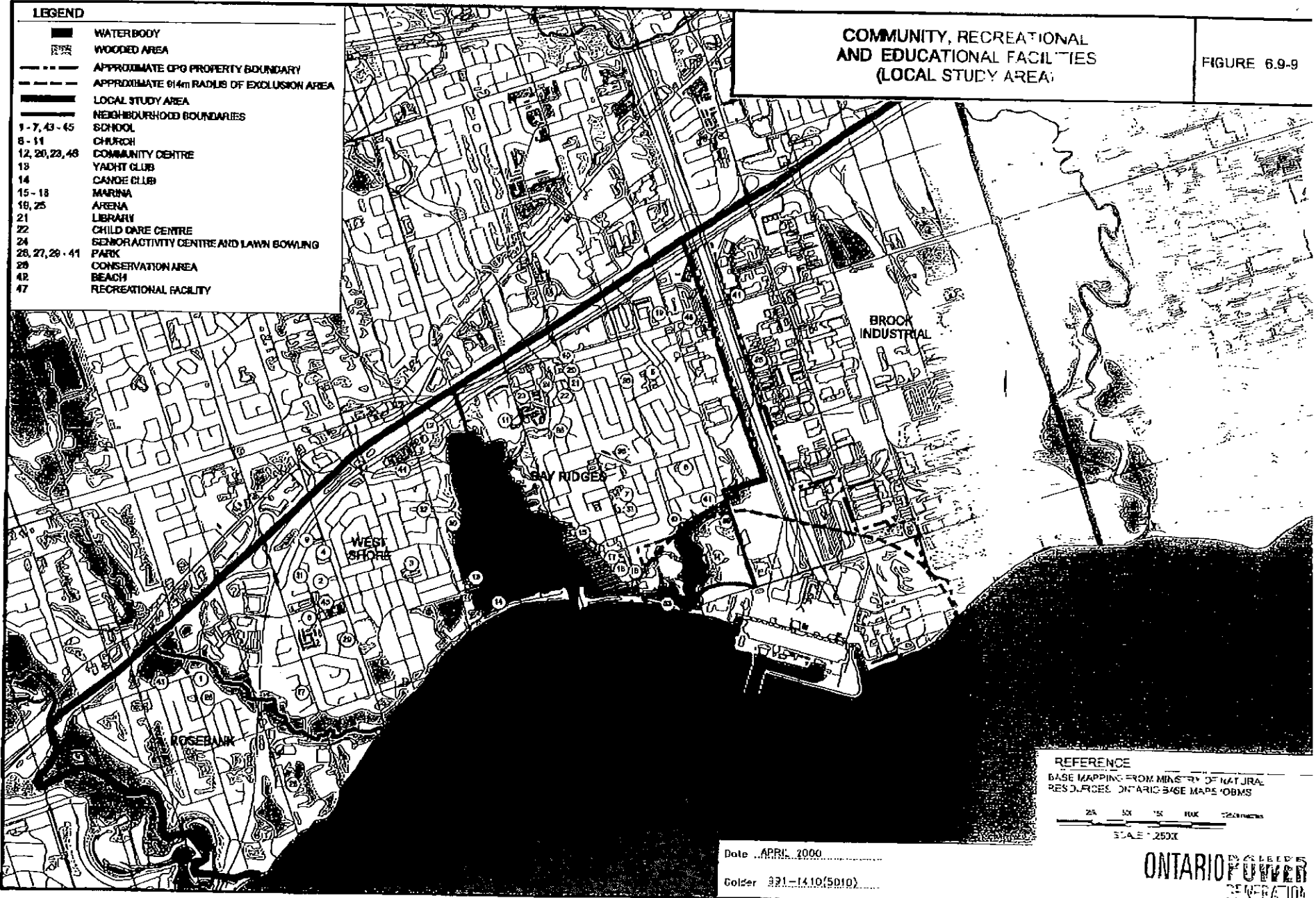
- four churches;
- six marinas/yacht clubs (two are no longer in operation);
- five arenas/community centres;
- two seniors facilities; and,
- one library (no longer in operation).

**COMMUNITY, RECREATIONAL  
AND EDUCATIONAL FACILITIES  
(LOCAL STUDY AREA)**

FIGURE 6.9-9

**LEGEND**

	WATERBODY
	WOODED AREA
	APPROXIMATE GPO PROPERTY BOUNDARY
	APPROXIMATE 614m RADIUS OF EXCLUSION AREA
	LOCAL STUDY AREA
	NEIGHBOURHOOD BOUNDARIES
1 - 7, 43 - 45	SCHOOL
8 - 11	CHURCH
12, 20, 23, 48	COMMUNITY CENTRE
13	YACHT CLUB
14	CANOE CLUB
15 - 18	MARINA
19, 25	ARENA
21	LIBRARY
22	CHILD CARE CENTRE
24	SENIOR ACTIVITY CENTRE AND LAWN BOWLING
26, 27, 28 - 41	PARK
29	CONSERVATION AREA
42	BEACH
47	RECREATIONAL FACILITY



**REFERENCE**  
 BASE MAPPING FROM MINISTRY OF NATURAL  
 RESOURCES ONTARIO BASE MAPS (OBMS)

25 50 100 200 METERS

SCALE 1:25000

Date APRIL 2000  
 Golder 031-14.10(5010)

**ONTARIO POWER**  
 GENERATION

3010/R\_APRIL00/014105-05.DWG

1"=1"

## **Pickering A-Return to Service Socio-Economic Conditions Technical Support Document**

Table 6.9-20 provides a summary of their key characteristics. For each facility the table provides the name or type of facility and its location. The table also identifies the primary user groups and the types of community and outdoor uses conducted on-site. Interviews with 13 of the facility operators also provided insight into the future plans at the facility and an indication of the type of relationship the facility has with PNGS and its current influence on operations.

A review of this table indicates that most community facilities serve local residents, but some also attract others from across Durham Region and East Toronto. Most of the facilities, particularly churches, are used by the community for a variety of social and recreational activities throughout the year. Three facility operators indicated that their facilities are experiencing increased use, and hence they have plans for expansions (e.g., new ice rinks) or are planning for new developments to attract more people to their facilities. Most facility operators reported that their site is also used for outdoor activities which are sensitive to changes in environmental quality. These activities include:

- organized sporting activities, sailing and other active recreational activities such as bicycling;
- unorganized play / playground activities and picnics;
- passive recreational activities such as walking and nature viewing;
- service club meetings / activities; and,
- outdoor religious services.

None of the facility operators interviewed reported having any recent contact and few reported an ongoing relationship with PNGS. Most facility operators do not perceive there to be any influence on their operations by PNGS. Further details regarding comments offered by facility operators are provided in Appendix B.

### **Local Parks and the Waterfront Trail**

There are a number of parks located in the Local Study Area. Table 6.9-21 summarizes their key characteristics. Alex Robertson Park, Kinsmen Park and the Waterfront Trail are the most popular local features.

The Alex Robertson Park (locally known as Hydro Park) was established in 1972 and is situated to the northwest of PNGS, within the 914 metre exclusion zone. Although owned by OPG, the park is currently operated and maintained by the City of Pickering. The park is a popular open space area and is heavily used by the local community for exercise, sun-bathing, picnicking, birdwatching and the exercising of pet dogs. In addition, a flat area in the northeast part of the area is used by a cricket club which plays on Sundays during the season. Expansion of sports uses has been planned for the area south of the cricket field which will house a new football field [157]. The park includes a small parking area and perimeter and internal trails including linkage to the Lake Ontario beach at the extreme southwest corner. Panoramic views of the wetland (Hydro Marsh) can be obtained from the western side of the park.

**Table 6.9-20  
EXISTING COMMUNITY FACILITIES IN LOCAL STUDY AREA**

Facility Name	Local Community	Map #	Primary Users Groups	Use by Community and Outdoor Activities	Future Plans	Relationship with PNGS / Effect on Operations
Pickering Pentecostal Church	West Shore	8	<ul style="list-style-type: none"> <li>members and staff from across Durham and Scarborough</li> </ul>	<ul style="list-style-type: none"> <li>community activities: garage sales, service club meetings</li> <li>outdoor activities: playground use</li> </ul>	<ul style="list-style-type: none"> <li>not known at this time</li> </ul>	<ul style="list-style-type: none"> <li>no ongoing relationship</li> <li>PNGS has no direct influence on operations</li> </ul>
Holy Redeemer Roman Catholic Church	West Shore	9	<ul style="list-style-type: none"> <li>members and staff</li> </ul>	<ul style="list-style-type: none"> <li>not known</li> </ul>	<ul style="list-style-type: none"> <li>not known</li> </ul>	<ul style="list-style-type: none"> <li>not known</li> </ul>
Peace Lutheran Church	Bay Ridges	10	<ul style="list-style-type: none"> <li>members and staff from across Durham and Scarborough</li> </ul>	<ul style="list-style-type: none"> <li>community activities: bible study, taekwon-do, diet group meetings, Scouts meetings</li> <li>outdoor activities: occasional outdoor service</li> </ul>	<ul style="list-style-type: none"> <li>no future plans</li> </ul>	<ul style="list-style-type: none"> <li>no ongoing relationship</li> <li>PNGS has no direct influence on operations</li> </ul>
St. Martin's Anglican Church	Bay Ridges	11	<ul style="list-style-type: none"> <li>members and staff from across Durham and Scarborough</li> <li>local children in day care</li> </ul>	<ul style="list-style-type: none"> <li>community activities: monthly new to use sale, AA meetings</li> <li>outdoor activities: picnics</li> </ul>	<ul style="list-style-type: none"> <li>to be determined</li> </ul>	<ul style="list-style-type: none"> <li>no ongoing relationship</li> <li>PNGS has no direct influence on operations</li> </ul>
Frenchman's Bay Yacht Club	West Shore	13	<ul style="list-style-type: none"> <li>club members</li> <li>coast guard</li> <li>sailing school</li> <li>racing teams</li> <li>baywatch groups</li> <li>PARU</li> </ul>	<ul style="list-style-type: none"> <li>outdoor activities: tree planting, Frenchmans Bay clean-up, boating, sailing, racing, protecting the wetlands and regattas</li> </ul>	<ul style="list-style-type: none"> <li>No future plans</li> </ul>	<ul style="list-style-type: none"> <li>OPG employees are members</li> <li>occasional OPG meetings/ events</li> <li>positive influence on business activity</li> </ul>
West Rouge Canoe Club	West Shore	14	<ul style="list-style-type: none"> <li>club members</li> </ul>	<ul style="list-style-type: none"> <li>outdoor activities: canoeing</li> </ul>	<ul style="list-style-type: none"> <li>not known</li> </ul>	<ul style="list-style-type: none"> <li>not known</li> </ul>
East Shore Marina	Bay Ridges	15	<ul style="list-style-type: none"> <li>recreational boaters</li> <li>liveaboards</li> <li>charter operators and clients</li> </ul>	<ul style="list-style-type: none"> <li>outdoor activities: boat charters, sailing</li> </ul>	<ul style="list-style-type: none"> <li>proposed Marine Village</li> </ul>	<ul style="list-style-type: none"> <li>no ongoing relationship</li> <li>PNGS is perceived to have had an adverse effect by decreasing public activities in the area</li> </ul>
Moore Haven Marina	Bay Ridges	16	<ul style="list-style-type: none"> <li>data not available</li> </ul>			
Port Pickering	Bay Ridges	17	<ul style="list-style-type: none"> <li>no longer operational</li> </ul>			

**Table 6.9-20 (continued)**  
**EXISTING COMMUNITY FACILITIES IN LOCAL STUDY AREA**

Facility Name	Local Community	Map #	Primary Users Groups	Use by Community and Outdoor Activities	Future Plans	Relationship with PNGS / Effect on Operations
Swans Marina	Bay Ridges	18	<ul style="list-style-type: none"> <li>boaters</li> </ul>	<ul style="list-style-type: none"> <li>outdoor activities: boating, sailing</li> </ul>	<ul style="list-style-type: none"> <li>no future plans</li> </ul>	<ul style="list-style-type: none"> <li>no ongoing relationship</li> <li>perceived adverse effect on property value</li> </ul>
Art Thompson Arena	Bay Ridges	19	<ul style="list-style-type: none"> <li>sports club members</li> <li>(e.g., hockey and ringette)</li> </ul>	<ul style="list-style-type: none"> <li>no outdoor activities</li> </ul>	<ul style="list-style-type: none"> <li>additional rink</li> </ul>	<ul style="list-style-type: none"> <li>OPG employees use the facility.</li> <li>occasional power outages affects business activity</li> </ul>
East Shore Community Centre, including <ul style="list-style-type: none"> <li>Library-- Bay Ridges Branch</li> <li>Seniors Activity Centre</li> </ul>	Bay Ridges	20, 21, 24	<ul style="list-style-type: none"> <li>seniors</li> <li>youth</li> </ul>	<ul style="list-style-type: none"> <li>community activities: community rentals for receptions, weddings, parties, Union meetings, ringette association meetings</li> <li>outdoor activities: lawn bowling, horse shoes</li> <li>senior activities: card playing, dances, singing, table tennis, bowling, badminton</li> <li>outdoor senior activities: lawn bowling, cycling, walking, horse shoes</li> </ul>	<ul style="list-style-type: none"> <li>to expand on current programs</li> </ul>	<ul style="list-style-type: none"> <li>no ongoing relationship</li> </ul>
St. Martin's Residential Centre	Bay Ridges	23	<ul style="list-style-type: none"> <li>seniors</li> </ul>	<ul style="list-style-type: none"> <li>indoor and outdoor residential uses by seniors and staff</li> </ul>	<ul style="list-style-type: none"> <li>none identified</li> </ul>	<ul style="list-style-type: none"> <li>no ongoing relationship</li> <li>PNGS has no direct influence on operations</li> </ul>
YMCA Pickering Family Resource Centre	Bay Ridges	46	<ul style="list-style-type: none"> <li>local children</li> <li>parents and staff</li> </ul>	<ul style="list-style-type: none"> <li>no outdoor activities</li> </ul>	<ul style="list-style-type: none"> <li>none</li> </ul>	<ul style="list-style-type: none"> <li>no ongoing relationship</li> </ul>
Don Beer Arena	Brock Industrial	25	<ul style="list-style-type: none"> <li>sports club members (e.g., ice, ball and roller hockey leagues)</li> </ul>	<ul style="list-style-type: none"> <li>no outdoor activities</li> </ul>	<ul style="list-style-type: none"> <li>additional rink possible</li> </ul>	<ul style="list-style-type: none"> <li>OPG employees use the facility.</li> <li>PNGS traffic effects accessibility on occasion.</li> </ul>
Pickering Playing Fields	Brock Industrial	47	<ul style="list-style-type: none"> <li>families, youth, seniors from across Durham</li> </ul>	<ul style="list-style-type: none"> <li>outdoor activities: mini golf, batting cages, beach volleyball and driving range.</li> </ul>	<ul style="list-style-type: none"> <li>none</li> </ul>	<ul style="list-style-type: none"> <li>lease land from OPG</li> </ul>



**Table 6.9-21  
EXISTING PARK FACILITIES IN LOCAL STUDY AREA**

Park Name	Local Community	Map #	Primary Users Groups	Facilities / Outdoor Activities
Rosebank Park	Rosebank	26	<ul style="list-style-type: none"> <li>community</li> <li>students from Rosebank Road School</li> <li>sports teams</li> </ul>	<ul style="list-style-type: none"> <li>tennis courts</li> <li>playground with swings, slide</li> <li>soccer field</li> <li>basketball court</li> <li>baseball diamond</li> </ul>
Dunmoore Park	Westshore	27	<ul style="list-style-type: none"> <li>community</li> <li>sports teams</li> </ul>	<ul style="list-style-type: none"> <li>tennis courts</li> <li>playground with swings, slide</li> <li>soccer field</li> <li>baseball diamonds</li> <li>washroom facilities</li> </ul>
Poftboat Creek Conservation Area	Westshore	28	<ul style="list-style-type: none"> <li>community</li> <li>residents of Durham Region</li> <li>residents of Toronto</li> <li>trail users</li> </ul>	<ul style="list-style-type: none"> <li>swimming pool</li> <li>picnic areas</li> <li>washroom/change room facilities</li> <li>access to the Waterfront Trail</li> </ul>
Lookout Point Park	Westshore	29	<ul style="list-style-type: none"> <li>community</li> </ul>	<ul style="list-style-type: none"> <li>playground with swings, slide</li> <li>baseball diamond</li> </ul>
Bruce Hanscombe Memorial Park	Westshore	30	<ul style="list-style-type: none"> <li>community</li> <li>trail users</li> </ul>	<ul style="list-style-type: none"> <li>playground with swings, slide</li> <li>park benches</li> <li>access to the Waterfront Trail</li> </ul>
Bidwell Tot Lot	Westshore	31	<ul style="list-style-type: none"> <li>community</li> <li>students of Fairport Beach School</li> </ul>	<ul style="list-style-type: none"> <li>soccer field</li> <li>baseball</li> </ul>
Glen Ravine Parkette	Westshore	32	<ul style="list-style-type: none"> <li>community</li> </ul>	<ul style="list-style-type: none"> <li>playground with swings, slide</li> </ul>
Beachfront Park	Bay Ridges	33	<ul style="list-style-type: none"> <li>Community</li> <li>trail users</li> </ul>	<ul style="list-style-type: none"> <li>playground with swings, slide</li> <li>access to the Waterfront Trail</li> </ul>
Alex Robertson Park	Bay Ridges	34	<ul style="list-style-type: none"> <li>community</li> <li>Durham Region</li> <li>trail users</li> </ul>	<ul style="list-style-type: none"> <li>picnic areas</li> <li>access to the Waterfront Trail</li> </ul>
Mitchell Park	Bay Ridges	35	<ul style="list-style-type: none"> <li>community</li> </ul>	<ul style="list-style-type: none"> <li>field</li> </ul>
Balsdon Park	Bay Ridges	36	<ul style="list-style-type: none"> <li>community</li> </ul>	<ul style="list-style-type: none"> <li>soccer field</li> </ul>
Commerce Park	Bay Ridges	37	<ul style="list-style-type: none"> <li>community</li> <li>students of Holy Redeemer School</li> </ul>	<ul style="list-style-type: none"> <li>playground with swings, slide</li> </ul>
Douglas Park	Bay Ridges	38	<ul style="list-style-type: none"> <li>community</li> <li>trail users</li> </ul>	<ul style="list-style-type: none"> <li>playground with swings, slide</li> <li>soccer field</li> <li>picnic areas</li> <li>access to the Waterfront Trail</li> </ul>
Kinsmen Park	Bay Ridges	39	<ul style="list-style-type: none"> <li>community</li> <li>Durham Region</li> </ul>	<ul style="list-style-type: none"> <li>tennis courts</li> <li>playground with swings, slide</li> <li>baseball diamond</li> <li>soccer field</li> </ul>
Alderwood Parkette	Bay Ridges	40	<ul style="list-style-type: none"> <li>community</li> </ul>	<ul style="list-style-type: none"> <li>green space</li> </ul>
Parkham Parkette	Bay Ridges	41	<ul style="list-style-type: none"> <li>community</li> </ul>	<ul style="list-style-type: none"> <li>green space</li> </ul>
Squires Beach	Brock Industrial	42	<ul style="list-style-type: none"> <li>community</li> </ul>	<ul style="list-style-type: none"> <li>green space</li> </ul>
Waterfront Trail	Brock Industrial Bay Ridges - Westshore - Rosebank	n/a	<ul style="list-style-type: none"> <li>community</li> <li>Durham Region</li> </ul>	<ul style="list-style-type: none"> <li>biking, walking, nature observation</li> </ul>

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The Alex Robertson Park, with its largely passive recreational uses, complements the busy Kinsmen Park which is located immediately east of Sandy Beach Road. Together, these parks provide a valuable recreational resource to the people of Pickering.

