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## 16.0 COMMUNITY SERVICES AND INFRASTRUCTURE

The potential interactions between the Project and Community Services and Infrastructure include:

- The level of service offered by local emergency response services (e.g., fire, medical and police);
- The level of service available from on-going support services (e.g., health services, social services and public education);
- The need for social services and demand on local government and non-government organizations (NGOs) to provide to vulnerable groups in the community (e.g., addictions treatment, crisis intervention, food banks, and other social concerns);
- Availability of short-term and long-term accommodations;
- Affordability of housing and displacement of low income families; and
- Availability of space and programs offered by entertainment and recreational facilities.

The Project will create a large number of employment opportunities during Construction and Operation (Chapter 15). While some of the workforce may be local or from other parts of New Brunswick, many workers are expected to enter the Greater Saint John area, both on a temporary and permanent basis. This influx of workers and their families may place certain strains and challenges on the level of service provided by Community Services and Infrastructure. The Project will place an additional demand on local emergency response services (e.g., fire, medical, and police) and on-going support services (e.g., health and social services, and public education). These services may be affected by the routine presence of workers associated with either Construction or Operation. Of particular concern are the potential environmental effects on public health and social services, including the adequacy of existing ongoing health services and the potential need for an increase in community health and social support services. There may also be Project related environmental effects on the availability of both short-term and long-term accommodations. Demands on accommodations may lead to the displacement of low income individuals and families due to increases in housing costs. The existing programs and space offered by entertainment and recreation facilities, particularly where inadequate to meet current supply, may be insufficient to meet the needs of the projected increase in the regional population.

After careful consideration of the Project interactions and planned mitigation, it is predicted that the environmental effects on Community Services and Infrastructure will be not significant. With mitigation, overall levels of services are expected to be maintained. During Construction, the phasing of the pace and sequence of construction activities over a longer duration than initially planned (approximately 6-8 years) will lessen the demands placed by workers on Community Services and Infrastructure. With respect to the increased demand on the public health care system due to direct Project employment, it is expected that some non-emergency health care will be provided to individuals employed for the Project (e.g., a nurse on-site), an Employee Assistance Program will be offered by the Proponent to its employees, and Project health and safety policies will be enforced. The Proponent will work with its contractors to encourage attention to these mitigation strategies for their employees. Other mitigation includes Project accommodations built specifically to house non-local workers during Construction, particularly for foreign workers that may experience social and cultural adaptation issues and/or lack the support of local family. With the influx of a temporary non-local workforce during Construction, the

demands on local community services provided by the public sector and NGOs (*i.e.*, health and social services) have the potential to be high; however, with the recommended design guidelines for Project accommodations it is predicted that these potential environmental effects will be mitigated. A key component of mitigation will be the continuation of a participatory process among stakeholders to further develop specific measures to address environmental effects on social services, including a focus on vulnerable groups within the community. This should include dialogue between the community, government, developers, and social service NGOs to identify viable ideas to address affordable housing needs. Strategies could include, for example, plans for the adaptive reuse of any Project facilities that may be developed to meet accommodation demand during Construction. The Proponent will work closely with the City of Saint John and other stakeholders to further identify means of mitigating environmental effects to the extent that they are not significant, and to identify the requirement for and implementation of any improvements that may be needed.

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## 16.1 Scope of Assessment

This section defines the scope of the environmental assessment of Community Services and Infrastructure in consideration of potential Project interactions.

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### 16.1.1 Regulatory Setting

General guidance to assess the potential environmental effects on Community Services and Infrastructure is provided in NBENV's *A Guide to Environmental Impact Assessment in New Brunswick*, which speaks to potential environmental effects related to community structure (socio-economic, physical, and functional), lifestyle, and quality of life. As it specifically relates to Community Services and Infrastructure, that document suggests that consideration should be given to interactions with the following components: housing availability; public health; municipal infrastructure, utilities, and fire/police protection; access to existing recreational opportunities; and cultural facilities.

The Final Guidelines require that an assessment be completed of the potential environmental effects on Community Services and Infrastructure from the large number of workers associated with Construction and Operation. These could include, but not necessarily be limited to:

- Public health services in relation to potential demand;
- Adequacy of existing acute care services;
- Potential need for an increase in community health support services;
- Low income individuals and families, especially relating to displacement due to potential increases in housing costs; and
- Existing municipal infrastructure and capacity and services in terms of commercial/residential spin-off.

The Final Guidelines also state that Community Services and Infrastructure includes local emergency response, ongoing support services (health and social services), and accommodation, food services and entertainment. Additional demand on local emergency response services and ongoing support services are to be assessed, as these may be affected by the occurrence of an accidental event or by the routine presence of workers. There may also be environmental effects to local accommodations as a result of temporary and permanent workers required for the Project. A large number of temporary workers could create unique concerns during Construction, potentially resulting in increased need for

policing, increased consumption of alcohol and other legal and illegal substances, and increased need for social services. The Guidelines also state the need to assess the environmental effects of possible population movement related to the Project with respect to local Community Services and Infrastructure.

### 16.1.2 Issues and Concerns Identified During Public and Stakeholder Engagement

Focused stakeholder engagement was conducted from June 2007 through February 2008, with additional engagement subsequently as required to supplement the information collected. The primary purpose of this dialogue was to ensure that community stakeholders were well informed about the Project and had reasonable opportunity to present their views, concerns, and information. The comments received helped ensure that all substantive issues were considered in the evaluation of the potential environmental effects on Community Services and Infrastructure, and contributed to ongoing Project design and planning. The initial list of stakeholders was developed based on past discussions with the Study Team, as well as the stakeholders' level of interest and mandate, and the potential for such stakeholders to provide information to establish baseline conditions or to conduct the environmental effects assessment. In addition, stakeholders were asked to identify other individuals or organizations that should be contacted. In total, approximately 18 interviews were completed, either with individuals or in small groups, in addition to other workshops, general meetings, and three open houses (Chapter 4).

Table 16.1 contains a summary of comments received during consultation specifically related to Community Services and Infrastructure. The comments confirmed the key issues for the assessment, and helped provide direction on specific stakeholder concerns.