The Vision of the Mayor’s Task Force on the Pickering Waterfront [157] states “The Pickering waterfront should create a distinct sense of Place”. The Vision continues “This sense must be nurtured by not only our heritage and unique natural setting, but also by what the waterfront represents to Pickering residents and visitors of all ages and abilities”. The development of the Waterfront Trail has become an integral component of this Vision. One objective in the report aims to complete a continuous Waterfront Trail close to Lake Ontario and connecting the Liverpool Road commercial node to the western half of the Pickering waterfront. This will also provide impetus for the further development of a tourist node in the Liverpool Road area.

The Waterfront Trail provides a focus for human enjoyment of the area. Activities include nature interpretation, exercise and general enjoyment of the waterfront. According to the Task Force report, users fall into two distinct groups: those that use the Waterfront Trail for exercise and those who want to walk a small section of the Trail and enjoy the waterfront. Generally, most users by-pass the commercial node at the foot of Liverpool Road. However, the foot of Liverpool Road has long been used by visitors, including many anglers, birdwatchers and residents to enjoy the area and its natural attributes.

Completion of the principal Waterfront Trail system, following the shoreline of Lake Ontario as closely as possible, is a vision common to most stakeholders. The incorporation of various loops (e.g., Frenchman’s Bay, Alex Robertson Park), based on environmentally acceptable routes, has also been identified as priorities. Other postulated activities include improvements to facilities (e.g., washrooms, lighthouse) and habitat improvement initiatives.

### Resource Use - Parks, Beaches and Trails

As shown in Table 6.9-22, survey results indicate that the parks, beaches and Waterfront Trail are popular recreational features among people living in each of the study areas, particularly among those living nearest PNGS.

**Table 6.9-22. Frequency of Use of Parks, Beaches and Trails**

Frequency	Local Study Area (%)	Site Vicinity (%)	City of Pickering (%)
Regularly	44	23	28
Occasionally	34	37	40
Never	22	40	32

Source: [Appendix D]

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As shown in Table 6.9-23, birdwatching and nature viewing near Frenchman's Bay are most popular among Local Study Area residents but are not a widespread activities across the Site Vicinity and other areas of Pickering.

**Table 6.9-23. Frequency of Birdwatching or Nature Viewing**

Frequency	Local Study Area (%)	Site Vicinity (%)	Town of Pickering (%)
Regularly	22	8	11
Occasionally	32	24	30
Never	46	68	59

Source: [Appendix D]

To further investigate the relationship between PNGS and local recreational activities conducted near PNGS, personal interviews were undertaken during late September and early October with 53 people using local parks, beaches and trails (Appendix C). Interview results confirmed those from the sociological research [Appendix D], that the majority of those using these recreational resources were residents of the Local Study Area. However, as indicated in Appendix C, these recreational amenities also attract people from North Pickering (17%), Ajax (13%), East Toronto (2%) and other areas across Durham Region (11%). These areas are most frequently used in the spring and summer seasons, and the average length of stay is less than 2 hours. Table 6.9-24 summarizes the types of activities undertaken at the parks, beaches and trails.

**Table 6.9-24. Activities of Local Park, Beach and Trail Users**

Type of Activity	% Respondents
Walking the Dog	24
Walking / Jogging	17
Biking / Rollerblading	15
Wildlife Viewing / Bird watching	10
Unorganized Sport or Play	11
Organized Sport or Social Group Activity	7
Other (e.g., berry picking, onshore fishing, picnics, photography, sunbathing, swimming)	15

Source: [Appendix C]

The majority of those interviewed indicated that they visit these local amenities with one or two other people (64%) or in a larger group (13%). Similarly, 38% of the respondents indicated that they occasionally or always visit the park with children.

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Generally, it appears that users of local recreational amenities are satisfied with their level of use and enjoyment. The main things that respondents identified as contributing to their use and enjoyment of these recreational amenities were their location and accessibility (16%), quietness (9%), level of maintenance (16%), and the local weather (13%).

In its lay-up state, the presence and existing operations at PNGS appear to have a limited effect on recreational users. Approximately (83%) of those interviewed stated that PNGS does not affect their use and enjoyment of these local parks, beaches and trails. Only five responses (5%) indicated that the presence of PNGS, concerns about radiation or health, smell or water pollution was a main factor affecting the use and enjoyment of the local parks, beaches and trails. Other features which may lead to a lower satisfaction with these amenities include: dog and goose droppings, population, and difficulties in using the trails (4%).

In addition to residents of the area, local and regional naturalist groups were identified that operate in the Local Study and Regional Study Areas. These groups are identified in Subsection 6.9.9.3. Interviews conducted with local and regional naturalist groups indicate that the Alex Robertson Park, Frenchman's Bay and Hydro Marsh are used regularly throughout the year by their members for hiking, bird watching, conducting inventories, and monitoring flora and fauna. For example, the Pickering Naturalists, comprised of over-130 members from across Durham Region and the City of Toronto, organize visits to the area approximately 10 times per year. The Toronto Ornithological Club comprised of approximately 115 members studying birds in the Toronto area indicated that its members visit the area on a daily basis.

Naturalists are attracted to this area because it is considered to be one of the last local areas of wetland/marsh habitat. Some naturalist groups maintain contact with OPG's environmental staff to exchange field monitoring data but generally do not have any formal contact or relationship with PNGS. Interviews with group representatives indicate that the current operations of PNGS do not affect the operation of their organization or use of these areas their groups, although the views of individual members may vary.

### **Resource Use - Recreational Fishing and Boating**

PNGS and the Frenchman's Bay area are within the Western Lake Ontario fishery region. Data regarding the recreational boat fishery in this region shows a significant and steady decline in fishing effort from approximately 750,000 to 300,000 angler-hours between 1986 and 1998. Most of this effort occurs in July and August, during the annual salmon derby. The area between Humber Bay and Grimsby, Ontario accounts for over 50% of this effort. Chinook Salmon and Rainbow Trout account for over 90% of the harvest in the Western Lake Ontario Region [480].

To investigate recreational fishing and boating activities further, a recreational fisheries survey was undertaken over a 39 day period from September to November 1999 with shore anglers and boat anglers

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near PNGS (i.e., PNGS outfalls and Frenchman's Bay) and others at a control site farther away at the Rouge River. The fisheries survey confirmed a 1989 survey which observed limited recreational fishing in the fall season. The 1989 survey indicated that more anglers fish at the PNGS outfalls in early spring than in the summer and fall, with a majority of the fishing activity occurring during the winter.

The fall 1999 recreational fisheries survey [Appendix E] indicated that most of the fishing activity was shore angling (92% of all rod-hours) rather than boat angling (8% of all rod-hours). Of the shore angling sites, Frenchman's Bay was the more popular location, recording 252 rod-hours; whereas the Rouge River site recorded only 85 rod-hours. It was observed that more angling occurred at the PNGS outfalls during the week than on the weekend. At the Rouge River, there was greater angler activity during the weekend.

The fish species that were targeted by anglers during this survey were dependent upon location. At PNGS, smallmouth bass was targeted the most; while at Frenchman's Bay, salmon and trout were most commonly targeted. Anglers at the Rouge River tended not to target any particular species.

At PNGS, smallmouth bass comprised 72% of the total catch. There were three species which were caught in the greatest numbers at Frenchman's Bay: largemouth bass (23%) and common carp and chinook salmon (21% each) of the total catch. At the Rouge River, the most prevalent catch was common carp (53%). In contrast, a 1991 survey of the boat fishery for Lake Ontario indicated that 97% of the harvested species was a salmonine species (e.g., Chinook salmon).

Survey results confirm that fishing and boating near PNGS are popular among local residents but are not widespread activities among people living in the study areas.

**Table 6.9-25. Frequency of Fishing or Boating Near PNGS**

Frequency	Local Study Area (%)	Site Vicinity (%)	City of Pickering (%)
Regularly	9	3	4
Occasionally	8	6	8
Never	83	91	88

Source: [Appendix D]

In addition to the fall recreational fisheries survey, anglers were asked several questions regarding their fishing habits and given the opportunity to comment. The results of these interviews are provided in Appendix F. Results indicate that the majority of the anglers take less than 50 fishing trips on Lake Ontario per year. Those who fish near PNGS or in Frenchman's Bay tend to make more fishing trips per

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year than those who fish farther away and also tend to use fish for human consumption (6 kg/year) to a lesser extent than those who fish farther away (10 kg/year). It should be noted that one respondent reported consuming over 280 kg/year of fish from Lake Ontario, near the Rouge River. This value was not included in the overall average consumption figures.

Interviews with anglers indicate that the presence of PNGS has influenced the choice of fishing location among anglers and that areas near PNGS are attractive and popular fishing destinations. The key features that attracted anglers and boaters to the PNGS/Frenchman's Bay area were the proximity to marinas and convenience of access (31%), good probability of a catch (18%) and the type or variety of fish (18%). The key features that were unattractive to anglers and boaters were litter and water pollution (19%), presence of PNGS (16%) and geese and birds (4%).

Survey results indicate that approximately 70% of anglers fished near PNGS outfalls, along the waterfront near PNGS or in Frenchman's Bay, and only 30% fished farther away from PNGS at the Rouge River or Bluffer's Park. Interviews with anglers fishing near PNGS and Frenchman's Bay yielded the following results:

- 73% indicated that they would fish this area regardless of whether PNGS was there or not;
- 28% indicated that the presence of the outfalls makes them fish nearer PNGS; and
- 26% indicated that the presence of PNGS has resulted in choosing fishing locations farther away from PNGS (i.e., Frenchman's Bay or Rouge River rather than the outfalls).

Interviews with anglers fishing at the Rouge River yielded the following results:

- 70% indicated that they would fish this area regardless of whether PNGS was there or not; and
- approximately 59% of these anglers indicated that the presence of PNGS made them fish farther away from PNGS, and 7% indicated that the presence of the outfalls attracts them to PNGS.

### 6.9.8.2 Educational Facilities

There are 136 elementary schools and 22 high schools across Durham Region. The City of Pickering is served by two publicly funded educational systems. Within the City of Pickering, the Durham Board of Education operates 14 public elementary schools, two French immersion elementary schools, three public high schools and one adult learning centre. The Durham Region Roman Catholic Separate School Board

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serves Pickering with seven elementary schools and one high school [464]. There are 72 schools and 64 nurseries/child care facilities in the Site Vicinity study area [459]. There are eight schools and four nurseries/child care facilities located within the Local Study Area. The locations of these are shown on Figure 6.9-9. None of them is situated within the 914 m radius exclusion area; the closest is over 1 km from the PNGS fence line. Table 6.9-26 provides a summary of their key characteristics. The table also identifies the primary user groups and types of outdoor uses conducted on-site.

The Durham College of Applied Arts and Technology operates various courses in the Pickering community. As well, Pickering residents have the opportunity to benefit from post secondary educational facilities in Toronto, such as the University of Toronto, York University, and Ryerson Polytechnic University. In addition, numerous privately run training centres and educational facilities exist in the area, including specialized business and industrial training centres, Montessori schools, and private elementary schools.

Operators or administrators at eight out of the 12 educational facilities in the local study area were interviewed as part of this EA. Interview results indicate that all of the educational facilities serve local residents in the City of Pickering, particularly from the Local Study Area. Most of the schools are used by the community for a variety of social and recreational activities throughout the year. Three facility operators indicated that they have plans for expansions, such as the introduction of portables. Few schools in the Local Study Area reported having any recent contact or ongoing relationship with PNGS. Exceptions include two local schools reporting that they have arranged a visit to the Pickering Nuclear Information Centre recently, and one school reporting a partnership with OPG for a butterfly/nature appreciation program. Most school operators do not perceive there to be any influence on their operations by PNGS; however, some schools and facilities for children indicated that parents have inquired about the presence and nature of emergency plans related to PNGS [Appendix B].

### 6.9.8.3 Health and Safety Facilities and Services

PNGS is served by its own internal emergency, medical aid and fire prevention facilities. In addition, a comprehensive on- and off-site emergency response plan is in place. Security at the site is approved by the Atomic Energy Control Board. Response teams are in place and are trained and equipped to respond to potential emergencies such as fire or non-routine releases of radioactivity. Durham's Health Department and the Regional Medical Officer of Health and Pickering's health and safety service providers work co-operatively with OPG to ensure that additional support and response capability is in place.

Durham Region also convenes the Durham Nuclear Health Committee that serves as a forum for the discussion of health issues relating to PNGS and Darlington NGS. The Region, local area municipalities, OPG and citizens are represented on this committee. In the past, OPG has acted as the secretariat to this

**Table 6.9-26  
EXISTING EDUCATIONAL FACILITIES IN LOCAL STUDY AREA**

Facility Name	Local Community	Map #	Primary Users Groups	Use by Community and Outdoor Activities	Future Plans	Relationship with PN / Effect on Operations
Rosebank Road Public School	Rosebank	1	<ul style="list-style-type: none"> <li>students and staff</li> </ul>	<ul style="list-style-type: none"> <li>outdoor activities: recess play, physical education</li> </ul>	<ul style="list-style-type: none"> <li>none</li> </ul>	<ul style="list-style-type: none"> <li>occasional visits to Information Centre</li> <li>PNGS has no direct influence on operations</li> </ul>
Blaisdale Montessori School	Rosebank	43	<ul style="list-style-type: none"> <li>students and staff</li> </ul>	<ul style="list-style-type: none"> <li>outdoor activities: recess play</li> </ul>	<ul style="list-style-type: none"> <li>not known</li> </ul>	<ul style="list-style-type: none"> <li>not known</li> </ul>
Fairport Beach Public School	West Shore	2	<ul style="list-style-type: none"> <li>students and staff</li> </ul>	<ul style="list-style-type: none"> <li>outdoor activities: recess play, baseball, soccer</li> </ul>	<ul style="list-style-type: none"> <li>not known</li> </ul>	<ul style="list-style-type: none"> <li>not known</li> </ul>
Frenchman's Bay Public School	West Shore	3	<ul style="list-style-type: none"> <li>students and staff</li> </ul>	<ul style="list-style-type: none"> <li>outdoor activities: recess play, baseball, soccer</li> </ul>	<ul style="list-style-type: none"> <li>not known</li> </ul>	<ul style="list-style-type: none"> <li>not known</li> </ul>
Our Lady of the Bay	West Shore	4	<ul style="list-style-type: none"> <li>students and staff</li> </ul>	<ul style="list-style-type: none"> <li>community activities: service club meetings</li> <li>outdoor activities: track and field, soccer, and recess play</li> </ul>	<ul style="list-style-type: none"> <li>none</li> </ul>	<ul style="list-style-type: none"> <li>no ongoing relationship</li> <li>parents have expressed concerns over emergency plans</li> </ul>
West Shore Community Centre--Gingerbread Nursery School	West Shore	12	<ul style="list-style-type: none"> <li>local children</li> <li>parents and staff</li> </ul>	<ul style="list-style-type: none"> <li>outdoor activities: walks on the trail, bicycling, tobogganing</li> </ul>	<ul style="list-style-type: none"> <li>none</li> </ul>	<ul style="list-style-type: none"> <li>no ongoing relationship</li> <li>parents have expressed concerns over emergency plans</li> </ul>
Baywest Nursery School	West Shore	44	<ul style="list-style-type: none"> <li>data not available</li> </ul>	<ul style="list-style-type: none"> <li>data not available</li> </ul>	<ul style="list-style-type: none"> <li>data not available</li> </ul>	<ul style="list-style-type: none"> <li>data not available</li> </ul>
Colwell Nursery School and Kindergarten	West Shore	45	<ul style="list-style-type: none"> <li>students and staff</li> </ul>	<ul style="list-style-type: none"> <li>no outdoor activities</li> </ul>	<ul style="list-style-type: none"> <li>none</li> </ul>	<ul style="list-style-type: none"> <li>no ongoing relationship</li> </ul>
Bayview Heights Public School	Bay Ridges	5	<ul style="list-style-type: none"> <li>students and staff</li> </ul>	<ul style="list-style-type: none"> <li>community activities: general recreational use</li> <li>outdoor activities: track and field, soccer</li> </ul>	<ul style="list-style-type: none"> <li>new portables</li> </ul>	<ul style="list-style-type: none"> <li>no ongoing relationship</li> <li>PNGS has no direct influence on operations</li> </ul>
Sir John A. MacDonald	Bay Ridges	6	<ul style="list-style-type: none"> <li>students and staff</li> </ul>	<ul style="list-style-type: none"> <li>community activities: community sporting events</li> <li>outdoor activities: soccer, baseball, track and field, picnics</li> </ul>	<ul style="list-style-type: none"> <li>depends on the future enrollment</li> </ul>	<ul style="list-style-type: none"> <li>OPG monitors radiation levels on school roof</li> <li>parents have expressed concerns over emergency plans</li> </ul>



**Table 6.9-26 (continued)**  
**EXISTING EDUCATIONAL FACILITIES IN LOCAL STUDY AREA**

<b>Facility Name</b>	<b>Local Community</b>	<b>Map #</b>	<b>Primary Users Groups</b>	<b>Use by Community and Outdoor Activities</b>	<b>Future Plans</b>	<b>Relationship with PN / Effect on Operations</b>
Holy Redeemer	Bay Ridges	7	<ul style="list-style-type: none"> <li>• students and staff</li> </ul>	<ul style="list-style-type: none"> <li>• community activities: service club meetings</li> <li>• outdoor activities: soccer, baseball, track and field, recess play, picnics and nature walks on trails</li> </ul>	<ul style="list-style-type: none"> <li>• possible expansion</li> </ul>	<ul style="list-style-type: none"> <li>• annual visits to Information Centre</li> <li>• partnership with OPG for a Butterfly/Nature program</li> <li>• parents have expressed concerns over emergency plans</li> </ul>
Pickering Child Care Centre	Bay Ridges	22	<ul style="list-style-type: none"> <li>• local children</li> <li>• staff and parents</li> <li>• speech pathologist</li> </ul>	<ul style="list-style-type: none"> <li>• outdoor activities: climbing, tobogganing, wading in pools, playing in a sand box</li> </ul>	<ul style="list-style-type: none"> <li>• none</li> </ul>	<ul style="list-style-type: none"> <li>• no ongoing relationship</li> <li>• PNGS has no direct influence on operations</li> </ul>

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committee. Regional staff also participate in emergency preparedness efforts related to PNGS. A full description of the status of the emergency plans and preparedness in Durham Region and other communities is provided in Appendix E of the EA report.

In addition, the Regional Health Department answers questions from the general public on health and safety matters and operates a health information hot-line. In 1998, the Health Department estimates that it received approximately 7,000 calls, approximately 15 of which were directly related to OPG's nuclear facilities [262].

The medical care facilities in Durham Region are shown in Table 6.9-27. In addition to those in the table, the Region also has a number of urgent care facilities. Pickering is serviced by two hospitals, offering a full range of medical services and diagnostic equipment. The Ajax-Pickering Health Care has a 116 bed capacity, while the Centenary Health Centre, located just outside the Town's boundary in Scarborough, has 328 beds including a long term care facility. The Centenary Health Centre is also part of the Rouge Valley Health System.

**Table 6.9-27. Medical Care Facilities in the Region of Durham**

Organizations	Hospitals*	Total Beds	Outpatient/Emergency
Rouge Valley Health System	<i>Ajax-Pickering Health Centre</i>	116	yes
Lakeridge Health Corporation	<i>Lakeridge Health Bowmanville</i>	104	yes
	<i>Lakeridge Health Port Perry</i>	42	yes
	<i>Lakeridge Health Uxbridge</i>	30	yes
	<i>Lakeridge Health Oshawa</i>	487	yes
	<i>Lakeridge Health Whitby</i>	54	yes
Other	<i>Whitby Mental Health Centre</i>	325	yes

Note: ■ Hospitals figures from Lakeridge Health Corporation February 1999 ([www.lakeridgehealth.on.ca](http://www.lakeridgehealth.on.ca))

The Ajax-Pickering Health Centre is an acute care hospital that has served the needs of PNGS for several years. The hospital maintains trained staff in the event of potential radiological exposures to PNGS staff and/or the public. They deal with only a few PNGS staff persons per year (estimated at <10 cases) [263].

The Ajax-Pickering area, the centre has developed a new functional plan that envisages the centre as a full service hospital and a significant increase in their capacity, from approximately 7,000 sq. ft to 18,000 sq. ft. Phase I of this expansion involves the redevelopment of their ambulance/emergency areas, including the development of a dedicated area for decontamination to be comprised of two rooms totalling approximately 150 sq. ft. floor space. Construction would be complete near the end of 2001 [245].

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The City of Pickering Fire Department provides fire protection and emergency services. The department has five fire stations, the nearest being 3 km from PNGS. Pickering Fire Department and PNGS emergency response personnel train together at the Wesleyville Fire Training Facility. The City of Pickering is serviced by the 911 Emergency Response system.

PNGS maintains its own security but is assisted in its duties by the Durham Regional Police Service. In addition, the Pickering-Ajax Rescue Unit (PARU) is a volunteer organization associated with the Canadian Coast Guard. PARU provides emergency rescue services for boaters and anglers on Lake Ontario and has been operating from the Frenchman's Bay Yacht Club. PNGS has recently agreed to allow PARU's rescue boats to dock along the groynes near the PNGS-B outfall from October to May of each year. This will allow the unit to have year round access to the Lake.

To maintain safe driving conditions, roads to PNGS are plowed and maintained by the Durham Region Public Works Department and local City of Pickering crews. Snow removal service at PNGS is provided by site personnel and an on-site snow plow.

### **6.9.9 Description of Existing Conditions: Municipal Finance and Administration**

Municipal finance and administration encompasses the financial dimension of all municipal services and the general administrative function of the municipal government. To the City of Pickering, the ability to gain funding from appropriate sources, including OPG, and to manage its financial and administrative affairs has a direct bearing on the level and quality of services which it is able to provide. This ultimately influences the style and quality of life in the community. Property taxes are one of the largest sources of revenue for the City of Pickering. Survey results indicate that the contribution of PNGS to revenues for the City of Pickering is important. Approximately 73% of Pickering residents feel that PNGS contributes a great deal or somewhat to the City's revenues [Appendix D].

Historically, Ontario Hydro did not pay property taxes to the City of Pickering, rather the crown corporation made "Payments-in-lieu" of taxes (PILs). This was because a junior level of government such as a municipality could not levy property taxes on provincial or crown corporation properties. Since 1997, as a result of the reorganization of Ontario Hydro into five corporations, there has been new legislation passed by the Ontario legislature that influences the handling of PILs in Ontario.

Currently, OPG is required to pay full property, corporate and other taxes on the same basis as the private sector. The amount of taxes to be paid by OPG is governed by the *Assessment Act*. The *Assessment Act* indicates that the assessed value of generating station buildings is to be determined on the basis of inside ground floor area for the actual building or structure housing the equipment and machinery. The current legislation guarantees that a municipality will receive taxes from OPG that are not less than the amount it received for municipal and school board purposes in 1998 for the same buildings and structures (*Municipal Act*, s.19.0.1(2)).

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The assessment of OPG's property determines the amount of monies to be paid to the City. In the case of PNGS, the assessment is made for all properties at the facility rather than on a station by station basis, or by corporation. The assessment function is handled by the Ontario Property Assessment Corporation (OPAC) which has assumed this responsibility from the Ministry of Finance.

In 1998, OPG paid the City of Pickering approximately \$4 million in PILs [467]. The municipality, retained approximately \$2.8 million of the amount paid by OPG for its own purposes. Approximately \$1.2 million represented the Region's share of the monies paid by OPG. The PIL revenue from PNGS represented 7% of the total revenue collected by the municipality for its own purposes [467].

### **6.9.10 Description of Existing Conditions: Residents and Communities**

This section is largely based on information acquired from sociological research [Appendix D], and telephone interviews [Appendix A and B]. Other secondary source information was collected and analyzed as required.

A detailed description of the methodology for the sociological research is provided in Section 6.9.7 and Appendix D. A number of interviews were also conducted with selected social and community organizations, and naturalist groups that operate in, or have an interest in the Pickering community. This was also done to obtain information regarding the community and to get people's views on how the operation of PNGS and the return to service project may affect their daily lives or their participation in various aspects of community life.

#### **6.9.10.1 Community Character**

Community character refers to the unique or distinctive qualities of a community. These qualities can be physical in nature (i.e., land uses, geographic/environmental features); economic (i.e., types of business activities), and socio-cultural (i.e., population characteristics, ways of life, etc.). While there are several distinct communities within the City of Pickering, the area south of Highway 401 is distinct from other areas in the City, due to its proximity to Lake Ontario, its physical separation from the City centre by Highway 401 and railways, its mix of residential and industrial development, its unique recreational amenities, and its historic and ongoing ties with PNGS.

Survey research helped to identify those characteristics of the Local, Site Vicinity and Pickering Study Areas that are most liked and disliked by residents. Tables 6.9-28 and 6.9-29 summarize these results. Comparable data from a 1991 survey for the City of Pickering is provided where available [268]. These data indicate that PNGS is an important feature that defines community character in the study areas, but that it is not the dominant one.

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Survey results indicate the visual/aesthetic effect of PNGS is important to local residents. Between 42% (Site Vicinity) and 47% (Local Study Area) of respondents indicated that PNGS has had an effect on the visual quality of the area [Appendix D]. Because PNGS is a large industrial facility, it can be seen from many locations. It is the most visible component of the Brock Industrial Area, where much of the manufacturing industries in the City of Pickering are located. This area is designated for industrial development and includes several light industrial parks (e.g., Sandy Beach Industrial Park, Squire's Beach Business Park, and Durham Woods Industrial Park). Continued growth in the industrial sector of Pickering's economy will likely result in a strengthening of the industrial nature of the Local Study Area and increased potential for pollution, noise, traffic, and congestion.

Overall, the presence of PNGS is perceived by more than half of the survey respondents to have had a significant influence (both positive or negative) on the overall image of the City of Pickering [Appendix D]. The prominent role of PNGS in shaping community character and its image is enhanced by the presence of an atomic symbol on the City of Pickering's coat of arms.

This Local Study Area is also characterized by a number of established residential neighbourhoods, each with its own ratepayers organization, including Rosebank, Westshore and Bay Ridges neighbourhoods. These neighbourhoods are characterized by low density housing in the form of single-family dwellings, with an increasing number of multiple residential developments along major arterial roads. These neighbourhoods were referred to as 'planned communities' in the 1960s. Bay Ridges and West Shore were the first such 'planned communities' in the City of Pickering, but others were common in many areas across the Toronto region (e.g., Don Mills).

**Table 6.9-28. Most Liked Features or Attributes**

Feature or Attribute	1999			1991
	Local Study Area (%)	Site Vicinity (%)	City of Pickering (%)	Town of Pickering (%)
Peaceful/Quiet	29	26	27	28
Convenient/Close to All Amenities	24	28	21	26
Nice/Friendly People	20	20	20	16
Country/Small Town Atmosphere	17	13	24	22
Environment/Clean	11	14	12	20
Safe Area	11	6	8	15
Close to the Lake	10	3	3	8
Family Oriented Community	6	9	5	n/a
Close to the City	4	4	5	12
Other	9	7	6	14
Nothing	3	3	5	n/a
Don't know	1	1	1	3

Source: [Appendix D]

Percentages sum to more than 100% because two answers were accepted. The symbol n/a indicates that comparable data was not available.

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**Table 6.9-29. Most Disliked Features or Attributes**

Feature or Attribute	1999			1991
	Local Study Area (%)	Site Vicinity (%)	City of Pickering (%)	Town of Pickering (%)
Nothing	21	23	25	17
Nuclear Plant – General	18	8	12	11
Too Much Traffic	14	9	13	31
Pollution, Garbage, Noise	9	7	7	9
Safety / Crime	7	8	6	
Congestion/Too Much Development	6	10	6	17
Transportation Services, Poor Bus Routes and Service	6	7	6	
Problem with a Municipal Service	4	5	8	
Too Far from the City	3	4	3	
Boring – Not Enough Activities	3	2	2	
Not Enough Conveniences Close By	2	6	8	
Other	11	9	10	30
Don't Know	12	13	11	7

Source: [Appendix D]

Percentages sum to more than 100% because two answers were accepted. The symbol n/a indicates that comparable data was not available.

Table 6.9-30 compares housing tenure for the Local Study Area, Site Vicinity and the City of Pickering areas. The “established neighbourhood” nature of the Local Study Area is evidenced by the age of the housing stock, where the vast majority of the housing was constructed in the 1960s and 1970s as compared to newer neighbourhoods in central Pickering, Whitby, Ajax, and Scarborough that were developed in the 1980s and 1990s.

**Table 6.9-30. Housing Tenure (1996)**

Categories	Local Study Area		Site Vicinity		City of Pickering	
	#	%	#	%	#	%
Before 1946	175	3	1,760	2.9	975	4.1
1946-1960	760	13.3	5,620	9.2	1,640	6.9
1961-1970	2,485	43.1	8,455	13.9	3,435	14.5
1971-1980	1,330	23	12,395	20.3	4,605	19.5
1981-1990	760	13.2	26,685	43.8	10,040	42.4
1991-1996	255	4.4	6,000	9.9	2,970	12.6
<b>Total</b>	<b>5,765</b>	<b>100</b>	<b>60,915</b>	<b>100</b>	<b>23,665</b>	<b>100</b>

Source: [461]

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At present, new developments are being located in the small remaining undeveloped areas within these neighbourhoods, with some new developments providing mixed residential and commercial uses. For example, a proposed development near the Eastshore Marina, the Marine Village and Canoe Landing has been proposed. Other small areas within these neighbourhoods are being redeveloped from older housing units to newer townhouses or multiple unit dwellings. However, the strong housing demand in Pickering has prompted builders to increase supply with much of the new development occurring north of Highway 401. The neighbourhoods in the Local Study Area are served by a number of small local shopping and service plazas, while major regional shopping facilities are located immediately north of Highway 401.

Agriculture is not a significant land use within the Local or Site Vicinity Study Areas. Agriculture represents the most significant land use throughout the most of the northern portions of the City of Pickering and Regional Municipality of Durham. Agriculture has historically been an important component of the local economy, environment and social fabric. The Durham Region Official Plans designate a large portion of the City as Permanent Agricultural Preserve and Agricultural Policy areas respectively and restricts industrial development in these areas. In 1996, the Province announced its intent to sell the Duffin-Rouge Agricultural Preserve lands to individual landowners with conditions to protect and preserve natural features as agreed between the Province and municipalities. The ownership patterns of active farmland in the City are variable, including private owners or farm operators, developers/investors and government agencies such as the Ontario Realty Corporation.

Frenchman's Bay, located to the west of PNGS, is the second most distinctive feature within the Local Study Area. The lands and ravines associated with the Bay provide the greatest concentration of recreational amenities in the City of Pickering. The river mouths and nearshore area along Lake Ontario in the vicinity of PNGS are also used for recreational fishing and boating. PNGS contributes to these recreational activities by maintaining over 120 hectares of land immediately north of PNGS as natural areas and parklands through lease agreements with the City of Pickering.

### 6.9.10.2 Resident Use and Enjoyment of Property / Satisfaction with Community

All aspects of neighbourhood and community life will determine whether a resident is satisfied or dissatisfied with their neighbourhood or community. Tables 6.9-28 and 6.9-29 identified the attributes that people liked or disliked most in their community. These data indicate that the most liked features across all study areas were the peaceful/quiet nature of their neighbourhoods (26 to 29%) and their convenient locations (21 to 28%). One quarter of the respondents (21 to 25%) could not identify a single attribute of their communities that they disliked. Across the study areas, PNGS was identified as the feature that was liked least by 8% (Site Vicinity) to 18% (Local Study Area) of the survey respondents. Traffic showed similar results, identified by 9% (Site Vicinity) to 14% (Local Study Area) of the survey respondents as a feature most disliked in the area.

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These data support the notion that when residents' use or enjoyment of property becomes directly affected by some form of physical disturbance (i.e., aesthetics, excessive noise, dust, debris, traffic) people's satisfaction with neighbourhood and community will tend to decline. Table 6.9-31 indicates the proportion of respondents that perceive a link between PNGS and physical disturbances that are experienced in their community. The table identifies those respondents who considered PNGS as contributing 'a great deal' or 'somewhat' to the local situation. The visual intrusion of PNGS is clearly the most important disturbance identified by residents across the study areas as influencing the use and enjoyment of their property. Traffic generated by PNGS, and its effects on road quality, is also perceived as an important disturbance by residents in the Local Study Area.

**Table 6.9-31. Perceived Contributions of PNGS to Physical Disturbances**

Local Situation	Local Study Area (%)	Site Vicinity (%)	City of Pickering (%)
Visual Quality of the Area	47	42	44
Traffic on Local Roads	35	28	33
Road Quality	23	20	23
Noise, Dust and Other Debris	21	22	24
Accessibility	18	19	20

Source: [Appendix D]

Percentages do not total 100% as this table presents results from those who responded that PNGS contributes "a great deal" and "somewhat".

Key community issues of concern to residents of the Local, Site Vicinity and the City of Pickering Study Areas are summarized in Table 6.9-32. Apart from the physical attributes of PNGS and its related disturbances, the legacy of its operations and the simple fact that PNGS is a nuclear facility make it an important issue for approximately 24% (Local Study Area), 14% (Site Vicinity), and 20% (City of Pickering) of respondents. As was the case in the 1991 survey [268], no single issue dominates the public agenda. In 1991 for example, 36% of the respondents in the City of Pickering named garbage disposal and landfill as their 'top issue', followed by traffic congestion (23%), taxes (18%), and PNGS (15%).

Survey results (see Table 6.9-33) also indicate that PNGS is perceived by 42% (Site Vicinity) to 54% (Local Study Area) of residents as a "thing or issue" that affects their sense of health, safety, or well-being. Respondents who mention PNGS as affecting their health, safety or well-being also tend to link PNGS to environmental issues in their community.



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**Table 6.9-32. Key Community Issues**

Issues	Local Study Area (%)	Site Vicinity (%)	City of Pickering (%)
Safer Community/ Policing/ Crime	17	23	16
Education	12	13	11
Economy	12	11	9
Nuclear Station - General	12	8	11
Environment	10	5	6
Nuclear Station - Safety	6	4	6
Health Care/Hospitals	6	5	5
Nuclear Plant - Leaks	6	2	3
Youth/Drugs/Lack of Facilities	5	7	6
Too Much Development	4	4	7
Too Much Traffic/Speeding	4	3	3
Pollution/Garbage	3	3	3
Property Taxes/Housing	3	3	2
Public Transportation	3	2	3
Merger of Pickering and Ajax	2	3	1
Poor/Homeless	2	6	2
Highway 407 Extension	1	1	4
Government	1	2	1
Other	7	9	14
None	11	9	10
Don't know	10	11	11

*Source: [Appendix D]  
Percentages sum to more than 100% because two answers were accepted.*

**Table 6.9-33. Community Issues or Things Affecting Health Safety or Well-Being**

Thing or Issues	Local Study Area (%)	Site Vicinity (%)	City of Pickering (%)
Nuclear Power Plant	54	42	44
Pollution - Air, Sewage, Garbage	10	13	12
Traffic	8	6	9
Water Supply - Safety, Quality	6	10	8
Community Safety/Crime	5	7	6
Development/Larger Population	3	2	5
Health Care/Hospitals	3	3	3
Environment	2	3	2
Transportation Services	1		
Other	7	7	7
Nothing	15	15	18
Don't know	10	9	9

*Source: [Appendix D]  
Percentages sum to more than 100% because two answers were accepted.*

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Notwithstanding the significance of PNGS as an issue within the community, it does not tend to dominate the daily lives of individuals. In terms of residents' awareness of PNGS, very few people think about PNGS very often (see Table 6.9-34). Approximately 28% (Site Vicinity) to 35% (Local and Pickering Study Areas) think about the fact that they live near PNGS "often" or "very often." As can be anticipated, people living closest to PNGS and areas where the facility is most visible (i.e., the local and Pickering centre areas) tend to think of PNGS more frequently than others in northern parts of Pickering or Scarborough and Ajax/Whitby. Women (37%) think of PNGS more often than men (22%), as do respondents with a higher number of children.