**Table 16.1 Summary of Comments Received During Consultation on Community Services and Infrastructure**

Key Issue	Comment
Increased demand for local emergency response (police)	<ul style="list-style-type: none"> <li>▪ Likely to be an increase in crime (<i>i.e.</i>, theft, break and enter, sex trade offences) during Construction.</li> <li>▪ Increase in traffic.</li> <li>▪ Additional security/force members will likely be needed.</li> <li>▪ Concern that public demonstrations may become problematic.</li> </ul>
Increased demand for local emergency response (fire)	<ul style="list-style-type: none"> <li>▪ Need to maintain the relationship between the Fire Department and the existing refinery.</li> <li>▪ Need to be informed of the protocol at any entry points to the refinery to avoid any issues with entry, as has been the case historically.</li> <li>▪ Is the refinery unique with regard to fire protection?</li> <li>▪ Is the Proponent willing to assist financially with building a new station if needed?</li> </ul>
Increased demand for local emergency response (medical)	<ul style="list-style-type: none"> <li>▪ Ambulance services province-wide have been taken over by the Province of New Brunswick, creating one standard for everyone including expected response times. Under new contract, ambulance services have to maintain response times of nine minutes within urban areas, and 22 minutes within rural areas.</li> <li>▪ Opportunity for the Proponent to provide on-site medical attention for employees to avoid unnecessary demand on emergency services.</li> </ul>

**Table 16.1 Summary of Comments Received During Consultation on Community Services and Infrastructure**

Key Issue	Comment
Increased demand for ongoing health services	<ul style="list-style-type: none"> <li>▪ Request that a recommendation be included in the EIA Report for the provincial trauma center to be located in the City of Saint John.</li> <li>▪ Increase in population will have a social environmental effect on an already strained system due to lack of resources (<i>i.e.</i>, physicians, nurses, <i>etc.</i>).</li> <li>▪ There may be issues regarding accessing services, which may require an expansion.</li> <li>▪ Increase in employment will result in an increase in health status.</li> <li>▪ Opportunity to continue to collaborate with the Proponent with respect to health promotion.</li> </ul>
Increased demand for ongoing social services to vulnerable groups in the community	<ul style="list-style-type: none"> <li>▪ The Human Development Council has many resources that should be called upon.</li> <li>▪ There may be adverse social environmental effects on already vulnerable neighbourhoods.</li> <li>▪ Urban core is subject to urban decay.</li> <li>▪ Potential for income gap to increase.</li> <li>▪ Potential for increase in alcoholism, drug use, domestic violence, and prostitution.</li> <li>▪ Need to provide support for women and children.</li> <li>▪ Strong correlation between labour industry and increases in prostitution and drug use; programs are needed to help.</li> <li>▪ A dialogue is needed between the Proponent and the communities, or those representing the communities (non-profit organizations).</li> </ul>
Increased demand on the education system	<ul style="list-style-type: none"> <li>▪ Funding needs for human resources and infrastructure.</li> <li>▪ Need to know the schedule of Project in order for school boards to prepare for anticipated influx.</li> </ul>
Shortage of accommodations	<ul style="list-style-type: none"> <li>▪ There is a severe dearth of adequate and affordable housing; increase in population will only exacerbate the problem.</li> <li>▪ There is a scarce supply of housing options for seniors.</li> <li>▪ Housing inventory is low.</li> <li>▪ Increase in demand may increase market value of homes.</li> <li>▪ Investment in accommodations, not only in newly constructed homes, but also on redevelopment of older neighbourhoods.</li> </ul>
Lack of availability of space and programs in entertainment and recreation facilities	<ul style="list-style-type: none"> <li>▪ Lack of recreational facilities to accommodate an influx of workers and their families.</li> </ul>

### 16.1.3 Selection of Environmental Effects

The Project will result in substantial expenditure in Greater Saint John and the Province of New Brunswick (Chapter 15). The Project will create a large number of employment positions during Construction and Operation. As such, many workers are expected to enter the Greater Saint John area, both on a temporary and permanent basis. This influx of workers may place certain strains and challenges on the services and infrastructure currently in place. The health, fire and police protection, education, recreation and entertainment, and social services will all be in higher demand. In addition, both short-term and long-term accommodations may be at a premium.

The assessment of potential environmental effects on Community Services and Infrastructure is focused on an evaluation of two environmental effects: a Change in the Accommodation Market; and a Change in the Level of Service from Community Services and Public Infrastructure.

Change in the Accommodation Market includes consideration of:

- The availability of short-term accommodations (*e.g.*, hotels, motels, *etc.*); and

- The availability of long-term accommodation (housing), including affordability and potential displacement of low income families.

Change in the Level of Service from Community Services and Public Infrastructure includes consideration of:

- The level of service offered by local emergency response services (e.g., fire, medical, and police);
- The level of service available from on-going support services (e.g., health services, social services, and public education), including those provided by both the public sector and the NGO community;
- The demand on local government and NGO social service organizations to provide to vulnerable groups in the community (e.g., addictions treatment, crisis intervention, sex trade worker outreach, food banks); and
- The availability of space and programs offered by entertainment and recreational facilities.

16.1.4 Selection of Measurable Parameters

The measurable parameters that will be used for the assessment of each environmental effect, and the rationale for the selection of the measurable parameters are provided in Table 16.2. It is important to note that for the assessment of the Change in the Level of Service from Community Services and Public Infrastructure, there is a large diversity of services being provided (e.g., mental health services, addiction services, crisis intervention, shelters, needle exchange services, sex trade worker outreach, food banks). To assess the potential environmental effects on these services, a relatively small number of measurable parameters were selected focusing on certain services (i.e., addiction services) as representative indicators of change on community services more broadly. Consequently, the chosen measurable parameters do not represent an exhaustive list.

**Table 16.2 Measurable Parameters for Community Services and Infrastructure**

Environmental Effect	Measurable Parameter	Rationale for Selection of the Measurable Parameter
Change in the Accommodation Market	Number of accommodation units on the sales market	The number of units required (based on Greater Saint John population projections with the Project) compared to what is available on the sales market (based on current trends in construction and the resale market) will estimate the supply-demand balance and the extent of any shortages in the market.
	Number of accommodation units on the rental market	The number of units required (based on Greater Saint John population projections with the Project) compared to what is available on the rental market (based on current trends in construction and the resale market) will estimate the supply-demand balance and the extent of any shortages in the market.
	Percentage of renters with affordable housing needs by type of household	Core housing need is a statistic defined by the Canada Mortgage and Housing Corporation (CMHC) that jointly considers affordability, adequacy and suitability of available accommodations. Affordability within the rental market is the primary concern. The situation by type of household will be separately considered. This statistic will identify those households that are at greatest risk.
	Number of short-term accommodation units available (not rented)	The number of short-term accommodation units required (based on Project-related requirements) compared to the available supply (based on available units and vacancy rates) will estimate the supply-demand balance and the extent of any shortages in the market. This will be segregated by the type of unit (i.e., hotel, motel, bed and breakfast, inn) and by season.



**Table 16.2 Measurable Parameters for Community Services and Infrastructure**

Environmental Effect	Measurable Parameter	Rationale for Selection of the Measurable Parameter
	Number of clients for addiction services by type of dependency	Based on the current rate of utilization by the population, changes in needs will be estimated and compared to availability. This will include consideration of the environmental effect on wait times for services.
Change in the Level of Service from Community Services and Public Infrastructure	Hospital bed occupancy rates and number of beds occupied	This information will demonstrate the activity statistics and indicators of the demand on ongoing health services. Based on the current rate of utilization by the population, changes in needs will be estimated and compared to service capacities.
	Number of health care employees and number of physicians	This information serves as basic indicators of the level of service for health care. Based on the current servicing of the population, changes in service needs will be estimated to indicate the additional demands on the health care system.
	Functional capacity of public schools	To identify and describe the space occupied within public schools to understand if the Project will have an environmental effect on the functional capacity. Based on the current servicing of the population, changes in service needs will be estimated to indicate the additional demands on the public school system.
	Number and capacity of community recreation facilities	To identify and describe use of community recreation facilities to understand if the Project will have an environmental effect on the functional capacity. Based on the current servicing of the population, changes in service needs will be estimated to indicate the additional demands on the system.