**Table 6.9-34. Awareness of PNGS**

Category	Local Study Area (%)	Site Vicinity (%)	City of Pickering (%)
Very often	15	11	13
Often	20	17	22
Not very often	39	44	40
Never	26	28	25

Source: [Appendix D]

The results of a survey as to the resident's level of satisfaction with their community are provided in Table 6.9-35. The level of satisfaction with local neighbourhoods across the study areas is high and relatively uniform. A comparison with the results of a 1991 survey for a similar question indicates that the level of satisfaction since 1991 across the City of Pickering has not changed substantially and has improved slightly. In 1991, survey respondents from the City indicated that they were very satisfied (66.8%), somewhat satisfied (27.1%), not very satisfied (3.5%), and not at all satisfied (2.5%) with their neighbourhood [268].

**Table 6.9-35. Levels of Satisfaction With Neighbourhood**

Level of Satisfaction	Local Study Area (%)	Site Vicinity (%)	City of Pickering (%)
Very Satisfied	74	70	72
Somewhat Satisfied	23	26	22
Not Very Satisfied	2	3	3
Not at all Satisfied	1	1	3

Source: [Appendix D]

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### 6.9.10.3 Community Cohesion and Culture

#### Role of Social and Community Organizations

Social and community organizations contribute to the lifestyle of their communities by promoting social interaction, integration and mutual support. They also serve as a means for community expression, thereby influencing the 'self image' of community members, the organization, and the community culture. Table 6.9-36 presents the results of the survey regarding the activities of residents in the study areas. These data indicate that residents across the study areas are active in social and community activities.

**Table 6.9-36. Participation in Selected Social and Community Activities**

Type of Local Activity	Frequency of Participation	Local Study Area (%)	Site Vicinity (%)	City of Pickering (%)
Participation in Sports / Community Service Organizations	<i>Regularly</i>	28	34	34
	<i>Occasionally</i>	25	26	25
	<i>Never</i>	47	40	41
Volunteer Work for Charitable Organization / Event	<i>Regularly</i>	19	21	20
	<i>Occasionally</i>	25	32	31
	<i>Never</i>	56	46	49
Attendance at Events Organized by Local Government	<i>Regularly</i>	10	4	8
	<i>Occasionally</i>	38	35	38
	<i>Never</i>	52	61	54

Source: [Appendix D]

Interviews were undertaken with a number of social and community organizations that operate in the Pickering community and in, some cases, across Durham Region and the GTA. Table 6.9-37 lists selected social and community organizations that were contacted as part of this EA. These groups serve the residents in the City of Pickering, Town of Ajax, and other areas of Durham Region.

**Table 6.9-37. Selected Social and Community Organizations**

Type	Selected Organizations Operating in the Pickering-Ajax Area
Social Service	<ul style="list-style-type: none"> <li>• Big Brothers Association of Ajax-Pickering</li> <li>• Big Sisters Association of Ajax-Pickering</li> <li>• Lions Club of Ajax</li> <li>• The United Way</li> <li>• Humane Society</li> </ul>

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Table 6.9-37. Selected Social and Community Organizations (*continued*)

Type	Selected Organizations Operating in the Pickering-Ajax Area
Health and Safety	<ul style="list-style-type: none"> <li>• St. John's Ambulance</li> <li>• Heart and Stroke Foundation</li> <li>• Red Cross</li> <li>• Canadian Cancer Society</li> </ul>
Arts and Recreation	<ul style="list-style-type: none"> <li>• Pine Ridge Arts Council</li> <li>• Various sports leagues for youth, adults and disabled residents</li> </ul>
Naturalist Groups	<ul style="list-style-type: none"> <li>• Durham Region Field Naturalists</li> <li>• The Pickering Naturalists</li> <li>• Toronto Ornithological Club</li> <li>• Toronto Field Naturalists</li> </ul>
Environmental / Advocacy	<ul style="list-style-type: none"> <li>• Pickering-Ajax Citizens Together For The Environment (PACT)</li> <li>• Save the Rouge</li> <li>• Durham Nuclear Awareness (DNA)</li> <li>• Energy Probe</li> </ul>
Ratepayers	<ul style="list-style-type: none"> <li>• Pickering East Shore Community Association</li> <li>• Fairport Beach Ratepayers Association</li> <li>• Liverpool West Community Association</li> <li>• Westport Beach Neighbourhood Association</li> <li>• West Rouge Community Association</li> <li>• Frenchman's Bay Watch Environmental Committee</li> </ul>

Most of the social service, health and safety, arts, and recreation related organizations have large memberships (150 to 300 members) from across Durham Region, relying heavily on fundraising events and volunteers for their operations. Most are affiliated with broader provincial and national organizations. Interviews conducted with representatives from 10 of these organizations and with PNGS staff indicate that PNGS maintains strong links with most of these local community groups and has supported many of them through the charitable works of its employees and through its ongoing outreach and Corporate Citizenship programs. PNGS is credited as having a positive influence by those organizations which have been recipients of financial aid, sponsorships, or other support from PNGS, have many employees as members, or maintain regular contact with PNGS. Others have indicated that PNGS has had no effect, either positive or adverse, on their ongoing operations [Appendix B].

### Role of PNGS

As a member of the community, PNGS and its employees strive to support community cohesiveness through a variety of activities. In 1998, PNGS's employees contributed to the "Generating Hope Campaign" and the Christmas Drive in support of the Salvation Army, a local food bank and shelter. PNGS employees help organize and participate in a variety of local events (e.g., Canada Day celebrations, parades, sporting teams and events). PNGS's own programs helped to provide financial or in-kind support to a wide variety of community initiatives including support to: local schools, recreational projects, sports teams/leagues, hospital fundraising events, many social/community

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organizations, and the Pickering Zoo program. PNGS also involves itself with local organizations such as the Ajax/Pickering Board of Trade, St. John's Ambulance, Safe Communities of Pickering and Ajax (SCOPA), the Millennium Trail Committee and the Frenchman's Bay Watershed Rehabilitation Project.

### Characteristics of Local Residents

The demographic characteristics of residents, including their length of residency, are useful indicators of the level of community cohesion. Experience indicates that the longer people have lived in their communities the more likely they are to take an active role in community life. Table 6.9-38 summarizes the results of the survey conducted for this EA and shows that the Local Study Area has a substantially greater proportion of long time residents (i.e., those >21 years at their present address) than the Site Vicinity or City of Pickering Study Areas. These data support the characterization of this area as a well established and cohesive community.

**Table 6.9-38. Length of Residency (Years at Present Address)**

Category	Local Study Area (%)	Site Vicinity (%)	City of Pickering (%)
Less than one year	9	5	6
1 to 2 years	11	18	13
3 to 5 years	18	21	21
6 to 10 years	21	23	22
11 to 20 years	20	24	27
21 or more years	21	10	10

Source: [Appendix D]

### Treaties and Aboriginal Claims

As described in Section 6.9.4, five First Nation communities have been identified by OPG as having a potential interest in the return to service project because of their proximity to PNGS or relationship to the study areas through Treaties. There are four Treaties with First Nations that may be relevant to the Local and Regional planned land use and socio-economic conditions study areas: the 1787 Johnson-Butler Purchase Treaty, the 1788 Gunshot Treaty, the Toronto Purchase of 1787 and 1805, and the 1923 Williams Treaty [356]. These are briefly described below.

#### *1787 Johnson-Butler Purchase Treaty*

The land cessions taken in 1787 and 1788 under the Johnson-Butler Treaty resulted in the British Government taking control of the north shore of Lake Ontario from the Trent River to the Etobicoke River. Johnson and Butler did not keep good records and the acquisition of the land was not clear and clean [356].

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### *The Gunshot Treaty of 1788*

The Gunshot Treaty of 1788 is reported to have led to the surrender of the north shore lands of Lake Ontario by the Mississauga First Nation from Toronto east to the Bay of Quinte as far inland as a gunshot could be heard. This area is subject to a claim for damages by the Mississauga First Nation with respect to certain lands and rights to fish, hunt and trap the area.

### *Toronto Purchase of 1787 and 1805*

The land cessions taken in 1787 and 1805 under the Toronto Purchase are reported to have led to the acquisition of lands in the Toronto area. The Mississaugas of the New Credit First Nation claims that the 1787 purchase and the 1805 surrender of lands explicitly excluded the Toronto Islands from the surrender. This claim is the subject of ongoing discussion and independent research.

### *Williams Treaty, 1923*

Two treaties were settled in 1923 by a Commission, chaired by A.S. Williams. The two treaties are both referred to as the Williams Treaty. They are essentially identical except that one (October 31, 1923) is between the Government and the Chippewa Indians (Christian Island, Georgina Island and Rama) and the other (November 15, 1923) is between the government and the Mississauga Indians (Rice Lake (Hiawatha), Curve (Mud) Lake, Scugog Lake and Alderville).

The Williams Treaty addresses specifically the fishing, hunting, and trapping rights as well as all other rights to two large tracts of lands. The southern tract of about 2,500 square miles runs along the north shore of Lake Ontario including the lands east of PNGS to the Bay of Quinte and north to Lake Simcoe and Rice Lake to the Trent River.

The northern tract encompasses about 17,600 square miles roughly from the northeasterly shore of Georgian Bay at the mouth of the French River to the north shore of Lake Simcoe including portions of Hastings and Peterborough Counties and then to the Ottawa River. This is considered to be the northern hunting ground.

## **6.9.11 Socio-Economic Conditions - Interactions Carried Forward**

The preceding sections have described the existing socio-economic conditions as they apply to population and economic base; community infrastructure, community services, municipal finance and administration; and residents and communities. This information is used in Section 7.2 to assess the likely environmental effects of the return to service of PNGS-A.

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The following physical works and activities are carried forward to Section 7.2 for further assessment:

- workforce (project-related employment);
- purchasing and payroll;
- municipal servicing requirement;
- station administration; and
- attitudes towards the station (as represented by malfunctions and accidents and historical (legacy) issues.

In addition to these likely interactions, environmental effects may occur as a result of people's response to environmental changes caused by the project such as emissions, environmental quality changes and nuisance effects. These likely interactions are also carried forward to Section 7.2 for further assessment.

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### 7.2.8 Assessment of Environmental Effects: Socio-Economic Conditions

This section describes the likely environmental effects, mitigation and residual effects on socio-economic conditions (following mitigation) that could reasonably be expected as a result of the return to service of PNGS-A.

The determination of potential residual effects is based on the assessment methodology described in Section 7.1 of the Environmental Assessment document. As noted in the EA parent document, first the existing socio-economic conditions were characterized. Secondly, considering the project as it is described in Section 4, likely and/or possible project-environment interactions were defined within the framework of the socio-economic conditions (i.e., population and economic base, community infrastructure, community services, municipal finance and administration, and residents and communities). Third, each likely project/socio-economic interaction was evaluated either individually or collectively, to determine if it was likely to result in an environmental effect. If an effect was identified, the assessment identified the nature of measures necessary to eliminate or reduce the severity or otherwise manage the effect the assessment than identifies the residual effect remaining after mitigation.

Potential interactions between the project and socio-economic conditions are shown in Table 7.2-1 in the Environmental Assessment document. The results of each interaction are evaluated below in terms of likely effects associated with the project, measures that might be appropriate to mitigate adverse effects, and residual effects remaining after mitigation. Table 7.2.8-1 describes the criteria that were considered in the evaluation of likely effects.

The analytical tools or methods that were relied upon for this assessment included: secondary source data review/analysis; economic modelling; sociological research [Appendix D], including personal and telephone interviews [Appendix B and F]. Refer to Section 6.9 and the Appendices for details.

**Table 7.2.8-1. Criteria Used in Evaluation of Effects on Socio-Economic Conditions**

Effects Indicator	Evaluation Criteria
Population and Economic Base	<ul style="list-style-type: none"> <li>• Total values and incremental increase over baseline population, employment, ICI floor space associated with PNGS-A</li> <li>• Percentage of municipal averages</li> <li>• Self assessment by municipal officials and others potentially affected</li> <li>• Professional Judgement</li> </ul>
Community Infrastructure	<ul style="list-style-type: none"> <li>• Total values and incremental increase over baseline housing stock levels associated with PNGS-A</li> <li>• Percentage of municipal averages</li> <li>• Relative performance in housing prices in selected municipalities</li> <li>• Self assessment by municipal officials and others potentially affected</li> <li>• Magnitude of changes relative to baseline</li> <li>• Professional Judgement</li> </ul>



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Effects Indicator	Evaluation Criteria
Community Services	<ul style="list-style-type: none"> <li>• Magnitude of changes relative to baseline</li> <li>• Self assessment by municipal officials and others potentially affected</li> <li>• Professional Judgement</li> </ul>
Municipal Finance and Administration	<ul style="list-style-type: none"> <li>• Magnitude of changes relative to baseline</li> <li>• Self assessment by municipal officials and others potentially affected</li> <li>• Professional Judgement</li> </ul>
Residents and Communities	<ul style="list-style-type: none"> <li>• Magnitude of changes relative to baseline</li> <li>• Self assessment by those potentially affected</li> <li>• Professional Judgement</li> </ul>

### 7.2.8.1 Likely Effects on Population and Economic Base

#### Project/Environment Interactions

Likely effects of the project on population and economic base are related to the following physical works and activities which remained after the further screening described in Section 6:

- a) workforce (project-related employment);
- b) purchasing and payroll; and
- c) attitudes towards the station (as represented by malfunctions and accidents and historical (legacy) issues).

In addition to these likely interactions between the project and population and economic base, the socio-economic conditions in the study areas may change as a result of people's response to the environmental changes caused by the project such as emissions, environmental quality changes and nuisance effects.

The project/environment interactions associated with the above physical works and activities are assessed in the following paragraphs.

#### Likely Environmental Effects (Population and Economic Base)

The likely environmental effects that will be examined include effects on population, employment, business activity, including those on commercial fishing and environmental resource/quality related businesses, and effects on local economic development. Effects in each of these areas are evaluated below.

For the purposes of the socio-economic analysis relating to employment and business activity, both the progressive return to service period (i.e., 2001 to 2003) and the period over which all four reactors operate together (i.e., 2004 to 2011) are considered. This ensures that the analysis takes into account the

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peak in employment, payroll and purchasing activities, as well as the typical conditions that are likely to occur. The effects of a workforce decline that can be anticipated after the reference date of 2011 are discussed in Chapter 12.

### Population

The return to service project is likely to increase the number of persons residing in the Regional Study Area that are associated with or dependent on project-related employment and will serve to maintain the social structure and stability of communities across Durham Region.

In its lay-up state (i.e., 1998), PNGS-A was associated with 1,175 persons across Durham Region, which was approximately 0.24% of the Region's population. During the short term (i.e., 2001-2003) it is projected that PNGS-A would be associated with a population of between 5,544 and 7,446 persons across Durham Region. Over this period, PNGS-A would, on average, be associated with 1.1% of the Region's population, or five times the 1998 average. The increase in PNGS-A associated population over 1998 levels is largely due to the shift of employees currently working at the site on other duties unrelated to the operation of PNGS-A to active duty at PNGS-A. Because the return to service activities will require additional staff to implement the necessary improvements at PNGS-A, the peak in the population associated (i.e., 7,446) with PNGS-A is anticipated in 2001. Table 7.2.8-2 summarizes the associated PNGS-A population in the context of municipal population projections during the short term.

**Table 7.2.8-2. PNGS-A Associated Population in the Context of Municipal Population Projections (return to service, 2001 - 2003)**

Municipality	Lay-Up State (1998)		Progressive return to service Period (2001-2003)					
	1998	PNGS-A as % of Municipal Population	2001 #	2002 #	2003 #	PNGS-A Average	Municipal Average	PNGS-A as % of Municipal Average
Ajax	240	0.36%	1,485	1,166	1,111	1,254	78,489	1.6%
Brock	19	0.16%	115	89	85	97	12,525	0.8%
Clarington	248	0.39%	1,610	1,247	1,191	1,349	78,172	1.7%
Oshawa	235	0.17%	1,453	1,127	1,077	1,219	146,702	0.8%
Pickering	152	0.18%	937	730	700	789	91,264	0.9%
Scugog	34	0.17%	213	166	159	180	21,176	0.8%
Uxbridge	23	0.14%	144	112	107	121	18,325	0.7%
Whitby	224	0.29%	1,488	1,161	1,114	1,254	92,633	1.4%
Durham	1,175	0.24%	7,446	5,797	5,544	6,263	539,286	1.2%

Source: [220]

Ongoing operations at PNGS-A over the period 2004-2011 would, on average, be associated with a population of 5,429 or 0.88% of the Region's population. Table 7.2.8-3 summarizes the associated

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PNGS-A population in the context of municipal population projections during the operations phase. Overall, the area municipalities with the strongest association to PNGS-A will be Clarington, Ajax and Whitby, where PNGS-A associated population would comprise between 1.0% and 1.25% of their respective municipal populations.

This analysis confirms that the return to service project would increase the number of persons residing in Durham Region who are associated with or dependent on project-related employment, and consequently the return to service of PNGS-A will serve to maintain the social structure and stability of communities across Durham Region. However, due to the diversified economy in Durham Region and across the GTA, the employment opportunities generated by the return to service project are not anticipated to attract new residents into Durham Region; rather it is anticipated that new staff would be hired from the existing labour force within Durham Region and the GTA. These individuals are more likely to commute daily to the site, rather than relocate. Therefore, overall population levels are not anticipated to change as a result of the project.

**Table 7.2.8-3. PNGS-A Associated Population in the Context of Municipal Population Projections (Operations, 2004 - 2011)**

Municipality	Lay-Up State (1998)		Operations (2004-2011)	
	1998	PNGS-A as % of Municipal Population	PNGS-A Annual Average	PNGS-A as % of Municipal Average
Ajax	240	0.36%	1,064	1.16%
Brock	19	0.16%	82	0.60%
Clarington	248	0.39%	1,186	1.25%
Oshawa	235	0.17%	1,020	0.66%
Pickering	152	0.18%	687	0.65%
Scugog	34	0.17%	155	0.66%
Uxbridge	23	0.14%	103	0.50%
Whitby	224	0.29%	1,131	1.01%
Durham	1,175	0.24%	5,429	0.88%

Source: [220]

Experience with other major projects also indicates that population levels may be affected if residents choose to leave their community as a direct result of the undertaking, and growth is not sufficient to offset this loss. Sociological research indicates that individuals or groups tend to conduct a mental 'cost-benefit' analysis of what they are satisfied or dissatisfied with in their communities and that there is a tendency to tolerate certain conditions until a threshold is reached [413]. At such a time, individuals or groups may become more motivated to leave and find a new location with more positive and satisfying features. This potential exists with the return to service project because of the legacy of operations at PNGS and an expectation on the part of some residents that their health, safety and well-being may be affected.

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Notwithstanding the importance of PNGS as an issue in the study areas [Appendix D] and its influence on people's feelings of personal security, a measurable change in overall population levels of communities within the study areas is not anticipated as a result of the return to service project, because as discussed in Subsection 7.2.8.5, almost all respondents are satisfied with living in their neighbourhood; and three-quarters of them are 'very satisfied'. Satisfaction levels also appear to have improved in the City of Pickering since 1991 over a time when a substantial amount of publicity had been given to decreased performance at PNGS, spills and abnormal operating events (e.g., loss of coolant accident, copper emissions from condenser tubes, tritium releases). This conclusion is also supported by a review of mobility data for the various study areas and other communities in southern Ontario that do not host a nuclear generating station.

Table 7.2.8-4 presents data from the 1991 and 1996 census [462, 461] and indicates that people living in the study areas have not been moving into or out of their communities at a disproportionate rate when compared with the other communities sampled. The percentage of 'non-movers' (i.e., people who have not moved within the last year or within the last five years) has been increasing across all study areas and most other communities sampled. In fact, the data shows that areas nearest PNGS (i.e., Local and Site Vicinity Study Areas) have been more stable, in terms of population turnover, than the other communities examined. These data suggests that in the past, there has not been a tendency for people in close proximity to PNGS to move out, even though PNGS had been operating over this time period.

However, some individuals who experience a change in their feelings of personal security may still choose to voluntarily leave their communities. Sociological research was undertaken to test whether or not people in the study areas are more likely to change their decision to live in the community as a result of the return to service project. Approximately 72% of the respondents in the Local Study Area, 71% in the Site Vicinity, and 70% in the City of Pickering indicated that they were not likely to change their decision to live in the community because of the project. Of those who indicated that the return to service project may change their decision to live in their community, 10% or fewer of all respondents indicated a strong intention to move within the next two years (i.e., those that indicated that they were "very likely" to move). Residents in Scarborough (10%), Pickering Centre (10%) and the Local Study Area (9%) indicated the strongest intention to move [Appendix D].

This analysis indicates that few people would be motivated to move, only those who are already "not at all satisfied" with their neighbourhoods and are highly mobile (e.g., those in a favourable housing, financial or employment position) may decide to move. Given the high level of satisfaction present in the study areas, it is projected that at most, 1% of total population in the local and Site Vicinity study areas, and up to 3% across the Town of Pickering may decide to move. However, because people do not always act on their intentions, actual out-migration of residents because of the project would likely be minimal.

These values fall well within the typical percentage of "movers" that can be expected within the study areas (i.e., 10% Local Study Area, 11% Site Vicinity and 12% City of Pickering), and are also below the

**Table 7.2.8-4**  
**MOBILITY STATISTICS FOR STUDY AREAS AND OTHER COMMUNITIES**

	Study Areas						Other Selected Communities									
	Local		Town of Pickering		Site Vicinity		City of Scarborough		City of Burlington		Town of Newmarket		City of Brantford		City of Mississauga	
	1991	1996	1991	1996	1991	1996	1991	1996	1991	1996	1991	1996	1991	1996	1991	1996
Population	18,995	17,629	73,868	79,136	195,432	201,618	520,664	558,960	129,038	136,976	44,844	57,125	231,621	268,251	461,614	544,382
% Movers (1 year ago)	14	10	14	12	15	11	16	14	13	13	20	15	17	15	18	15
% Movers (5 years ago)	44	36	59	42	58	42	48	46	47	41	58	50	56	48	56	49
% Non-Movers (1 year ago)	86	90	86	88	85	89	84	86	87	87	80	85	83	85	82	85
% Non-Movers (5 years ago)	56	64	41	58	42	58	52	54	53	59	42	50	44	52	44	51

Source: [SIS, 516]

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anticipated growth in the populations in the study areas. Therefore, it is also expected that in the event that some individuals leave, they will likely be replaced by others who may be more tolerant of local conditions or perceive fewer issues with respect to PNGS-A or PNGS as a whole. Finally, in the absence of frequent malfunctions or accidents at PNGS-A and its associated publicity, the likelihood of people deciding to leave their communities as a result of the project is also expected to decrease over time.

### Employment

The return to service project is anticipated to create new employment opportunities and maintain existing jobs and the diversified occupational base within the study areas. To an individual, family or household this employment will provide a source of income and a sense of security which define their lifestyle and quality of life. To the area municipalities and Durham Region, this employment has the potential to influence the occupational base, income, wage and price levels which influence how the area is perceived, that is, its attractiveness as a place to live [413]. Survey results indicate that over 80% of respondents anticipate that there will be a positive effect on employment opportunities and stability as a result of the project [Appendix D].

Table 7.2.8-5 provides a summary of the project-related employment anticipated in the short term (i.e., 2001 - 2003) as compared to 1998 levels at PNGS-A. In its lay-up state, PNGS-A generated approximately 940 jobs through direct, indirect and induced means, of which approximately 370 jobs (40%) were within Durham Region [220].

**Table 7.2.8-5. Project-Related Employment (Return to Service, 2001 - 2003)**

Employment Category	Lay-Up State (1998) #	Progressive Return to Service (2001-2003)				
		2001 #	2002 #	2003 #	Total #	Total %
PNGS-A OPG Employment <sup>1</sup>	250	1,350	1,340	1,250	3,900	26%
PNGS-A Construction Employment <sup>2</sup>	-	300	30	20	350	2%
Other Direct, Indirect and Induced Employment <sup>2</sup>	690	4,200	3,400	3,300	10,900	72%
<b>Total Employment Associated with PNGS-A</b>	<b>940</b>	<b>5,850</b>	<b>4,770</b>	<b>4,570</b>	<b>15,190</b>	<b>100%</b>

*Note: Numbers have been rounded.*

*Sources* 1. OPG employment projections provided by OPG [230].  
2. Other employment based on economic modelling [220].

In the short term (i.e., 2001-2003), the project is anticipated to generate a total of 15,190 person-years of employment through direct, indirect and induced means. This is equivalent to approximately 5,100 jobs annually for the initial three years. This is over five times the number of jobs associated with PNGS-A in its lay-up state. This increase is primarily the result of the return of OPG staff to PNGS-A that were redeployed to other duties at PNGS-B, Darlington NGS, Bruce NGS and other capital projects on-site.

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In 2001, peak PNGS-A staff employment is anticipated to be approximately 1,350 staff. These include control technicians, nuclear operators, civil, mechanical and electrical engineering staff, supervisors, and administrative/clerical support staff. The majority of new jobs would be for additional personnel with civil, electrical and mechanical engineering skills and for administration and clerical support. These positions are most likely to be filled by temporary or contract staff.

Due to the diversified economy in Durham Region and across the GTA, the employment opportunities generated by the return to service project are not anticipated to attract many new permanent residents into Durham Region. Rather it is anticipated that new staff will be hired from the existing labour force within the GTA or Durham Region who will likely commute daily to the site [413]. Although there may be difficulties in recruiting staff in the short term, there is an adequate labour supply to meet PNGS-A's requirements in the short term.

Table 7.2.8-6 provides a summary of the employment anticipated as a result of the project when PNGS is in full operations (i.e., 2004 - 2011) as compared to 1998 levels at PNGS-A. At full operation, PNGS is anticipated to generate a total of 35,475 person-years of employment through direct, indirect and induced means. This is equivalent to approximately 4,435 jobs annually over an eight-year period.

**Table 7.2.8-6. Project-Related Employment (Operations, 2004 - 2011)**

Employment Category	Lay-Up State (1998) #	Operations (2004-2011)	
		PNGS-A Annual Average	Total
PNGS-A OPG Employment <sup>1</sup>	250	1,145	9,160
PNGS-A Construction Employment <sup>2</sup>	-	25	190
Other Direct, Indirect and Induced Employment <sup>2</sup>	690	3,300	26,125
<b>Total Employment Associated with PNGS-A</b>	<b>940</b>	<b>4,470</b>	<b>35,475</b>

*Note: Numbers have been rounded.*

- Sources:
1. Annual average OPG employment projections are based on updated 4th Quarter 2003 projection provided by OPG [230].
  2. Other employment projections based on economic modelling [220].

Table 7.2.8-7 provides the anticipated distribution of PNGS-A employment across Durham Region and its area municipalities for the short term and during full operations. This analysis indicates that Durham Region is expected to capture between 1,750 and 1,970 jobs annually, or approximately 40% of the total employment generated by PNGS-A. Oshawa, Whitby and Ajax will capture the majority of the employment associated with PNGS-A in Durham Region. In the context of regional employment, these jobs will account for approximately 1% of all jobs in Durham Region and generally less than 2% of employment levels in its area municipalities. As noted in Section 6.9, 69% of the PNGS-A employees are expected to reside in Durham Region. This analysis indicates that there is considerable leakage of employment outside the Region. This, is largely in the indirect and induced job category and is due to PNGS-A purchasing and household spending patterns, which are focused outside the Region.

**Table 7.2.8-7  
 PNGS-A DIRECT, INDIRECT AND INDUCED EMPLOYMENT IN THE CONTEXT OF MUNICIPAL  
 EMPLOYMENT PROJECTIONS (RETURN TO SERVICE (2001 - 2003) AND OPERATIONS (2004 - 2011))**

Municipality	Lay-Up State (1998)		Progressive Return to Service Period (2001-2003)						Operations (2004-2011)	
	1998	PNGS-A as % of Municipal Employment	2001 #	2002 #	2003 #	PNGS-A Average	Municipal Average	PNGS-A as % of Municipal Average	PNGS - A Annual Average	PNGS - as % of Municipal Average
Ajax	72	0.4%	449	361	352	387	24,319	1.6%	354	1.16%
Brock	4	0.1%	30	23	23	25	3,279	0.8%	22	0.60%
Clarington	51	0.4%	333	263	256	284	16,509	1.7%	257	1.25%
Oshawa	98	0.2%	601	470	451	507	61,111	0.8%	431	0.66%
Pickering	51	0.2%	325	257	251	278	32,168	0.9%	251	0.65%
Scugog	9	0.2%	58	45	44	49	5,755	0.8%	42	0.66%
Uxbridge	6	0.1%	41	33	32	35	5,190	0.7%	31	0.52%
Whitby	75	0.3%	476	376	366	406	30,020	1.4%	364	1.01%
Durham	366	0.2%	2,313	1,829	1,774	1,972	178,350	1.1%	1,753	0.85%

Source: [782]



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As a result of the project, OPG would remain one of the single largest employers within Durham Region, and the employment associated with PNGS-A would serve to maintain employment stability and the current diversified occupational base within the Region.

### Business Activity

The expenditures of PNGS-A staff and others who gain or maintain their incomes as a result of the return to service project payroll, along with purchasing of goods and services by PNGS, will generate business activity and help maintain the economic base in Durham Region and its area municipalities. Survey results [Appendix D] indicate that over 70% of respondents anticipate that there would be a positive effect on business activity as a result of the project. Similarly, major suppliers to PNGS and local economic development officers credit PNGS with contributing positively to local economic growth, largely in terms of employment and the spin-offs associated with employee spending, and look forward to the ongoing economic benefits associated with the return to service of PNGS-A [467].

Table 7.2.8-8 provides a summary of the expenditures anticipated as a result of the project in the short term (i.e., 2001 - 2003) and during full operations. In the short term, the project is anticipated to generate a total of \$476 million in expenditures (2001-2003) or \$159 million annually, through permanent and temporary staff payroll (74%) and direct purchases of materials and supplies (26%). At full operation, PNGS-A is anticipated to generate a total of \$1,257 million in expenditures (2004-2011) or \$157 million annually, through permanent and temporary staff payroll (65%) and direct purchases of materials and supplies (34%).

Table 7.2.8-9 provides the anticipated distribution of PNGS-A payroll and household spending across Durham Region and its area municipalities for the short term and during full operations. This analysis indicates that Durham Region is expected to capture between \$122 million and \$108 million annually, for the short term and during full operations, respectively. The majority of the payroll and household spending associated with PNGS-A in Durham Region would be captured by Clarington, Oshawa, Whitby and Ajax which account for 80% of the payroll monies spent in the Region. The City of Pickering would capture approximately 16% of PNGS-A's payroll.

Because most businesses in Durham Region, including suppliers to the generating station are not dependent upon these expenditures for the majority of their annual revenues, the return to service of PNGS-A is not anticipated to generate an expansion of the local economic base or individual businesses. Rather, this spending will help maintain business activity in the industrial (e.g., primary industry, manufacturing, construction, transportation, etc.), commercial (e.g., retail trade, finance, insurance, etc.) and institutional (e.g., education) sectors of Durham's economy [467].

As a result of the project, PNGS-A would be economically affiliated with between 0.85 and 1.1% of the ICI floor space in Durham Region, during the short term and full operations, respectively. This is an

**Table 7.2.8-8  
 PNGS-A PAYROLL AND PURCHASING PROJECTIONS (RETURN TO SERVICE  
 (2001 - 2003) AND OPERATIONS (2004 - 2011); \$ MILLIONS)**

Expenditures	Lay-Up State (1998) \$ M	Progressive Return to Service Period (2001-2003)				Operations (2004 - 2011)			
		2001	2002	2003	Total	PNGS - A Annual Average		Total	
		\$ M	\$ M	\$ M	\$ M	\$ M	% Total	\$ M	% Total
PNGS-A Payroll	19	135	107	103	345	101	64	810	64
PNGS-A Construction Payroll	-	2	2	2	6	2	1	15	1
PNGS-A Purchases	8	41	41	43	125	54	34	432	34
<b>Total</b>	<b>27</b>	<b>178</b>	<b>150</b>	<b>148</b>	<b>476</b>	<b>157</b>	<b>100</b>	<b>1,257</b>	<b>100</b>

Source: [782]

**Table 7.2.8-9  
PNGS-A PAYROLL, PURCHASE AND HOUSEHOLD SPENDING PROJECTIONS (RETURN  
TO SERVICE (2001 - 2003) AND OPERATIONS (2004 - 2011); \$ MILLIONS)**

Municipality	Lay-Up State (1998) \$M	Progressive Return to Service (2001-2003)				Operations (2004-2011)		
		2001 \$M	2002 \$M	2003 \$M	Total \$M	PNGS-A Annual Average \$M	Total %	Total \$M
Ajax	3.6	21.1	16.8	16.3	54.2	16.3	15%	130.8
Brock	0.3	1.7	1.4	1.3	4.4	1.3	1%	10.1
Clarington	3.5	24.9	19.8	19.1	63.8	19.0	18%	152.1
Oshawa	5.8	36.6	28.7	27.5	92.8	26.3	24%	210.4
Pickering	1.0	20.2	16.1	15.6	51.9	15.5	14%	124.2
Scugog	0.6	3.7	2.9	2.8	9.5	2.7	3%	21.8
Uxbridge	0.3	2.4	1.9	1.8	6.1	1.8	2%	14.3
Whitby	4.8	32.5	25.8	24.9	83.2	24.7	23%	197.3
Durham	21.9	143.1	113.3	109.4	365.7	107.6	100%	861.1

Source: [782].

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increase of approximately five times the 1998 levels when PNGS-A was in its lay-up state. The area municipalities of Oshawa, Ajax and Whitby would capture the greatest amount of the anticipated business activity, accounting for 67% of the ICI floor space affiliated with PNGS. The City of Pickering would capture approximately 15% of the business activity generated within the Region. Overall, the area municipalities of Clarington, Ajax and Whitby would have the strongest affiliations with PNGS-A.

Within the Local Study Area, a few businesses in the retail trade, fuel/transportation and food service sectors can expect a temporary increase in their business activity during the initial three years of the project, when there will be more employees on-site and traffic in the area. In addition, businesses providing engineering support for nuclear safety, painting services, conventional industrial equipment, electrical equipment and paving/concrete services within the study areas can also expect an increase in business activity over the short term due to increased spending by PNGS-A for the goods and services.

While approximately 69% of the total expenditures (payroll and purchases) generated by PNGS-A and PNGS-B are forecast to be retained within the Region of Durham, there is also spending outside the Region. The leakage from the Region largely involves other direct and indirect spending for goods and services which occurs outside the Region. Despite the presence of both the Darlington NGS and PNGS, Durham Region does not have an extensive nuclear service industry. As a consequence, most of the monies spent by PNGS-A for goods and services would likely flow to companies located outside the Region. This is particularly true for larger components or specialized equipment.

Overall, the project is expected to generate business activity which would serve to maintain the economic base in Durham Region and its area municipalities.

### **Commercial Fishing**

There is no commercial fishery in the study areas that could be affected; nor is there a strong likelihood that a commercial fishery would develop in this area during the operational life of PNGS-A (i.e., 2001-2011). Therefore, no effects on commercial fishing are expected.

### **Resource / Environmental Quality Related Businesses**

For the purposes of this analysis, it is hypothesized that effects on resource/environmental quality related businesses, such as food and beverage producers and recreational fishing businesses in Durham Region may occur as a result of the return to service project, if clients and/or customers link their product or service with PNGS and take steps to avoid such products or services because of their attitudes towards PNGS or in response to the environmental changes caused by the project.

Interviews conducted with a sample of resource/environmental quality related businesses across Durham Region indicated that their business activity was influenced largely by population size and the state of the

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economy. These interviews suggested that the greatest likelihood for any measurable effect related to the return to service project on such businesses was from effects on water quality, and changes in fishing/boating activity on Lake Ontario.

Therefore, the return to service project is most likely to affect the business activity of marinas, boat building/repair, fishing tackle shops and other fishery-related businesses. However, it is expected that the increase in ambient water temperatures in the vicinity of the PNGS-A outfall will make the area near PNGS more attractive to only a few new anglers and only marginally increase the harvest of fish from Lake Ontario (particularly during the winter and spring seasons). The likely change in the number of anglers is not expected to be large and consequently is not anticipated to result in a measurable increase or decrease in the local business activity at local marinas, boat building/repair and fishing tackle shops.