### 16.1.5 Temporal Boundaries

The temporal boundaries include the phases of Construction and Operation. Potential environmental effects on Community Services and Infrastructure can occur anytime during these Project phases. However, even with phasing the pace and sequence of construction activities over a 6-8 year period, it is expected that potential environmental effects will be highest during Construction, when Project-related employment and expenditures will be greatest. Project environmental effects are expected to diminish during Operation, as Project expenditures and permanent direct employment will be less.

The temporal boundaries for the characterization of existing (baseline) conditions are based on the years 2007 and 2008, during which focused key stakeholder interviews and secondary information research were conducted with respect to community services and infrastructure in the Greater Saint John area.

### 16.1.6 Spatial Boundaries

This section describes the spatial boundaries for the environmental assessment of Community Services and Infrastructure. These are:

- The Project Development Area (PDA);
- A Local Assessment Area (LAA); and
- A Regional Assessment Area (RAA).

The PDA is the physical footprint of the Project, including the Petroleum Refinery and Other Land-Based Infrastructure, and the Marine Terminal and other Marine-Based Infrastructure as described in Chapter 3.

The LAA and RAA are both defined as the Saint John CMA, encompassing the City of Saint John, Grand Bay-Westfield, Hampton, Rothesay, Quispamsis, St. Martins, and rural areas (Figure 15.1). The Saint John CMA delineates the maximum area where likely Project-specific environmental effects and cumulative environmental effects for the VEC can be predicted or measured with a reasonable degree of accuracy and confidence. For some aspects, the spatial boundary will differ as determined by the service area and administration of the affected community service in question (e.g., the delivery of public health services by Regional Health Authority, or the delivery of public education by School District).

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#### 16.1.7 Administrative and Technical Boundaries

Administrative boundaries are determined by the operational management of the agencies and organizations responsible for delivery of the various community services (e.g., the municipalities operating within the spatial boundaries, social service NGOs, etc.).

Information was obtained through stakeholder interviews conducted primarily over a nine-month period from June 2007 to February 2008, as well as site visits and secondary data and document review. The quality and extent of the available information determined the technical boundaries for the EIA/EA.

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#### 16.1.8 Residual Environmental Effects Rating Criteria

For Community Services and Infrastructure, a significant adverse residual environmental effect is one that results in demands on services and public infrastructure above and beyond capacity, such that standards of service are routinely and persistently reduced below current levels for an extended period of time (i.e., throughout Construction and/or Operation).

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### 16.2 Existing Conditions

In addition to the general background provided in Chapter 6, the existing conditions with respect to Community Services and Infrastructure are described below.

#### **Accommodations**

Short-term accommodations within Greater Saint John include hotels, motels, inns, and bed & breakfasts. For the most part, rooms are provided by over 20 hotels and motels with a total of over 1,500 guestrooms (Tourism New Brunswick 2005). These rooms are primarily single units with one to two bedrooms and a limited number of in-suite kitchen facilities. Additionally, there are nine bed and breakfasts, as well as three inns offering a total of approximately 60 rooms. A new hotel in the Quispamsis area was recently constructed and began operation in July 2007; there are reportedly preliminary plans to construct other hotels in the future to meet the growing demand.

The housing market in the Greater Saint John area is unique in a number of ways. Perhaps most notable is the age of the stock. Within the City of Saint John, approximately 49% of the dwellings were constructed prior to 1960; in some neighbourhoods, the proportion is over 80% (e.g., the Lower South End, Old North End, and Crescent Valley), and as high as 92% (e.g., Waterloo Village) (Vibrant Communities Saint John 2005). Inventories are reportedly tight, limiting availability, with a lack of diversity in the types of units available. Also, not readily reported in the statistics, the condition of the existing stock within the City of Saint John has been characterized as poor compared with other markets (N. Singh, personal communication, June 27, 2007).

Gentrification (*i.e.*, change in an urban area associated with the influx of an income class above existing residents) is a concern for those who rely on affordable and subsidized housing. A dwelling is said to be affordable when the cost of occupancy is less than 30% of the total before-tax household income (Hardy Stevenson and Associates 2007). A household is said to be in core housing need if its housing falls below at least one of the adequacy, suitability, or affordability standards (Hardy Stevenson and Associates 2007). Affordability is said to be the primary core need experienced by households within the City of Saint John, representing 71% of the core housing needs, which is considerably higher than the 58% experienced by households in the Province of New Brunswick as a whole (Hardy Stevenson and Associates 2007). Within the City of Saint John, 10 Census Dissemination Areas (DAs) have 40% or more of its residents living below the poverty line, and an additional 10 DAs have between 25% and 40% of its residents living in poverty (Vibrant Communities Saint John 2005). The majority of residents within these vulnerable neighbourhoods rent rather than own, and are particularly vulnerable to increases in the cost of housing.

With respect to rental properties, vacancy rates remain relatively high compared to other major centres in Canada (6.8% in October 2006 within the Saint John CMA, compared to a national rate of 2.6%); more recently, statistics indicate a decline in vacancies but well within the range of variability evidenced over recent years (CMHC 2006). However, the rental market in the Greater Saint John area is segmented. Relatively high rates are concentrated within a small segment of the market, primarily being older and more dilapidated rental units and, thus, do not accurately reflect the availability of rental units (K. Peacock, personal communication, July 13, 2007). Vacancy rates are generally lower for newer and higher-end units, for which there is a greater demand. For example, the 2006 vacancy rate for units constructed after 1990 was 3.3%, compared to a high of 10.3% for older units (CMHC 2006). The result is that higher-end rental units can be difficult to secure, and lower income individuals have a greater difficulty in finding suitable housing. There is a waitlist of approximately 800 to 1,000 people for subsidized housing in the City of Saint John (B. Murphy, personal communication, June 13, 2007).

Sales for both new construction and the resale market are strong in the Greater Saint John area. In the first half of 2007, MLS<sup>®</sup> sales increased by 29% from 814 to 1,048 units over the same period in the previous year (CMHC 2007). In July 2007, prices were up an average of about 12% year-over-year (CMHC 2007). Sales were particularly strong in Rothesay and Quispamsis, although closely followed by the City of Saint John and other areas in the CMA. Grand Bay-Westfield recorded a drop in average price between 2006 and 2007, but had a substantial increase in sales volume (up 54%) and a strong reduction in the average days on the market (down 36%) (Jacques Whitford 2008n).

Although some slowdown has occurred as a result of the recent global economic downturn, housing construction remains relatively active in the Greater Saint John area (Jacques Whitford 2008n). The majority of construction activity is focused on the freehold ownership market (particularly in Quispamsis and Rothesay). Condominium and rental unit construction, including apartments, is largely restricted within the City of Saint John. Construction activity has increased steadily over the last decade, from 234 dwelling starts in 1997 to 565 in 2006. Over the last four years (2003-2006), annual starts have consistently remained above 500 (Jacques Whitford 2008n). Construction has largely been single detached units (64% of starts in 2006) followed by apartment units (19%), row housing (12%) and semi-detached units (5%).