Because minimal impacts on water quality or recreational fishing are expected and none of the business operators interviewed indicated that their clients or customers link their product or service with PNGS, no adverse effects on business activity attributable to people's attitudes towards the station or the return to service of PNGS-A are expected.

An increase in nearshore Lake Ontario water temperatures may affect the Coolwater fish farm, located west of PNGS within the 914 m exclusion area. This facility draws water from the lake and therefore depends on the water's temperature to maintain a healthy stock of fish. During warm water conditions, particularly during the months of July, August and September, an increase in the temperature of nearshore waters will tend to increase the duration of time over which the fish farm will need to minimize their fish densities to avoid fish mortality. In the late fall, winter and early spring seasons, the increase in water temperature will benefit the fish farm, by raising the intake water temperature closer to the optimum operating temperature of 15°C. These effects are not considered significant by the facility operator [257] and will not affect the viability of the business because management procedures at the facility have been developed and are currently being implemented as required. Such procedures have been successful in the past. The increase in water temperature, however, may increase the amount of algae in the intake water which may require additional maintenance effort for cleaning intake screens. Discussions with the operator have indicated that since PNGS-A was placed in a lay-up state, their cleaning of intake screens has been less frequent than previously. Therefore, the operator anticipates some additional maintenance effort as a result of the return to service project. The operator does not expect this additional cost alone would affect the financial viability of the business [257].

### **Economic Development**

Durham Region and its more urban municipalities of Ajax, Clarington, Oshawa, Pickering and Whitby are large dynamic communities with diversified economies. The Region of Durham is part of the Greater Toronto Area (GTA) community and as a result, its area municipalities are forecasting aggressive population and economic growth over the next ten years and out to a horizon year of 2021. Within this context PNGS-A is an economic force; but it is a relatively small part of a larger economy.

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The increased spending and business activity generated by the project were discussed earlier. These effects are not anticipated to influence economic development by changing the local price structure or economic base in the Region of Durham or its area municipalities, but rather the return to service is expected to provide new economic development opportunities for existing and prospective business operators.

The results of a separate economic study indicate that project-related employment, payroll and purchasing activities are not likely to directly influence the economic development plans in Durham Region. All municipalities have developed and are in the process of implementing their economic policies and plans. Local economic development officers are aware of activities and plans at PNGS and indicate that OPG has started to develop a good communications record regarding their plans and programs. The economic development officers look forward to the improved economic development opportunities relating to the return to service of PNGS-A and suggested that more direct and formal lines of communication between OPG and the business community would be beneficial [467]. Overall, the project is not anticipated to affect economic development plans or activities in Durham Region in the short or long terms.

### **Identified Mitigation Measures (Population and Economic Base)**

Because only positive effects on population or economic base are anticipated as a result of the return to service project, no mitigation is identified or warranted.

### **Residual Effects (Population and Economic Base)**

There are no residual adverse effects of the return to service project on population or the economic base in the study areas. The likely positive residual effects are summarized below:

1. Increased proportion of the population associated with, or directly dependent on PNGS-A related employment.

This is due to the redeployment of staff and additional personnel that will be required to implement the necessary improvements to PNGS-A for the return to service and ongoing operations of PNGS. It is anticipated that new staff will either be hired from the existing labour force within Durham Region and the GTA.

2. Creation of new direct, indirect and induced employment opportunities and the maintenance of existing jobs within the study areas, resulting in improved employment stability.

The redeployment of additional staff that will be required for the return to service and ongoing operations will sustain and generate direct, indirect and induced employment opportunities in the Durham Region and its area municipalities.

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3. Creation of new business activity and an increased number of industrial, commercial and institutional business/operations that are associated with, or directly dependent on PNGS-A related expenditures.

The expenditures of PNGS-A staff and others who gain or maintain their incomes as a result of the return to service project, along with the expenditures by PNGS-A for goods and services will sustain and generate business activity and help maintain the economic base in the Region and its area municipalities.

The significance of each of the likely residual effects identified above is considered in Section 8.

### 7.2.8.2 Likely Effects on Community Infrastructure

#### Project/Environment Interactions

The likely interactions between the project and community infrastructure include:

- a) municipal servicing requirements;
- b) workforce (project-related employment); and
- c) attitudes towards the station (as represented by malfunctions and accidents and historical (legacy) issues).

In addition to these likely interactions between the project and community infrastructure, the demand for community infrastructure in the study areas may change as a result of people's response to environmental changes caused by the project such as emissions, environmental quality changes and nuisance effects.

The project/environment interactions associated with the above physical works and activities are assessed in the following paragraphs.

#### Likely Environmental Effects (Community Infrastructure)

The likely environmental effects that will be examined include effects on housing and property values, and municipal services such as water supply, sewage treatment and disposal, municipal waste management, and electricity supply. Effects in each of these areas are analyzed below. As was the case for the analysis of employment and business activity, the effects on the housing stock are also examined according to two major project stages (i.e., progressive return to service and operations).

#### Housing and Property Values

The return to service of PNGS-A is not anticipated to change the availability or affect the quality of housing available in the study areas because no project-related changes in population are anticipated that

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would place additional demands on the current housing stock. Table 7.2.8-10 presents data on the proportion of the housing stock associated with PNGS-A during the return to service and full operations phases of the project. These data indicate that, on average, as a result of project-related employment, PNGS-A will be associated with approximately 1% of the Region's housing stock or approximately four times the associated housing stock in its lay-up state. The area municipalities with the strongest affiliation to PNGS-A are Clarington, Ajax and Whitby. Therefore, the return to service project would serve to strengthen the association of PNGS to the housing stock to a minor extent. Greater employment stability can also be expected to reduce the turnover in residential properties in the study areas.

For the purpose of this analysis, it is hypothesized that people's attitudes towards PNGS and environmental changes caused by the return to service project might have a negative influence on the housing market and property values in Pickering and Ajax.

The literature suggests that decreased property values may result from significant increases in nuisance effects such as noise, dust, and traffic associated with a facility. Property value decreases may also occur if residents or prospective home buyers link PNGS with such changes within their neighbourhoods, even though they may be caused by others [413]. For example, survey results indicate that almost one quarter (21% Local, 22% Site Vicinity, and 24% Pickering) of survey respondents currently associate the PNGS "somewhat" or a "great deal" with noise, dust and other debris in their neighborhoods; and almost half (43% Local, 48% Site Vicinity, and 47% Pickering) of survey respondents have anticipated that the return to service project will result in increased nuisance effects [Appendix D].

Previous studies on property value changes associated with a wide range of developments, including nuclear facilities, indicate that decreased property values as a result of nuisance effects are usually restricted to areas immediately surrounding the facility or access routes. Property values also tend to recover close to pre-impact levels within a few years regardless of whether or not a nuisance has been eliminated [413]. Given that no significant nuisance effects from current operations have been detected and that no significant changes are anticipated as a result of the return to service of PNGS-A, decreased property values attributable to these sources are not anticipated.

Decreased property values may also result from a decrease in demand for land or an oversupply of available land in a community as a consequence of a major change in population. Given that no measurable changes in population are anticipated as a result of the project and that the population growth projected for the study areas in the future will likely increase demand for existing properties in Pickering, measurable declines in property values due to changes in demand for housing are not anticipated as a result of the return to service of PNGS-A. In a separate study, those consulted indicated that today's market was quite active and that houses were currently selling quickly [467]. There are no indications that this could change as a result of the return to service project.



**Table 7.2.8-10  
PNGS-A ASSOCIATED HOUSING IN THE CONTEXT OF MUNICIPAL HOUSING PROJECTIONS  
(RETURN TO SERVICE (2001 - 2003) AND OPERATIONS (2004 - 2011))**

Municipality	Lay-Up State (1998)		Progressive Return to Service Period (2001-2003)						Operations (2004-2011)	
	1998	PNGS-A as % of Municipal Housing Stock	2001 #	2002 #	2003 #	PNGS-A Average	Municipal Average	PNGS-A as % of Municipal Average	PNGS -A Annual Average	PNGS - A as % of Municipal Average
Ajax	76	0.36%	468	368	350	395	24,751	1.6%	337	1.16%
Brock	7	0.17%	40	31	30	34	4,385	0.8%	28	0.60%
Clarington	82	0.39%	496	383	365	415	24,024	1.7%	356	1.25%
Oshawa	85	0.17%	524	407	389	440	52,933	0.8%	370	0.66%
Pickering	46	0.18%	287	224	215	242	28,001	0.9%	213	0.65%
Scugog	12	0.18%	73	57	54	61	7,221	0.8%	53	0.66%
Uxbridge	8	0.14%	48	37	36	40	6,118	0.7%	34	0.50%
Whitby	72	0.29%	476	371	357	401	29,630	1.4%	362	1.01%
Durham	387	0.24%	2,412	1,878	1,796	2,029	177,063	1.1%	1,754	0.87%

Source: [782].

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Declines in property values may also result from a negative image of the community on the part of prospective homebuyers, particularly if these effects are directly related to their attitudes towards the station or the return to service project in particular. Case study research indicates that lower property values have occurred in communities with industrial facilities that have performed poorly [413].

For the purposes of this EA, the analysis undertaken in a separate study of how property values in Pickering and Ajax have performed in the recent past relative to other municipalities was reviewed and is summarized below [467]. This research indicates that there has been no measurable effect on property values that can be attributed to the PNGS since 1991.

Using an average two storey house as the basis for comparison, the Pickering and Ajax housing markets showed strong relative performance over the 1991 to 1998 period. Property values in Pickering and Ajax were above the Durham average throughout the period. Housing prices in Pickering were slightly below Ajax up until 1995 after which they increased to surpass those of its neighbour. At the end of 1998, the average price for a conventional two storey house was \$185,000 in Pickering and \$180,000 in Ajax. A trend analysis indicated that house prices in both Pickering and Ajax experienced stronger growth over the period than the composite average of all four municipalities sampled in Durham Region [467].

The analysis of property values in other municipalities in Southern Ontario also carried out in a separate study is also summarized below [467]. Municipalities were selected that are not hosts to a nuclear generating station, some with Lake Ontario waterfront (i.e., Burlington, Mississauga and Scarborough) and others without (i.e., Aurora, Newmarket and Brampton). Table 7.2.8-11, presents the average house prices for a standard two storey home between 1991 and 1998 for these municipalities.

**Table 7.2.8-11. Average House Prices - Selected Ontario Municipalities  
(Standard Two Storey Home 1981-1998)**

	1991	1992	1993	1994	1995	1996	1997	1998
Pickering	\$165,000	\$165,000	\$165,000	\$158,000	\$162,000	\$175,000	\$175,000	\$185,000
Aurora	\$230,000	\$255,000	\$235,000	\$230,000	\$235,000	\$238,000	\$235,000	\$250,000
Newmarket	\$198,000	\$220,000	\$228,000	\$220,000	\$210,000	\$212,000	\$215,000	\$235,000
Brampton	\$225,000	\$215,000	\$205,000	\$195,000	\$190,000	\$183,000	\$183,000	\$195,000
Mississauga	\$225,000	\$225,000	\$225,000	\$215,000	\$225,000	\$220,000	\$209,000	\$258,000
Scarborough	\$258,000	\$257,500	\$225,000	\$220,000	\$220,000	\$216,000	\$217,000	\$237,500
Burlington	\$240,000	\$210,000	\$215,000	\$210,000	\$205,000	\$195,000	\$210,000	\$232,000
Other Community Average	\$229,333	\$230,417	\$222,167	\$215,000	\$214,167	\$210,667	\$211,500	\$234,583
Other Community Trend	\$224,861	\$223,752	\$222,643	\$221,534	\$220,425	\$219,315	\$218,206	\$217,097

Source: [467]

These data show that since 1991, Pickering has experienced better housing price growth than that in other southern Ontario municipalities sampled; both within and outside the Region of Durham. This suggests that there has been no measurable influence of PNGS on property values since 1991.

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Prior to 1997, both PNGS-A and PNGS-B were in operation with no measurable effect on property values. Once PNGS-A is returned to service, both plants would continue to operate together as previously. It is unlikely, therefore, that any measurable or incremental effect on future property values attributable to the return to service project would occur.

### Municipal Services

PNGS is entirely self-sufficient in terms of service water requirements. As noted in Section 6.9, PNGS does require potable water from off-site sources for its employees. Therefore, the demand for off-site municipal services such as the provision of potable water and sewage disposal is largely related to workforce levels on-site. Demands on the municipal supply of potable water and consequently sewage disposal have been declining over the past several years, largely due to water efficiency measures implemented at PNGS. With the return to service project no new services or infrastructure are needed, but there would be an increase in demand for these services over 1998 levels.

The total demand for water and sewage by the entire site operation is a small fraction of the total design capacity of these systems; therefore, no measurable changes in levels of service to the community are anticipated. Any increase in the demand for potable water supply and sewage disposal is not anticipated to exceed peak demands in past years. Because the municipality does not provide any snow removal services on-site, no effects are anticipated.

Officials contacted at the City of Pickering and Region of Durham Public Works Departments also do not foresee any additional service requirements for PNGS as a result of the project. Adequate municipal services and facilities are in place to meet current and likely future station needs, and practices and procedures are in place to monitor water quality and shut down water supply systems in the event of a major contaminant release from PNGS. No additional financial or administrative burden should be experienced by the Regional Public Works Department for monitoring of the water supply at the Ajax/Pickering supply plant as a result of this project.

PNGS does not rely on the municipal waste management system for its conventional waste management requirements. All waste is currently being handled by licensed private sector waste management companies that collect, transfer, process/recycle and disposal of conventional waste generated on-site. In contrast to other services, the demand for off-site waste management services is related both to workforce levels on-site and the level of ongoing maintenance and repair activity undertaken during normal operations. Interviews with on-site staff indicated that demands on private waste management services has not changed substantially over the past several years when both stations were in operation. However, OPG staff estimated that the lay-up of PNGS-A resulted in a decrease of waste generated at PNGS by approximately 60% over 1997 levels.

The return to service project would likely increase the amount of conventional waste generated at PNGS-A to approximately 3,400 tonnes per year from 800 tonnes per year generated in 1998 [256]. This is approximately 70% higher than the volume of waste generated in 1997 when PNGS-A was operational.

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The anticipated increase is attributable to a greater level of ongoing maintenance activity at PNGS that is planned over the operational period. Approximately 70% of the waste generated by the maintenance and repair activities in the first three years of the project would be recyclable (e.g., condenser tubes, steel, concrete/asphalt). OPG staff estimate that when PNGS-A is in full operation approximately 25% of the waste generated would require disposal, and 75% would be recycled due to improved waste tracking and recycling efforts [256]. Because PNGS-A does not rely on the municipal waste management system, no effects on public sector services in Durham Region are anticipated.

PNGS is largely self-sufficient in terms of its electrical supply requirements. The demand for electrical supply from internal sources is a function of the operational status of PNGS, while the demand from external utilities is largely a function of the number of buildings and workforce on-site. The return to service project would increase the amount of electrical energy required from internal sources. When all four reactors at PNGS-A are fully operational, the internal electrical requirement will be approximately 108 MW per year, an increase of approximately 94 MW over the internal requirement in 1998 [265]. The energy requirements from off-site sources has not been quantified. However, because, the number of buildings on-site that will require external electrical supply would not change as a direct result of the project and because the vast majority of the workforce required for the return to service would be re-deployed from other activities, a large change in demands for such external electrical supply is not anticipated and would be limited to the first three years of the project, when a temporary increase in the on-site workforce would occur. The project would not result in a change in levels of service provided to other municipal customers.

### Identified Mitigation Measures (Community Infrastructure)

Because no adverse effects on community infrastructure are anticipated as a result of the return to service project, no mitigation is identified or warranted.

### Residual Effects (Community Infrastructure)

There are no residual adverse effects of the return to service project on community infrastructure in any of the study areas.

### 7.2.8.3 Likely Effects on Community Services

#### Project/Environment Interactions

The likely interactions between the project and community services are:

- a) workforce (project-related employment); and
- b) attitudes towards the station (as represented by malfunctions and accidents, and historical (legacy) issues).

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In addition to these likely interactions between the project and community services the quality and use of community services in the study areas may change as a result of people's response to the environmental changes caused by the project such as emissions, environmental quality changes and nuisance effects.

The project/environment interactions associated with the above physical works and activities are assessed in the following paragraphs.

### Likely Environmental Effects (Community Services)

#### Community and Recreational Facilities / Resource Use

Recreation considered in its broadest form encompasses any leisure time activity pursued for its own sake, whether it is organized, unorganized, facility-based or environmentally based. These recreational activities can be defined by the presence of related community and recreational facilities, services and resources. To an individual or family, such facilities, services and resources are major determinants of community satisfaction and provide the means for individuals to participate and contribute to community life. These facilities and services also provide the means for resident interaction through common activities that serve to influence the cohesiveness of the community [413].

#### *Recreational and Community Facilities and Services*

The return to service of PNGS-A is not anticipated to change the availability or quality of private and public recreational facilities, churches, marinas, and community centres in the study areas. Similarly, the return to service of PNGS-A is not anticipated to change the availability or quality of local parks or the waterfront trail system within the study areas. No existing facilities would be displaced, nor would new parks or facilities need to be developed as a direct result of the project. This is because project-related employment is not anticipated to result in a measurable change in local or regional population that would place additional demands on these resources. This conclusion is supported by the results of interviews conducted for a separate economic study in which Pickering Recreational Department staff indicated that recreational programs and services are in place to meet the needs of Pickering residents. No concerns were expressed with regard to handling recreation and leisure service demands directly or indirectly created with the return to service of PNGS-A [467].

There is also little potential for changes to the quality of these facilities as a result of the environmental changes caused by the project, which could increase costs, maintenance or influence the types of services provided. The nearest parks, facilities or other resources to PNGS are Alex Robertson Park, Kinsmen Park and the canoe club access point to Lake Ontario and Frenchman's Bay along the barrier beach at Hydro Marsh. All other facilities are located over 1 km from the fence line of PNGS. Increased activity at PNGS due to the return to service project is not expected to significantly change noise levels at recreational areas located on OPG property nor have an effect on how they are operated or maintained by

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City staff. No noticeable nuisance effects (e.g., noise, dust) are expected at other facility locations as a result of the project. Increased traffic anticipated over the first three years of the project may be perceived to exacerbate existing traffic problems in the vicinity of access routes to PNGS; however, any effect will only be noticeable during shift changes at PNGS and would not likely affect the use or economic viability of community facilities.