The number of absorptions, meaning the recently-constructed housing units that are either rented or sold, is an indicator of how well construction is meeting the level of demand in the housing market. On average, generally more than half of the new construction inventory of single detached and semi-detached dwellings is absorbed in a given month, and the average time that a unit is on the market is

approximately 3.7 months. The life of the inventory is relatively short, lower than the average of 4.7 months for all CMAs in Canada over the same time period (CMHC 2007). The absorption statistics indicate an active market, where construction is able to meet the demand for new units but allowing for little slack in the inventory.

### **Community Services and Public Infrastructure**

Under the jurisdiction of former Region 2 Health Authority, there are two hospitals in operation in the Greater Saint John area – St. Joseph’s Hospital and Saint John Regional Hospital. In September 2008, the Government of New Brunswick transitioned to two Regional Health Authorities (RHAs) from the previous eight RHAs. Under the new structure, RHA B covers the southern half of New Brunswick and replaced the former RHA1 South East (Moncton), RHA 2 (Saint John), RHA 3 (Fredericton) and RHA 7 (Miramichi). RHA B is based in Miramichi. Each RHA will strive for consistency in services offered and procedures performed, and address inequities that may have existed prior to the amalgamation. The recent transition, coupled with an upgrade underway at the Saint John Regional Hospital, as well as a planned medical education program based largely at the hospital, is expected to facilitate better access to medical services. Given that these changes have only recently begun implementation, for the purpose of the discussion that follows in this Chapter, reference will be made to the former designation for RHA 2 for the Greater Saint John area.

St. Joseph’s Hospital is the closest hospital to the Project, located on Bayard Drive, approximately 5 km from the PDA. The hospital provides urgent walk-in care, as well as a wide range of other services, including blood testing, x-rays, surgery, and physiotherapy. St. Joseph’s also houses the region’s Community Health Centre. The centre has three goals: to provide comprehensive primary health care services; to build community, family, and personal capacity to promote health; and to deliver integrated community-based programming.

The Saint John Regional Hospital (SJRH) is located on the northwest side of the City, approximately 10 km from the PDA. With a total of 524 beds, the SJRH is the region’s primary centre for acute care, and is one of only two accredited tertiary trauma centres in Atlantic Canada. SJRH is the region’s largest health service provider, offering comprehensive primary, secondary, and tertiary health services. Residency training is provided in many sectors of the medical field. Consequently, this helps to facilitate and promote quality patient care. However, a challenge that SJRH has faced in the past, and continues to face, is the lack of human resources and physical space as a whole.

The Greater Saint John area is served by several ambulatory health clinics, offering non-urgent services in areas such as blood diagnostics, chronic respiratory ailments, health-and-wellness programs, and disease prevention programs. In addition, numerous mental health services are available for children, adults, and seniors who suffer from mental health issues. Services include individual, family, and/or community development programs. Services are free and confidential, and emergency services are available on a 24 hour basis. Long-term mental health services are available at the Centracare facility, a 50-bed tertiary care facility that provides continuous care to individuals suffering from mental health illnesses.

Addictions counselling for individuals suffering from chemical and compulsive dependencies is available at the Ridgewood Addictions Centre. Challenges at the Ridgewood Addictions Centre with respect to resourcing and staffing have been a concern. For certain programs, wait times can be lengthy and services are not always readily available. Detox and rehab service wait times typically range from two to four weeks before a patient can be admitted (Jacques Whitford 2008n).

In addition to the above-mentioned health services, there are over 100 social and human service providers, both public and private, operating in the area. These providers include the Canadian Red Cross, the Greater Saint John Community Foundation, immigrant and refugee settlement services, seniors clubs, social clubs, food banks, and educational networks (CIOC-NB 2006). Furthermore, there are over 50 churches of various faiths within the Greater Saint John area. There are also several employment/career service centres providing guidance, education, and training for individuals requiring assistance in achieving their career goals.

Social service NGOs are prevalent. Many of these organizations are focused on enabling and building stronger communities throughout the Greater Saint John area. Organizations such as Vibrant Communities and the Human Development Council have taken a strong stance on rebuilding vulnerable communities and have focused on bringing important issues, such as poverty, to the forefront. The range of services provided by social service NGOs include, for example, crisis intervention, shelters, needle exchange services, sex trade worker outreach, and food banks.

Public School Districts 6 and 8 serve the communities of Greater Saint John and adjacent regions. School District 6 includes Rothesay, Quispamsis, Kingston, Belleisle, Hampton, Norton, Apohaqui, Sussex, and Sussex Corner. School District 8 encompasses the City of Saint John and rural communities from Browns Flat and Grand Bay-Westfield to Fundy Shores to St. Martins. Current total enrolment in School District 6 is approximately 12,750 students, while total enrolment in School District 8 is approximately 10,370 students. Within School District 8, there has been a substantial decline in enrolment over the past two decades with a loss of an average of 300 to 400 students per year. Consequently, this has led to the closure of more than ten schools over the last ten years. Although parts of School District 6 have experienced a decline in enrolment, certain schools have experienced an unprecedented increase in enrolment. The 2007 school year saw an increase in 88 students within the Rothesay/Quispamsis areas. Schools in these areas are currently operating at full capacity, and have been required to add portable trailers to accommodate the influx of new students (Jacques Whitford 2008n). Despite the relatively lower levels of space utilization and need for past school closures within School District 8, there are infrastructure needs within the District. This includes the planned addition of a sports complex and cafeteria to the Bayside Middle School and the replacement of the Princess Elizabeth school by a new school (Jacques Whitford 2008n).

Within School District 6, many of the schools are operating at full capacity. A five-year plan is expected to include recommendations that will see a new elementary school built, as well as an addition to an existing high school. Furthermore, because public funding of schools is dependent on enrolment levels, further increases in the School District 6 budget are anticipated to provide additional funding for schools reportedly needing repairs and/or additions.

Policing services within the City of Saint John are the responsibility of the Saint John Police Department (SJPD), which operates with approximately 196 officers and an additional 167 sworn officers. The SJPD maintains a number of resources, including vehicles, first aid equipment, law enforcement equipment, and K-9 and tactical units. The detachment closest to the PDA is the Courtney Avenue Detachment, approximately a five minute response time away from the PDA. SJPD operates four neighbourhood police forces, one in each compass quadrant of the city. These forces provide police information and services in all communities throughout the City.

In addition to the SJPD, policing services are also provided by the RCMP District 3 detachment and the Rothesay Regional Police Force. The RCMP District 3 detachment covers the Grand Bay-Westfield, Mispec, Red Head, and Hampton areas within Kings County. The RCMP District 3 detachment and the

Rothesay Regional Police Force have developed a well-established working relationship with the SJP. Training opportunities, highway enforcement initiatives and criminal intelligence are all shared (J. Nice, personal communication, February 13, 2008).

The Saint John Fire Department (the Department) serves the areas within the Project area, including the City of Saint John, Anthonys Cove, Red Head, Debly and Harbourview Subdivisions, and Mispec. The nearest departments to the Project are Station No. 2, located on Loch Lomond Road, and Station No. 4, located on Courtney Avenue. The Saint John Fire Department has an average turnout time of approximately three minutes (turnout time meaning the time from the sound of the alarm to personnel being ready for service in vehicles) and an average response time of six minutes within the service area (D. LeBlanc, personal communication, October 22, 2007). Personnel are offered continuous training opportunities through in-house courses. Saint John is the most industrialized city in eastern Canada and, as a result, Department personnel are expected to have training in industrial firefighting, Hazardous Materials Technician – NFPA 472 training, and Industrial Hazmat Pre-planning training. This ongoing training ensures that the Department's firefighters have the skills and knowledge required to meet the unique demands placed upon them.

The existing Saint John refinery employs two full time nurses on-site, and a Medical Response Team (MRT) has approximately 80 certified medical response members spread over four shifts. With respect to emergency fire response, the existing Saint John refinery has a fire brigade consisting of about 110 trained fire fighters (each of four shifts has a brigade consisting of 26 fire fighters including a Deputy Chief and three Captains). All fire fighters are tested annually for medical and physical fitness, and receive training on a live fire annually. All fire fighters are certified through Lambton College in Sarnia, Ontario, and officers travel to the University of Nevada Fire School in Elco, Nevada, for Fire Ground Control Training. Each shift and the day crew all perform a monthly scenario training session on site, as well as a yearly exercise with the Saint John Fire Department. Mobile response equipment on site includes: a 10,000 L/min foam pumper truck; a fast attach vehicle which is equipped with foam and dry powder; an Emergency Command Vehicle; and an MRT response van. Similar fire response services would be expected to be implemented at the new refinery for the Project.

Ambulance services have recently been taken over by the Province of New Brunswick creating a single, province-wide system under Ambulance New Brunswick. The contract is held by New Brunswick EMS Incorporated, creating a single standard including expected response times. Although locations may change over the next few years, ambulances are currently stationed at both St. Joseph's Hospital and the SJRH. In addition, ambulances are stationed at the fire stations and are circulated around the four quadrants of the city on a daily basis. Under the new contract, ambulance services will have to maintain response times of nine minutes within urban areas, and 22 minutes within rural areas. GPS units are installed in all vehicles to ensure that calls are answered with the quickest response times, and from the closest ambulance (A. Campbell, personal communication, June 13, 2007).

A number of recreational opportunities are available in the Greater Saint John area (Tourism Saint John 2002; Jacques Whitford 2008n). Facilities include the Irving Nature Park, Rockwood Park, Mispec Beach (although outside City limits), an aquatic centre and numerous arenas, community halls, urban parks, playgrounds, and clubs. Rockwood Park is a popular destination for Saint John area residents and visitors, offering a wide range of attractions throughout the year, including:

- Kiwanis Playpark at Fisher Lakes;
- Rockwood Park Municipal Golf Course and Aquatic Driving Range;

- Rockwood Park Campground;
- Cherry Brook Zoo and Vanished Kingdom Park;
- Beaches at Fisher Lakes and Lily Lake;
- Hiking, biking, cross-country skiing, and running trails;
- Picnic sites at Fisher Lakes and throughout the wilderness zone of the Park;
- Rockwood Stables and Turn of the Century Trolleys; and
- Horseback riding.

The Greater Saint John region has numerous food services, with well over 200 available facilities. Food options range from fast-food outlets to full service restaurants. The city also has a large number of coffee shops and pubs. Further, there are several large grocery stores and liquor stores. Similarly, there are numerous entertainment services in Greater Saint John. The City has nine shopping centres, two movie theatres, the Imperial Theatre (where a variety of live music and theatre events are held), and over thirty pubs and nightclubs.

### 16.3 Potential Project-VEC Interactions

The potential environmental effects on Community Services and Infrastructure are identified in Table 16.3. These environmental effects due to Project-related employment and expenditures can be expected to be greatest during Construction, but will also occur throughout Operation and, to a lesser extent, Decommissioning and Abandonment. In the assessment, no distinction is made between Project activities and physical works associated with the Petroleum Refinery and Other Land-Based Infrastructure, and with the Marine Terminal and Other Marine-Based Infrastructure. Rather, the potential environmental effects of Project-related employment and expenditure on Community Services and Infrastructure will be evaluated jointly for all Project activities and physical works. The environmental effects of employment and expenditure associated with the marine-based activities and works can be expected to be smaller than those associated with the land-based activities and works due to the relatively smaller scale of the marine components.

**Table 16.3 Potential Project Environmental Effects to Community Services and Infrastructure**

Project Activities and Physical Works	Potential Environmental Effects	
	Change in the Accommodation Market	Change in the Level of Service from Community Services and Public Infrastructure
<b>PETROLEUM REFINERY AND OTHER LAND-BASED INFRASTRUCTURE</b>		
<b>Construction</b>		
Site and Right-of-Way Preparation	0	0
Physical Construction and Equipment Installation	0	0
Construction of Watercourse Crossings (Including Wetlands)	0	0
Commissioning	0	0
Road Transportation	0	0
Employment and Expenditure	2	2

**Table 16.3 Potential Project Environmental Effects to Community Services and Infrastructure**

Project Activities and Physical Works	Potential Environmental Effects	
	Change in the Accommodation Market	Change in the Level of Service from Community Services and Public Infrastructure
<b>Operation</b>		
Operation and Maintenance of Refinery Processes and Equipment	0	0
Emissions Control and Management of Effluents and Wastes	0	0
Water Supply and Use	0	0
Linear Facilities Presence and Operation	0	0
Right-of-Way and Infrastructure Maintenance	0	0
Road and Rail Transportation	0	0
Employment and Expenditure	2	2
<b>Decommissioning and Abandonment</b>		
Removal of Facilities and Site Reclamation	1	1
<b>MARINE TERMINAL AND OTHER MARINE-BASED INFRASTRUCTURE</b>		
<b>Construction</b>		
Construction and Installation of Jetty and Other Marine-Based Infrastructure	0	0
Marine Vessel Transportation	0	0
Employment and Expenditure	0	0
<b>Operation</b>		
Marine Vessel Transportation, Berthing and Deberthing	0	0
Crude Oil and Finished Product Transfer	0	0
Wastewater, Cooling Water, and Storm Water Release	0	0
<b>Decommissioning and Abandonment</b>		
Removal of Facilities and Site Reclamation	0	0
<b>Project-Related Environmental Effects</b>		
Notes: Project-Related Environmental Effects were ranked as follows: 0 No interaction, or no substantive interaction contemplated. 1 Interaction will occur. However, based on past experience and professional judgment, the interaction would not result in a significant environmental effect, even without mitigation, or the interaction would clearly not be significant due to application of codified practices. 2 Interaction may, even with codified mitigation, result in a potentially significant environmental effect and/or is important to regulatory and/or public interest. Potential environmental effects are considered further and in more detail in the EIA.		