### *Resource Use – Community Facilities, Parks, Beaches and Trails*

For the purpose of this analysis, it is hypothesized that the use of community facilities, parks, beaches and trails in the vicinity of PNGS may change as a result of increased nuisance effects such as noise, dust, and other emissions associated with a facility, or if residents associate the return to service project with such nuisance effects and their health, safety or well-being. In addition, if residents anticipate a change in the quality of these recreational areas or a change in a valued feature, they are more likely to avoid these areas (e.g., won't go to the beach or will find a recreational area further away); change their frequency of visits or experience a loss of enjoyment as a result of their attitudes or perceptions.

The assessment of air quality indicates that no significant changes in noise or dust levels are anticipated as a result of the project at any recreational facilities or areas; however, an audible change in noise level may occur in the immediate vicinity of PNGS (i.e., within the exclusion area of 914 m). Because the quietness and cleanliness of the natural surroundings of these recreational areas are highly valued by users, any change in noise has the potential to affect their use and enjoyment, regardless of whether or not regulatory criteria have been exceeded.

To test whether or not there is likely to be a change in the use and enjoyment of the recreational areas near PNGS as a result of the return to service project, the extent to which people link the project with the quality of these recreational areas was investigated. Survey respondents were asked whether or not they anticipate a change in their use and enjoyment as a result of the project. Personal interviews were also undertaken with residents using these parks, beaches and trails.

Survey research indicates that about half (45% Local, 45% Site Vicinity, and 51% City of Pickering) of survey respondents currently associate the PNGS "somewhat" or a "great deal" with the quality of parks, beaches and trails and an almost equal percentage (44% Local, 49% Site Vicinity, and 51% City of Pickering) of survey respondents associate the return to service project with the quality of parks, beaches and trails [Appendix D].

Personal interviews with users of these recreational areas [Appendix C] indicate that few people (11%) feel that the current operations affect their use or enjoyment, and only one (1) out of 53 respondents identified PNGS as a thing that affects the use and enjoyment of the area. Ten other respondents (19%) of the total respondents identified other environmental or PNGS related issues such as water quality, human health, traffic, noise and fear of nuclear accidents and operational leaks as things that affect their use and enjoyment of these parks, beaches and trails.

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Survey results [Appendix D] also indicate that 73% of the respondents in the Local Study Area, 67% in the Site Vicinity, and 70% in the City of Pickering do not anticipate any change in their use or enjoyment of these parks, beaches or trails as a result of the project. Of those who anticipated a change as a result of the return to service project, 7% or fewer indicated that their use and enjoyment of the parks, beaches and trails near PNGS would decrease a "great deal". Only 4% of residents in the Local Study Area (i.e., those who most regularly use these amenities) anticipate such an effect.

Regular park, beach or trail users and those who regularly conduct birdwatching or nature viewing near Frenchman's Bay are more likely to notice any changes over time. Very few people are likely to experience any change to their use or enjoyment of these recreational features or activities. This conclusion is consistent with results of personal interviews conducted with park, beach and trail users. During interviews only three persons (5%) anticipated that their use or enjoyment would be affected as a result of the project, while 95% did not feel that they would experience any such changes or they did not respond [Appendix C]. In addition, new users will likely continue to be attracted to the area and a more positive environmental and safety performance record is anticipated as a result of the project.

Overall, under normal operating conditions, very few people are likely to change their use or enjoyment of parks, beaches or trails in the vicinity of PNGS and any such effects are expected to decrease over time.

### *Resource Use - Recreational Fishing*

As noted previously, an increase in nearshore Lake Ontario water temperatures associated with the discharge of warm cooling water from PNGS-A would increase the size of the thermal plume in Lake Ontario. The assessment of effects on the aquatic environment has also concluded that there would be an increased production of warmwater fish species such as bass and pike as a result of this thermal discharge, and a decrease in the production of coldwater fish species such as whitefish during warm water conditions (i.e., summer and early fall). The creel survey and interviews with anglers and boaters undertaken for this assessment has indicated that the majority of anglers who fish near PNGS and Frenchman's Bay would fish in the area regardless of the presence of PNGS and that nearly one quarter of them fish there because of the outfalls. In addition, the return to service project would not affect the access to the lake, marinas or boat launches in the area. Accessibility is the most attractive feature of the area to local anglers. This analysis suggests that the resumption of operations at PNGS-A, and the resultant increased thermal plume and changes in fish production would not affect the majority of current anglers' decisions on where to fish.

It is likely that a few new anglers would be attracted to the area near PNGS, and a few anglers are expected to fish farther away from PNGS, so that the overall fishing effort near PNGS would not likely change dramatically. Interview results indicated that 47% would not change their fishing location as a result of the project, 39% indicated that they would fish nearer PNGS, and 14% indicated that they would

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fish farther away. In addition, 58% indicated that there would be no change in their frequency of fishing, 31% indicated that they would fish more frequently near PNGS, and 11% indicated that they would fish less frequently near PNGS as a result of the project [Appendix F].

Interviews with local anglers also suggest that few would change their use of the fish harvested (i.e., fish used for consumption) as a result of the project. Results indicated that 62% of the anglers would not change the way they use their catch. Only 7% indicated that they would eat less fish. The remainder indicated that they release the fish they catch and that the return to service project would not affect this practice [Appendix F].

Those who do fish near PNGS may experience an increased catch rate or harvest of warm water fish such as smallmouth bass and largemouth bass, along with other targeted species such as northern pike during the fall, winter and early spring seasons. Decreased catch rate or harvest of coldwater fish that are currently experienced during the late spring and summer seasons would continue to occur, but over a larger area near PNGS.

### Educational Facilities

The return to service of PNGS-A is not anticipated to change the availability or quality of educational facilities (i.e., primary and secondary schools, nurseries and day care facilities) in the study areas because project-related employment is not anticipated to result in measurable change in local or regional population.

There is also little potential for the disruption of activities conducted at these schools (e.g., use of these facilities by staff, students, community groups and organizations) as a result of the emissions, environmental quality changes or nuisance effects related to the project. This is because interviews with facility operators indicated that existing operations at PNGS do not directly influence operations or the use of the school property by staff and students [Appendix B]. Because the nearest facilities to the site are the Sir John A. MacDonald and Holy Redeemer schools, which are both located over 1 km from the fence line, no noticeable nuisance effects (e.g., noise, dust) are expected at these facility locations. Similarly, marginally increased traffic associated with the project would be largely restricted to Brock Street and Sandy Beach Road, which are not used by school buses. OPG maintains contact with the two schools closest to PNGS through its radiation monitoring and community support activities. This is not anticipated to change as a result of the project.

Interviews with facility operators indicated that on occasion, parents of school children, particularly those of new students, have had questions regarding emergency plans (e.g., evacuations). It is likely that other schools in the Site Vicinity Study Area have also received inquiries regarding these issues. Although such inquiries are not exclusively related to the operation of PNGS-A, but relate to PNGS in general, increased awareness of the return to service project in the study areas would likely increase the



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levels of interest in such issues by facility staff, students and parents alike. Communications on these issues by staff at these educational facilities who may not have appropriate information or training to adequately respond to such inquiries may increase anxiety on the part of some residents.

### Health and Safety Facilities and Services

The return to service of PNGS-A is not anticipated to change the availability or quality of health and safety facilities and services (i.e., hospitals, police and fire fighting facilities and services) in the study areas. This is because project-related employment is not anticipated to result in a measurable change in local or regional population that would place additional demands on these services and because the PNGS site is largely self sufficient in terms of fire protection, policing/security and first aid/medical services on-site. This conclusion is supported by results of interviews conducted as part of a separate economic and study and summarized below [467].

There was no concern expressed by Durham Regional Police with respect to ongoing operation of PNGS, with or without the return to service of PNGS-A. It was felt that the force has adequate capacity to handle requirements created by PNGS. Because no major growth in workforce and associated population is projected, it was felt that there is no need for increased service expansion. *Ad hoc* or short-term service requirements of PNGS have been successfully managed in the past, and no future problems are anticipated.

There was no concern expressed by the Pickering Fire Department with respect to ongoing operation of PNGS-A. It was felt that the proposed project will not impose a need for increased service provision by the fire department and that staff and equipment levels were considered appropriate to meet the needs of the facility now and into the foreseeable future. Procedures for servicing PNGS have been in place for quite some time; and based on current plans for PNGS-A, no additional requirements for changing these services or procedures are anticipated [467]. These conclusions are reinforced by the improvements in fire protection systems at PNGS that are aimed at improving on-site safety. These upgrades which have been recently completed serve to minimize the need for municipal fire fighting services. These improvements include:

- a) establishing a full-time emergency response team to replace the current all-volunteer teams;
- b) modifying and upgrading fire detection and suppression systems in the turbine/generator area, main control/equipment rooms, and areas where electrical cables are exposed; and,
- c) establishing fire prevention training programs, including imposing strict controls on the storage of combustible materials and tasks such as welding.

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There was no concern expressed by the Ajax-Pickering Health Centre with respect to ongoing operations of PNGS-A. Officials felt that the hospital would be adequately equipped to accommodate any demands that the facility might generate [245].

The small increase in use of the area near the outfalls at PNGS-A by anglers that might occur as a result of the increased thermal plume may result in more boating accidents that would require a response from either OPG staff or the Pickering-Ajax Rescue Unit (PARU). Both OPG and PARU have the capabilities to respond to such emergencies. OPG's recent agreement with PARU allows them year round access to the lake, which is an improvement over past years when winter access was a problem from Frenchman's Bay.

There is also little potential for the direct environmental effects of the project to disrupt activities conducted at health and safety facilities (e.g., use of these facilities by patients, clients or staff). Apart from the use of the PNGS site by PARU to access Lake Ontario, the nearest facilities to PNGS are located over 1 km from the fence line.

### **Identified Mitigation Measures (Community Services)**

Mitigation measures are not warranted to address the very small changes in the use and enjoyment of parks, beaches and trails by regular users. Section 7.2.8.5 provides recommendations to address the communication needs of community service providers.

### **Residual Effects (Community Services)**

No residual effects on community services are anticipated as a result of the return to service.

#### **7.2.8.4 Likely Effects on Municipal Finance and Administration**

### **Project/Environment Interactions**

The likely interactions between the project and municipal finance and administration include:

- a) station administration.

The project/environment interaction associated with this activity is assessed in the following paragraphs.

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### Likely Environmental Effects (Municipal Finance and Administration)

PNGS is an important revenue source for the City of Pickering and for taxation purposes is assessed as one facility. As noted in 6.9.8, the same amount of payments in lieu of taxes (PILs) will likely be paid to the City of Pickering by PNGS on the buildings and structures on-site in 1998. Therefore, the return to service project alone will have no direct effect on the municipal finances of the City.

As noted in Section 6.9.8 OPG is expected to contribute (at a minimum) approximately \$4 million annually to the City of Pickering's revenues and at least \$1.2 million can be expected to be forwarded to the Region annually beyond 2000. The City can expect to retain about \$2.8 million annually beyond 2000. Overall, when considering both local and regional taxes, taxpayers across Durham Region will not be adversely affected by the return to service project.

OPG has addressed the administrative needs of the City by providing funds for the hiring of a liaison officer and for other technical support on a case by case basis. OPG will continue to work with the local municipalities and the Region to identify future needs and support.

### Recommended Mitigation Measures (Municipal Finance and Administration)

Because no adverse effects are anticipated, mitigation is not warranted.

### Residual Effects (Municipal Finance and Administration)

Because at least the same amount of payments in lieu of taxes (PILs) will be paid to the City of Pickering by OPG as was paid in 1998; and the position of liaison officer will continue to be funded, there are no residual effects anticipated on municipal finance or administration.

### 7.2.8.5 Likely Effects on Residents and Communities

#### Project/Environment Interactions

The likely interactions between the project and residents/communities include:

- a) station administration; and
- b) attitudes towards the station (as represented by malfunctions and accidents, and historical (legacy) issues).

In addition, the likely interactions between the project and residents/communities also relate to the response of people to environmental changes caused by the project such as emissions, environmental quality changes and nuisance effects.

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The project/environment interactions associated with the above physical works and activities are assessed in the following paragraphs.

### Likely Environmental Effects (Residents and Communities)

The likely environmental effects that will be examined include effects on community character, residents' use and enjoyment of property/satisfaction with community, community cohesion and culture, and First Nations' rights and resource use. Likely effects in each of these areas are analyzed below.

#### Community Character

The analysis undertaken as part of this environmental assessment, including survey research [Appendix D], interviews and consultation activities, indicates that the return to service project has little potential to alter the character of the community by changing its fundamental socio-economic or physical dimensions that would make it an unattractive place to live, raise a family, or conduct business. Other sections of this environmental assessment have concluded that the return to service project would not cause widespread or large-scale changes in the key aspects of the community's character including its population structure and distribution, community cohesion, economic base, employment or its economic development plans. The City of Pickering and most area municipalities within Durham Region anticipate continued population growth, employment and business activity and have developed plans to accommodate this growth in terms of infrastructure and community service delivery. In physical terms, all buildings and structures required for the safe operation of PNGS-A exist and its past and ongoing influence on existing land uses and development patterns has been considered and is reflected in both the land use plans and policies of the City of Pickering and Region of Durham, and future plans for the Pickering waterfront. As such, the return to service project would not involve changes to the landscape and existing or planned land uses (i.e., the off-site built environment).

It is hypothesized that increased awareness of PNGS due to the return to service project on the part of people within and outside to City of Pickering has the potential to affect the image of the City of Pickering. Survey results indicate that a majority of survey respondents (65% Local Study Area, 56% Site Vicinity, and 66% City of Pickering) anticipate a 'great deal' or 'somewhat' of a change in the image of the Pickering community [Appendix D]. Whether or not adverse effects occur will depend largely upon the nature of the events surrounding the return to service project and their associated media attention, including this environmental assessment and any subsequent approval processes; the success of ongoing communication activities by OPG and the success of efforts to involve residents in the project and other PNGS operations. However, in the absence of frequent malfunctions and accidents at PNGS, the attribution of a 'stigma' to the community is not expected. Stigma refers to the negative perceptions or images associated with the community and its residents [413]. Strong negative associations between the community and PNGS are expected to diminish over time, as PNGS achieves a more positive environmental and safety record that is well communicated to the public, both within and outside the City of Pickering. Therefore, no change in the character of the community is anticipated and little potential exists for the attribution of a 'stigma' to the City as a result of the return to service project.

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### Residents' Use and Enjoyment of Property / Satisfaction with Community

Residents' use and enjoyment of property and their satisfaction with community can be adversely affected if the return to service project increases noise, dust, and traffic in residential neighbourhoods or if the project affects aspects of the community which are valued by residents (i.e., quietness, peacefulness, convenience, nice/friendly people). Survey research was undertaken to test the degree to which the return to service project may change resident's use and enjoyment of property. Results indicate that 81% in the Local Study Area, 78% in the Site Vicinity and 77% in the City of Pickering do not anticipate any change in their use or enjoyment of property as a result of the return to service project. Of those who indicated that they may experience a change, the percentage of respondents who indicated that they would experience a "great deal" of adverse change was 5% or less. The Local Study Area and Pickering centre sub-area are the most vulnerable to such effects [Appendix D].

Previous sections concluded that no noise or air quality effects are expected as a result of the project at any residential properties in the study areas and that marginally increased traffic would be largely restricted to Brock Road, traversing the Brock Industrial Area where there is no residential development and only a few commercial establishments. Therefore, few residents, if any, should experience a loss of their use and enjoyment of property as a result of the project.

Changes in residents' satisfaction with community and their feelings of personal security are more likely to be related to the possibility of a malfunction or a serious nuclear accident at PNGS. These feelings are also reinforced by the historic (legacy) issues associated with PNGS as a whole. There is an expectation on the part of some residents that their health, safety and well-being may be affected by the return to service project and the ongoing operation of PNGS. Survey research conducted for the return to service project supports this hypothesis. Approximately 54% of survey respondents in the Local Study Area, 42% in the Site Vicinity and 44% in the City of Pickering mentioned that PNGS affects their sense of health, safety and well-being. In addition, up to 18% of the survey respondents (18% Local Study Area, 8% Site Vicinity, and 12% City of Pickering) mentioned PNGS as the community feature that is liked least in their area [Appendix D].

Previous sections of this environmental assessment have concluded that the nuclear accidents postulated for PNGS-A would not necessarily warrant an evacuation of areas beyond the site boundary (see Section 7.3 of the EA Report). On the basis of the radiological analysis (see Section 7.2.1 of the EA Report), chronic and acute risks associated with operation of PNGS-A are estimated to be well within acceptable regulatory limits. This does not mean that there are absolutely no risks and that everyone considers this to be acceptable. As such, it is expected that a few individuals may experience a loss in their feelings of personal security due to the project. This is supported by case studies regarding the social effects of natural and technological hazards: The research suggests that in a situation characterized by the simple presence or existence of a risk, such as an operating nuclear facility, only a few residents experience anxiety or tension [413].

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During public consultation events, personal interviews with park/trail users and anglers/boaters and survey research related to this project, a few individuals expressed a sense of anxiety over PNGS operations in general, as well as other community issues (e.g., pollution, traffic crime/policing). Similarly, a few individuals expressed the view that the return to service project increases the risk of an accident two-fold. In addition, interviews with educational facility administrators indicated that on occasion, parents of school children and particularly those of new students, have had questions regarding emergency plans (e.g., evacuations).

Some of this anxiety can be related to the people's level of awareness about the return to service project and the manner and degree to which OPG has been able to address questions residents may have regarding the project and other PNGS related issues. At the time of the survey, most respondents had heard 'very little' or 'nothing' about the return to service project but also rated OPG as performing a 'good' or 'very good' job at addressing questions they may have about PNGS. The following tables present results from the survey conducted in October 1999 [Appendix D]. Since the time of the survey, OPG has conducted a number of consultation events regarding the project and has expanded its ongoing communications programs regarding PNGS as a whole.

**Table 7.2.8-12. Percentage of Survey Respondents That Have Heard About the Return to Service Project (October 1999)**

Level of Awareness of RTS Project	Local Study Area %	Site Vicinity %	City of Pickering %
Great Deal	19	12	18
Something	29	29	30
Very Little	27	27	26
Nothing	25	33	26

Source: [Appendix D]

**Table 7.2.8-13. Evaluation of OPG's Efforts in Addressing Residents' Questions (October 1999)**

Evaluation	Local Study Area %	Site Vicinity %	City of Pickering %
Very Good	16	15	14
Good	28	26	24
Fair	21	27	29
Poor	9	10	13
Very Poor	13	8	10
Have No Questions	13	14	10

Source: [Appendix D]

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Overall, extreme changes in people's feelings of personal security are not apparent from this research or the consultation undertaken as part of this environmental assessment. This is partially due to the fact that PNGS-B and related facilities continue to operate and that PNGS has become a well established and familiar feature of the local community.