16.3.1 Potential Interactions with a Change in the Accommodation Market

During Construction, initial forecasts for direct Project employment averaged approximately 2,500 over 4-5 years and peaking at approximately 5,000 in 2013 to 2014. After accounting for the proportion of these jobs likely to be taken by local workers (approximately 1,000 to 1,500), these initial estimates mean that there will be a need to accommodate an average of 1,000 to 1,500 construction workers, peaking at approximately 3,500, coming from outside of the Greater Saint John area. With the planned phasing of the pace and sequence of construction activities to a 6-8 year period rather than over 4-5 years as originally forecast, the demands for construction workers during each phase of Construction will be less than initially forecast, both on average and during peak demand periods. While the phasing of the pace and sequence of Construction over a longer period than previously forecast is not considered in substantive detail in this Chapter, it will provide further mitigation for potential environmental effects of a Change in the Accommodation Market. Permanent direct employment during Operation is estimated to be approximately 1,000, with an additional 1,500 to 2,000 required during refinery maintenance/upgrade periods. It is estimated that approximately 25% of



workers for Operation will likely coming from within the existing Greater Saint John population (Hardy Stevenson and Associates 2007). Additional details on estimated direct and indirect Project employment are provided in Chapter 15.

Employment and expenditure activities associated with Construction and Operation have the potential to affect a Change in the Accommodation Market. The short-term accommodation market that may be affected includes hotels, motels, bed and breakfasts, and inns, particularly during the summer months when tourism is at its peak. The long-term accommodation market that may be affected includes apartments and condominiums, townhomes, and single detached/semi-detached houses, in both the rental and sales markets. The potential environmental effect of the Project is an increased demand on accommodations, leading to changes in the local market that are reflected by shortages in supply, a lack of diversity in available supply, and price inflation. Demand on accommodations may also lead to the displacement of low income individuals and families due to Project-related increases in rental rates and the costs of housing. The potential environmental effect on the affordability of housing is of particular concern given that the current high level of poverty and affordable housing needs within the City of Saint John (Jacques Whitford 2008n).

A Change in the Accommodation Market is expected to be greatest during Construction and Operation, although direct employment and expenditure activities will diminish during Operation. Decommissioning and Abandonment has the potential to result in Project environmental effects on the accommodation market; however, it is anticipated that the number of workers that will be required for Decommissioning and Abandonment will be less than the number experienced during Construction or Operation. Given the demands on accommodation during Operation and the length of time before the start of Decommissioning and Abandonment, it is likely that the market will make the necessary adjustments in supply to meet the anticipated demand. For this reason, it is predicted that Decommissioning and Abandonment will not result in substantive residual environmental effects on the accommodation market and, thus, the potential environmental effects of a Change in the Accommodation Market resulting from the Project during Decommissioning and Abandonment on Community Services and Infrastructure are rated not significant. Consequently, the potential environmental effects of Decommissioning and Abandonment of the Project on the accommodation market are not evaluated further in this EIA/EA.

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### 16.3.2 Potential Interactions with a Change in the Level of Service from Community Services and Public Infrastructure

Employment and expenditure activities associated with Construction and Operation are forecasted to place additional demands on community services and public infrastructure. Potentially affected services and infrastructure include: local emergency response (fire, police, and medical); on-going support services (health care, social services, and public education); and food services, entertainment and recreation facilities. Under initial estimates, direct Project employment during Construction was to average approximately 2,500 over 4-5 years and peaking at approximately 5,000 in 2013 to 2014; Operation employment was to average about 1,000 employees. With the planned phasing of the pace and sequence of construction activities to a 6-8 year period rather than over 4-5 years as originally forecast, the demands for construction workers during each phase of Construction will be less than initially forecast, both on average and during peak demand periods. While the phasing of the pace and sequence of Construction over a longer period than previously forecast is not considered in substantive detail in this Chapter, it will provide further mitigation for potential environmental effects of a Change in the Level of Service from Community Services and Public Infrastructure.

As mentioned previously, policing services in the RAA are provided primarily by the SJPD and the RCMP, in addition to other small forces in the area (e.g., Rothesay Regional Police Force). There is an expectation that during Construction criminal activity may increase, including drug use, alcohol abuse, sex trade offences, theft, and break and enter (D. Parks, personal communication, June 22, 2007). Other environmental effects of concern on policing more specifically associated with Construction include an increase in noise, resulting in an increase in enforcement of noise control, as well as the potential for public concern associated with the Project, resulting in the need for additional security.

With respect to local emergency medical services, the planned changes associated with the recent transition to two RHAs, coupled with the upgrade of the Saint John Regional Hospital, are expected to facilitate better access to medical services. However, there remains concern over the potential environmental effects of the Project on the level of service, particularly due to the additional indirect demands placed on the system outside of any direct needs of the Project.

In addition to the fire services provided by the Saint John Fire Department, it is expected that the Project will provide emergency response services on site, similar to what is currently provided at the existing Saint John refinery.

In consideration of the above, it is expected that the potential environmental effects on local emergency response services (e.g., fire, medical and police) will be mitigated with the existing codification and adherence to standards for levels of service, as well as in consideration of service provisions and planned changes to local emergency response services. The added taxation revenue associated with an increased tax base to the City as a direct result of the Project could assist in financing any required emergency service or infrastructure upgrades that could be required in the unlikely event that service levels fall below standards or acceptable requirements. Regardless, the Proponent will work closely with the City of Saint John and its emergency service providers (i.e., fire, medical and police) throughout the Project to further identify means of mitigating environmental effects to the extent that they are not significant, and to identify the requirement for and implementation of any improvements that may be needed. Consequently, it is the professional judgment of the Study Team that the potential environmental effects of the Project on local emergency response services will be not significant. Thus, these potential environmental effects are not assessed further.

With respect to on-going health care services, both Construction and Operation may result in both positive and adverse environmental effects. The increase in regional employment is expected to result in an overall increase in health status; working individuals with higher relative incomes are generally healthier individuals. This includes a greater ability to pay for and enjoy recreational activities. However, some challenges that may be faced due to an increase in the population include maintaining sufficient public resources and access to routine medical care. For example, lack of family physicians is a province-wide and national issue, and the City of Saint John is not an exception to the problem (D. Nicinski, personal communication, 2007). An increase in population may play a role in exacerbating this concern.

Community health programs, coordinated through RHA B, ensure community-based health services are being offered to residents, and assist with public education programs. In addition, mental health services and addictions counselling are available in the Greater Saint John area. Citizens also have access to a wide range of social services dedicated to community support and development, many delivered by NGOs. This includes, for example, crisis intervention, shelters, needle exchange services, sex trade worker outreach, and food banks. However, many of the support services offered are reportedly facing challenges with respect to resourcing and staffing (Jacques Whitford 2008n).

Program wait times can be lengthy and certain services are not readily available. Subsequently, much of the current focus has been on maintaining the current level of service with limited resources, rather than on strategic planning for the increase in demand that may result from an increase in the regional population.

With respect to the public education system, direct and indirect Project employment associated with Construction and Operation may lead to an environmental effect on the functional capacity of School Districts 6 and 8, which serve the communities of Greater Saint John and adjacent regions. The current available capacity may not be sufficient to accommodate the additional needs of families that move into the region.

The Greater Saint John region has numerous recreation, food, and entertainment facilities. Over time, particularly during Operation, it can be expected that the regional economy will respond to meet the increase in demand on these services. Consequently, it is predicted that any unfulfilled demand for food or entertainment services will be mitigated through the further expansion of these services by the private sector. Therefore, for the purpose of this VEC the potential adverse environmental effects on food and entertainment services are predicted to be not significant and will not be assessed further.

There are, however, concerns for the potential environmental effects of the Project on recreation programs and services, which are largely provided by municipalities, NGOs, and the volunteer sector. These providers may face difficulties in expanding capacities to meet changing needs. The projected increase in the regional population due to the Project may affect the availability of certain programs and space in recreational facilities due to the increase in demand.

All potential environmental effects on community services and public infrastructure are anticipated to be similar for Construction and Operation, although more pronounced during Construction given the larger direct and indirect regional employment and expenditure effects of the Project. Decommissioning and Abandonment also has the potential to result in Project environmental effects; however, the number of workers that will be required for Decommissioning and Abandonment are anticipated to be less than the number experienced during Construction or Operation. In addition, the length of time until Decommissioning and Abandonment will permit the necessary adjustments to be made to community services and public infrastructure to maintain the level of service. Consequently, the potential environmental effects of a Change in the Level of Service from Community Services and Public Infrastructure resulting from the Project during Decommissioning and Abandonment on Community Services and Infrastructure are rated not significant and will not be assessed further.

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#### 16.4 Environmental Effects Assessment

Residual environmental effects of the Petroleum Refinery and Other Land-Based Infrastructure, as well as the Marine Terminal and Other Marine-Based Infrastructure on Community Services and Infrastructure are summarized in Table 16.4.

**Table 16.4 Summary of Residual Environmental Effects on Community Services and Infrastructure**

Potential Residual Environmental Effects	Proposed Mitigation/Compensation Measures	Residual Environmental Effects Characteristics						Significance	Prediction Confidence	Likelihood	Cumulative Environmental Effects?	Recommended Follow-up and Monitoring
		Direction	Magnitude	Geographic Extent	Duration and Frequency	Reversibility	Ecological/ Socio-economic Context					
<b>Change in the Accommodation Market</b>												
Construction	<ul style="list-style-type: none"> <li>Development of Project accommodations to house temporary construction workers.</li> <li>Phasing of the pace and sequence of Construction over a longer duration (approximately 6-8 years).</li> <li>Continued dialogue with government, developers and the NGO community on accommodation needs and strategies.</li> </ul>	A	M	L	MT	R	N/A	N	M	M	Y	None.
Operation		A	M	L	LT	R	N/A	N	M	M	Y	
Residual Environmental Effect for all Phases								N	M	M	Y	
<b>Change in the Level of Service from Community Services and Public Infrastructure</b>												
Construction	<ul style="list-style-type: none"> <li>Workforce education and enforcement of health and safety policies.</li> <li>Provision of non-emergency health care to workers.</li> <li>Employee Assistance Program.</li> <li>Phasing of the pace and sequence of Construction over a longer duration (approximately 6-8 years).</li> <li>Continued dialogue with government and NGO service providers in support of maintaining and improving the level of service to vulnerable groups.</li> </ul>	A	H	R	MT	R	N/A	N	M	M	Y	None.
Operation		A	M	L	LT	R	N/A	N	M	M	Y	
Residual Environmental Effect for all Phases								N	M	M	Y	
<b>Combined Residual Environmental Effects</b>												
Construction	Same as above.							N	M	M	Y	None.
Operation								N	M	M	Y	
Combined Environmental Effect								N	M	M	Y	



**Table 16.4 Summary of Residual Environmental Effects on Community Services and Infrastructure**

Potential Residual Environmental Effects	Proposed Mitigation/Compensation Measures	Residual Environmental Effects Characteristics					Significance	Prediction Confidence	Likelihood	Cumulative Environmental Effects?	Recommended Follow-up and Monitoring
		Direction	Magnitude	Geographic Extent	Duration and Frequency	Reversibility					
<p><b>KEY</b></p> <p><b>Direction:</b>                      P Positive                      A Adverse</p> <p><b>Magnitude:</b>                      L Low: Level of service will remain within what is currently achieved.                      M Moderate: Level of service declines, but remains within acceptable service standards.                      H High: Level of service declines and results in level of service lower than acceptable standards.</p> <p><b>Geographic Extent:</b>                      S Site-specific: Within the PDA.                      L Local: Within the Saint John CMA.                      R Regional: Outside of the Saint John CMA, but within southern NB.</p> <p><b>Duration:</b>                      ST Short term: Less than 1 year                      MT Medium term: 1 to 5 years                      LT Long term: Greater than 5 years                      P Permanent</p> <p><b>Frequency:</b>                      O Occurs once                      S Occurs sporadically at irregular intervals                      R Occurs on a regular basis and at regular intervals                      C Continuous</p> <p><b>Reversibility:</b>                      R Reversible                      I Irreversible</p> <p><b>Ecological/ Socio-economic Context:</b>                      U Undisturbed: Area relatively or not adversely affected by human activity.                      D Developed: Area has been substantially previously disturbed by human development or human development is still present.                      N/A Not Applicable</p> <p><b>Significance:</b>                      S Significant                      N Not Significant</p> <p><b>Prediction Confidence:</b>                      Based on scientific information and statistical analysis, professional judgment and effectiveness of mitigation.                      L Low level of confidence                      M Moderate level of confidence                      H High level of confidence</p> <p><b>Likelihood:</b>                      Based on professional judgment                      L Low probability of occurrence                      M Medium probability of occurrence                      H High probability of occurrence</p> <p><b>Cumulative Environmental Effects?</b>                      Y Potential for environmental effect to interact with other past, present or foreseeable projects or activities in RAA.                      N Environmental effect will not or is not likely to interact with other past, present or foreseeable projects or activities in RAA.</p>											



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## 16.4.1 Assessment of Project-Related Environmental Effects

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### 16.4.1.1 Change in the Accommodation Market

The environmental effects of the Project may include changes in the accommodation market resulting in shortages in supply, lack of diversity of available supply, and price inflation. This includes the purchase market (detached/semi-detached houses, townhouses, and condominiums) and the rental market for long-term accommodations. Within the short-term accommodation market (motels, hotels, inns, and bed and breakfasts) availability of rooms could be restricted. Low income families and individuals are particularly vulnerable to shortages in affordable housing, potentially resulting in displacement.

As mitigation, and as described in Chapter 3 (Project Description), small and localized Project accommodations will be built specifically to house non-local workers during Construction if required. Large scale Project accommodations may also need to be considered. With respect to long-term accommodation there are predicted to be environmental effects resulting in lower availability and price inflation, but with the given mitigation, noted below, the environmental effects are expected to be local and of moderate magnitude.