Notwithstanding the importance of PNGS as an issue in the study areas and the fact that some residents have and may continue to experience some anxiety or loss of feelings of personal security, Table 7.2.8-14 indicate that almost all respondents are either "very satisfied" or "somewhat" satisfied with living in their neighbourhood. Three-quarters of all respondents are 'very satisfied'. Satisfaction levels also appear to have improved in the City of Pickering since 1991 despite the historical (legacy) issues associated with PNGS, and the substantial amount of publicity that had been given to decreased performance at PNGS, spills and other events (e.g., loss of coolant accident, copper emissions from condenser tubes, tritium releases) [268].

**Table 7.2.8-14. Existing Levels of Satisfaction (October 1999)**

Level of Satisfaction	Local Study Area %	Site Vicinity %	City of Pickering %
Very Satisfied	74	70	72
Somewhat Satisfied	23	26	22
Not Very Satisfied	2	3	3
Not at all Satisfied	1	1	3

Source: [Appendix D]

There are no differences in these attitudes across various demographic segments of the respondent base with one exception. The older the respondent, the more they are "very satisfied" with living in their neighbourhood. The volunteered characteristics that most strongly determine satisfaction include the peaceful/quiet nature of their community, the convenience of the location, and the nature of the people rather than the presence of PNGS. The results from the 1991 survey show that very similar attributes are attractive to residents of Pickering now as then.

Overall, survey results indicate that 63% of the respondents in the Local Study Area, 64% in the Site Vicinity, and 62% in the City of Pickering do not anticipate any change in their level of satisfaction with their community as a result of the project [Appendix D]. Between 15 and 21% of the respondents indicated that their level of satisfaction would decrease, while 7 to 10% indicated that the return to service project would increase their level of satisfaction. Of those who indicated that they may experience a loss of satisfaction, the percentage of respondents who indicated that their satisfaction would "go down a great deal" was between 5 and 10%. Residents living in areas nearest PNGS (i.e., the Local Study Area, Ajax/Whitby sub-area) particularly new residents, women and parents with school-aged children are considered the most vulnerable to these feelings [Appendix D].

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The importance people attach to getting information about PNGS and its likely role in maintaining community satisfaction was clearly evident in the survey research. When residents were asked to volunteer ways in which OPG could most improve its relationship with the community with the continuing operation of PNGS-A and PNGS-B, the focus of their responses was on getting more information and more opportunities to interact with OPG (i.e., tours, open houses, public meetings and seminars) regarding PNGS. A clear emphasis in these responses was on improving the trustworthiness of the information and OPG's accountability to the community. To this end, some common themes regarding the needed information included truthfulness, accountability, openness, disclosure, and independence. Table 7.2.8-15 presents the full range of suggestions made by survey respondents.

**Table 7.2.8-15. Way in Which OPG Could Improve Its Relationship With the Community**

Suggested Improvements	Local Study Area %	Site Vicinity %	City of Pickering %
Inform/disclose to the community information regarding plant changes and safety issues	13	10	11
More information regarding what's happening	12	18	15
More advertising, brochures, newsletters	10	12	8
Close it down	10	4	7
Fine as it is/already trying	9	7	7
Truthful/accountable information, open	8	7	8
Run plants safely/rebuild	6	7	8
Seek community involvement/feedback	4	3	4
Give tours/Open Houses	3	2	2
Move it somewhere else	3	1	2
Hold public meetings/seminars	1	2	1
Use alternate energy sources		1	1
Hire more people from the community	1	1	1
Have independent testing of the facility	1	*	1
Lower the price of hydro		1	1
Other	8	6	6
Nothing	3	3	4
Don't know	8	15	15

Note: Percentages may not sum to 100% due to rounding. \* indicates less than 0.5%.

Source: [Appendix D]

Notwithstanding the public's desire for more and better information and interaction, relatively few residents seek out information on their own about PNGS. Low attendance at well publicized public events for this environmental assessment supports this notion. Survey results indicate that people do read material about PNGS, whether it is in the newspaper or from OPG [Appendix D]. However, very few people from the study areas attend community meetings, visit OPG's Information Centre, or have



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attended an Open House at PNGS. Even fewer have contacted or joined a local ratepayer or environmental group, called a politician or government staff, or called or written to PNGS to obtain information. Respondents who are more likely to associate the return to service project with environmental issues in their community, tend to be more motivated and are more likely to read OPG's material, read newspaper articles, or attend community meetings.

Overall, a few individuals are likely to experience a loss of personal security and reduced levels of community satisfaction. Widespread or extreme changes in the use and enjoyment of property, feelings of personal security and community satisfaction are unlikely.

### Community Cohesion and Culture

For the purpose of this analysis, it is hypothesized that the return to service project would adversely affect the cohesiveness of a community if the level and quality of social interaction and the degree of unity or interdependence among individuals, groups and organizations of a community adversely changes. The project does not involve any construction or physical works that may limit the interaction among residents, isolate segments of the population or induce a redistribution of population within the City of Pickering. Survey results indicate that 10% or fewer of survey respondents across all study areas would change their participation in sports teams, volunteer organizations, or community events; and 4% or fewer indicated that they anticipate a decrease in their social activities as a result of the project [Appendix D]. Because people do not always act on their intentions, very few changes attributable to the project are anticipated.

The analysis presented earlier concluded that no loss or disruption of local facilities which contribute to the cohesiveness of the community (e.g., community centres, churches, etc.) are anticipated under normal operating conditions. Very few people are likely to change their use of parks, beaches or trails in the vicinity of PNGS for social and recreational purposes. In addition, because frequent upset conditions or malfunctions are not expected at PNGS which could lead to a reduction in the use of these recreational areas by residents for social pursuits, a resultant loss of cohesion is not likely.

The cohesiveness of a community may also decline if the commitment of residents to, or their identification with the community is affected because of people's attitude towards the project or the station as a whole. Survey research and the mobility and length of residency data presented in Sections 7.2.8.1 and 6.9 respectively suggest that people in the City of Pickering are strongly committed or attached to their community. The previous analysis concluded that, given the high level of satisfaction present in the study areas, few people would decide and take steps to move because of fear or anxiety related to the return to service project. In addition, because frequent upset conditions or malfunctions are not expected at PNGS which could lead to people deciding to leave their communities, a loss of cohesion is not likely.

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More importantly, however, residents of the City of Pickering have a history of strong involvement in local affairs, particularly environmental issues. Some examples of environmental issues which have mobilized the interest of many residents and a wide range of community groups include: a proposed international airport in Pickering (1975 to present); the protection of the Oak Ridges Moraine (mid 1980s to present); protection of the Altona Forest and Petticoat Creek (late 1980s); the Interim Waste Authority's plans for a regional landfill site within the City of Pickering (1991-1995); the investigation of environmental effects related to admiralty brass emissions from PNGS (1997); the Environmental Review of Pickering Nuclear of 1998; the Mayor's Task Force on the Pickering Waterfront 2001 (1996-present) and the development of Rouge Park North (mid 1990s to 1998). Such experiences demonstrate that:

- a) residents and the community as a whole are very knowledgeable on environmental issues and capable of legitimately, formally or informally resolving issues of concern to them;
- b) community members do not depend exclusively on formal political and institutional processes as the means for defining and attaining their collective goals; and,
- c) in the past, the need to address environmental issues has not adversely affected the cohesiveness of the community by polarizing residents, but rather that the community's response has enhanced its cohesion and have made it more resilient.

The community may become either more or less cohesive depending upon the nature of the events surrounding the project, including its environmental assessment and any subsequent approval processes; ongoing communication activities by OPG, and the success of efforts to involve residents in its operations. To this end, the return to service project may enhance community cohesion if it results in a greater awareness of PNGS, its risks and benefits; improved communications on issues regarding radioactivity and PNGS operations; and provides opportunities for greater involvement in resolving past and future issues related to station operations. To date, the establishment of the Pickering Liaison Committee by the Town, the Durham Nuclear Health Committee by the Region and the Community Advisory Council by PNGS has formalized to some extent the interaction patterns within the community on PNGS related issues and has created new roles for individuals, groups and organizations. This process is likely to continue as a result of the return to service of PNGS-A. Such changes in roles and relationships are considered neither positive nor adverse. To a lesser extent, the return to service project may support community cohesion by helping to maintain the community support activities undertaken by PNGS (see Section 6.9), and by maintaining jobs and their associated population within the City of Pickering and across all the study areas.

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### First Nations Rights and Resource Use

Aboriginal people possess distinct land and cultural rights associated with their Aboriginal and treaty rights arising out of pre and post confederation treaties. The Aboriginal communities and the four associated treaties applicable in the vicinity of PNGS were described in Section 6.9. The return to service project would not change and Aboriginal or treaty rights afforded by these four treaties.

With respect to the resource use and activities of Aboriginal peoples, there is very little available data regarding these activities by members of the First Nations in the vicinity of PNGS. Available data indicates that the Alderville, Curve Lake, Hiawatha First Nations located near Peterborough, Ontario and Scugog Island First Nation, located on Lake Scugog north of PNGS; are considered to be urban reserves with few members employed in primary industries that may rely on natural resources in the vicinity of PNGS. Similarly, the Georgina Island First Nation is located in Lake Simcoe area, with no employment in primary resource harvesting industries in the vicinity of PNGS.

Furthermore, the Williams Treaty of 1923 addresses specifically the fishing, hunting and trapping rights, as well as other rights, within two large tracts of land. The southern tract of about 2,500 square miles runs along the north shore of Lake Ontario, including lands east of the PNGS to the Bay of Quinte and north to Lake Simcoe and Rice Lake to the Trent River. The northern tract of the land area covered by the Williams Treaty, encompasses approximately 17,600 square miles from the northeast shore of Georgian Bay at the mouth of the French River, to the north shore of Lake Simcoe, including portions of Hastings and Peterborough Counties to the Ottawa River. This northern tract is considered to be the northern hunting ground of these First Nations.

Because of the magnitude of environmental effects associated with PNGS-A, the urban setting of PNGS-A, its distance from these First Nation reserves and their likely hunting grounds; it is not expected that the return to service project would affect the use of resources in the study areas by members of these First Nations. Overall, the return to service project would not change any Aboriginal or treaty rights regarding the present or future use of these or other lands afforded by the four treaties described in Section 6.9.

### Identified Mitigation Measures (Residents and Communities)

Mitigation measures are required to address the potential loss of feelings of personal security and community satisfaction by some individuals. Therefore, OPG will continue to implement its public education, communication and consultation strategy for the period up to the return to service of the first reactor unit and for the period prior to full operations in 2004 which builds upon activities conducted to date. The audience for these materials will be all residents and municipal and community service providers within the study areas, with additional efforts focused on:

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- a) new residents within the study areas;
- b) staff at schools, nurseries and daycare centers, hospitals, police and fire stations with the responsibility of answering questions residents may have regarding PNGS and the return to service project;
- c) parents enrolling children in schools, day care facilities and nurseries in the Local and Site Vicinity Study Areas; and,
- d) regular users of the parks, beaches and trails in the vicinity of PNGS.

During the period prior to the return to service of the first reactor unit, the public education, communication and consultation strategy will focus on the improvements being undertaken at PNGS-A; the economic benefits of the project; results of this environmental assessment, the proposed mitigation and follow-up activities; and providing answers to the 160 issues identified and addressed through the EA and other PNGS activities. Prior to PNGS-A commencing full operations, the strategy will focus on providing information and opportunities for interaction/discussion regarding the actual environmental performance and safety record of PNGS-A. This latter program will continue for the life of the project, evaluated and adjusted on an annual basis.

### Residual Effects (Residents and Communities)

The following residual adverse effect is anticipated as a result of the return to service project:

1. Reduced feelings of personal security and levels of satisfaction with community are anticipated for a few individuals.

Expectations on the part of some residents that their health, safety and well-being may be affected by the return to service project, attitudes towards PNGS, and the possibility of malfunctions at PNGS-A will likely change some residents' feelings of personal security and level of satisfaction with community.

The significance of this likely residual effect is considered in Section 8.

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### 8. Significance of Residual Effects

The Scope of Assessment for the EA requires OPG to identify any residual effects of the project (i.e., those effects following mitigation) and assess the significance of those effects. The likely effects of the return to service project have been identified and considered in Subsection 7.2.8 for the socio-economic conditions to determine if a residual condition is likely. An assessment of the significance of the socio-economic residual effects is presented in this section. The criteria used to determine the significance of effects is provided in Table 8.1-6. Table 8.2-6 identifies the Socio-Economic residual effects of the project and assesses the significance of those effects in accordance with the methodology described in the EA Report.

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**Table 8.1-6. Effects Criteria and Significance Levels Socio-Economic Environment**

Effects Criteria	Effects Level Definition		
	Low	Moderate	High
Magnitude (of effect)	Effect is evident only when compared to existing conditions, and there is no anticipated change in economic base, levels of service, social structure, or community stability.	Effect is clearly evident, however, there is no anticipated change in economic base, levels of service, social structure, or community stability.	Effect is clearly evident and there is anticipated change in economic base, levels of service, social structure, or community stability.
Extent (of effect)	Effect is likely to occur primarily within the "Local" study area as defined for the socio-economic environment and/or will likely affect a limited number of community features (e.g. community facilities, businesses, schools, hospitals).	Effect is likely to occur primarily within the "Site Vicinity" study area as defined for the socio-economic environment and/or will likely affect a limited number of community features (e.g. community facilities, businesses, schools, hospitals).	Effect extends into the "Community or Regional" study areas as defined for the socio-economic environment and/or will affect a sector of the economy or a large number of community features.
Duration (of effect)	Effect is evident only during PNGS-A return to service initiation actions (2001 through 2003).	Effect is evident during PNGS-A return to service initiation actions and operational period (2001 through 2013).	Effect extends beyond operational period (>2013).
Frequency (of conditions causing effect)	Conditions or phenomena causing the effect occur very infrequently; or are effectively a one-time event.	Conditions or phenomena causing the effect occur at regular although infrequent intervals.	Conditions or phenomena causing the effect occur at regular and frequent intervals, or are ongoing conditions.
Ecological Importance (of resource)	Low Not applicable	Moderate Not applicable	High Not applicable
Societal Value (of resource)	Resource or feature is of little recognized value in terms of uniqueness or importance in maintaining the economic base, levels of service, social structure and/or community stability.	Resource or feature is recognized to be of some, yet limited value in terms of uniqueness or importance in maintaining the economic base, levels of service, social structure and/or community stability.	Resource or feature is recognized to be of significant value in terms of uniqueness or importance in maintaining the economic base, levels of service, social structure and/or community stability.
Permanence (of effect)	Adverse effect is readily manageable through application of socio-economic impact management. Positive effect can be readily enhanced.	Adverse effect is manageable within the medium-term.	Effect is not readily manageable or reversible in the long-term.

**SIGNIFICANCE OF RESIDUAL EFFECTS  
SOCIO-ECONOMIC ENVIRONMENT**

Socio-Economic Factors	Residual Environmental Effect (After Mitigation)	Residual Effect							Significance of Residual Effect (and Rationale)
		Magnitude	Extent	Duration	Frequency	Ecological Importance	Societal Value	Permanence	
Population	Increased proportion of the population associated with or directly dependent on PNGS-A related employment	<b>Moderate</b> The average annual PNGS-A associated population will be approximately five times the 1998 PNGS-A associated population.	<b>High</b> The majority of the PNGS-A associated population resides within Durham Region.	<b>Moderate</b> The effect will last throughout the operations period.	<b>High</b> The effect is continuous or ongoing.	N/A	<b>Moderate</b> PNGS, including PNGS-A will remain one of the single largest employers in the Region and its associated population will contribute to social structure and community stability.	N/A	<b>Positive Effect</b> Increased population associated with PNGS-A will contribute to the maintenance of the social structure and stability of communities across Durham Region.
Employment	Creation of new direct, indirect and induced employment opportunities and the maintenance of existing jobs within the study areas	<b>Moderate</b> The average annual PNGS-A associated employment will be approximately five times the 1998 PNGS-A associated population.	<b>High</b> The majority of the PNGS-A employees reside within Durham Region, however some leakage outside the Region is evident.	<b>Moderate</b> The effect will last throughout the operations period.	<b>High</b> The effect is continuous or ongoing.	N/A	<b>Moderate</b> PNGS, including PNGS-A will remain one of the single largest employers in the Region and its associated employment will serve to maintain income levels, which are a major determinant of an individual's or family's quality of life.	N/A	<b>Positive Effect</b> Increased employment associated with PNGS-A will serve to maintain income levels, which are a major determinant of an individual's or family's quality of life. PNGS will remain one of the single largest employers in the Region, consequently
Business Activity	Creation of new business activity and an increased number of ICI business/operations that are associated with, or directly dependent on PNGS-A related expenditures	<b>Moderate</b> The average annual PNGS-A associated ICI floor space will be approximately five times the 1998 PNGS-A associated floor space.	<b>High</b> The majority of the PNGS-A related expenditures will be captured within Durham Region, however some leakage outside the Region is evident.	<b>Moderate</b> The effect will last throughout the operations period.	<b>High</b> The effect is continuous or ongoing.	N/A	<b>Moderate</b> Increased business activity and ICI businesses associated with PNGS-A will contribute to growth and development in the local and regional economic base.	N/A	<b>Positive Effect</b> Increased business activity and ICI businesses associated with PNGS-A will contribute to growth and development in the local and regional economic base.
Residents and Communities	Reduced feelings of personal security and level of satisfaction with community for a few individuals	<b>Low</b> Direct effects on residential properties are not expected. Few residents anticipate a great deal of change in their enjoyment of property or community satisfaction.	<b>Moderate</b> Residents in the local and site vicinity study areas link the facility to their health, safety and well-being to a greater extent than others.	<b>Moderate</b> The effect will be most evident during the initial three years of the project when increased awareness of OPG's plans is anticipated.	<b>Moderate</b> The effect will be most evident when residents think about the fact that they live near the station. Most residents do not think about the station often, or never think about the station.	N/A	<b>High</b> The ongoing use and enjoyment of property and community satisfaction contribute to community stability. Feelings of personal security contribute to the psychological well-being of individuals and family.	<b>Low</b> Effects may diminish once appropriate communications material and/or additional involvement opportunities are provided by OPG and a positive environmental and safety record is established.	<b>Minor Adverse Effect (Not Significant)</b> Direct effects on residential properties are not expected. Few people anticipate a large change in their use and enjoyment of property, or community satisfaction.

ENCLOSURE 11/15/04



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