With respect to shortages in affordable housing and potential displacement of low income families and individuals, strategies for mitigation should be developed through continuing community engagement and the development of partnerships among government, developers and social service NGOs. Given that poverty is a prevalent obstacle faced by a large number of citizens in the Greater Saint John area, affordability is a primary housing need. Subsequent strategies designed to enhance properties in need of renewal are needed, as well as measures to increase affordability. With the continued advancement of community strategies to address affordable housing needs, it is predicted that residual environmental effects on vulnerable individuals and households can be mitigated. The Proponent will continue to work with these interested parties to communicate its accommodation needs and plans for worker accommodation.

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#### 16.4.1.1.1 Existing Conditions for Change in the Accommodation Market

Within Greater Saint John, there are a total of over 1,500 guestrooms offered within a number of hotels, motels, inns, and bed and breakfasts (Tourism New Brunswick 2005). During 2005 and 2006, the average annual vacancy rate for all short-term accommodations was approximately 54%, with monthly rates lowest December to February (36-47%) and highest July to August (63-70%) (Jacques Whitford 2008n). Thus, in recent years the average number of rooms available was approximately 690 at any time, and as high as about 960 during the winter months and as low as about 450 during the summer months. Recently, the construction of at least one new hotel within Greater Saint John (and with several others planned) has continued to add to the stock of available guestrooms in response to the growth in the region. The focus of the energy hub in the business community will create an impetus for investment in hotel accommodations to take advantage of the opportunity afforded by the Project.

Sales activity by neighbourhood for September 2007 year-to-date as described by number of listings, sales and the sales to listings ratio (an indicator of the extent to which supply is meeting demand) is shown in Table 16.5. Average sales prices are also shown (all figures in 2007 Canadian dollars). Total housing construction starts in the Greater Saint John area have increased over the last five years with over 500 starts each year since 2002.

**Table 16.5 Housing Listings and Sales Activity by Neighbourhood within Greater Saint John**

Neighbourhood	Number of Listings (Sept. 2007 YTD)	Number of Sales (Sept. 2007 YTD)	Sales/ Listings Ratio (Sept. 2007 YTD)	Average Sale Price (Oct. 2005-Sept. 2006)	Average Sale Price (Oct. 2006-Sept. 2007)	% Change in Average Sale Price
Grand Bay-Westfield	62	43	69%	\$130,427	\$146,268	12.1
Old West Saint John	36	23	64%	\$101,318	\$99,811	-1.5
Fundy Heights	54	48	89%	\$111,928	\$120,226	7.4
Churchill Heights/Quentin Heights	60	38	63%	\$144,198	\$154,796	7.34
Dominion Park	19	15	63%	\$106,857	\$101,506	-5.0
South Bay/Martinon	35	24	69%	\$92,952	\$114,139	22.7
Lorneville	20	13	65%	\$90,600	\$112,550	24.2
North	61	54	89%	\$118,409	\$126,730	7.0
Millidgeville	115	64	56%	\$181,264	\$216,091	19.2
East	165	119	72%	\$100,337	\$109,186	8.8
Champlain Heights/ Eastwood Park	18	17	94%	\$107,761	\$118,718	10.2
Forest Hills	35	31	89%	\$126,765	\$134,238	5.9
Glen Falls	14	14	100%	\$70,989	\$82,440	16.1
Lakewood	38	33	87%	\$123,035	\$135,242	9.9
Red Head	35	27	77%	\$93,780	\$101,827	8.6
Loch Lomond	41	17	41%	\$126,262	\$132,420	4.9
Brookville/Torryburn	8	6	75%	\$143,833	\$169,800	18.0
K Park	10	11	110%	\$261,016	\$252,162	-3.4
Riverside/Rothesay	126	95	75%	\$190,064	\$222,978	17.3
Wells/Upper Golden Grove	45	37	82%	\$132,771	\$168,125	26.6
Total	997	729	76.45%	\$127,878	\$140,962	10.82

The rental market availability rates within the Saint John CMA remains relatively high compared to other major centres in Canada; more recent statistics indicate a decline in vacancies, but within the range of variability evidenced over recent years (CMHC 2006) (Table 16.6). The vacancy rates for the Saint John CMA are, to a certain extent, skewed. Vacancy rates are generally lower for newer and higher-end units, for which there is a greater demand; however, although older units have a higher vacancy rate, many of the vacant units are reportedly in such disrepair that they are essentially uninhabitable (K. Peacock, personal communication, July 13, 2007). Accordingly, the higher vacancy rates associated with the older units may suggest a problem with the quality of the available stock.

**Table 16.6 Vacancy and Availability Rates (%) in Privately Initiated Apartment Structures of Three Units and Over**

Month	Available Units	Availability Rate	Vacant Units	Vacancy Rate
October 2006	733	7.9%	637	6.8%
October 2007	546	6.1%	467	5.2%

Source: Canada Mortgage and Housing Corporation (CMHC) Rental Market Statistics 2007.

Note: A rental unit is said to be available if the existing tenant has given, or has received, notice to move, and a new tenant has not signed a lease; or the unit is vacant. A unit is considered vacant if, at the time of the survey, it is physically unoccupied and available for immediate rental.

The number of households with core housing needs by tenure is a CMHC-defined statistic that jointly considers affordability, adequacy, and suitability of available accommodations. This statistic identifies those households that are at greatest risk. A household is said to be in core housing need if its housing falls below at least one of the following:

- Adequate dwellings are those reported by their residents as not requiring any major repairs relating to plumbing, fire, structural and physical condition;
- Suitable dwellings have enough bedrooms for the size and make-up of resident households, according to National Occupancy Standard (NOS) requirements; or
- Affordable dwellings cost less than 30% of total before-tax household income.

According to Hardy Stevenson and Associates (2007), the primary reason households are in core need is related to affordability. In Rothesay, 57% of the core need is directly attributed to lack of affordability. Furthermore, in the City of Saint John affordability represents 71% of the need. Consequently, access to affordable housing is the primary housing need within the Saint John CMA.

Further, affordability is a primary concern for renters (Hardy Stevenson and Associates 2007). The percentage of renters spending more than 30% of their household income on rent for communities within the Saint John CMA is shown in Table 16.7. Renters are highlighted here because the proportion of renters with affordable housing needs is considerably higher than their owner counterparts. Comparably, 13.3% of owner households experienced affordability needs in 2000, while overall 37.2% of renters experienced affordability needs. Of the 37.2%, almost half of those households were spending more than half of their income on rent (Hardy Stevenson and Associates 2007:63).

**Table 16.7 Percentage of Renters with Affordable Housing Needs by Municipality (2007)**

Municipality	Percentage of Renting Households with Affordable Housing Needs
City of Saint John	38.3%
Town of Grand Bay-Westfield	34.9%
Town of Hampton	35.9%
Town of Quispamsis	29.6%
Town of Rothesay	23.9%
St. Martins Village	40.0%
Total for Saint John CMA	37.2%

Source: Hardy Stevenson and Associates (2007)

Note: Affordable dwellings are those that cost less than 30% of total before-tax household income. Household income refers to the total annual before-tax household income from all sources, and from all members of the household 15 years of age and over. Shelter costs refers to the monthly shelter cost paid by the household for their dwelling, which may include rent/mortgage payments, any payments for electricity, fuel, water, and other municipal services.

There is a considerable discrepancy between household types with respect to affordable housing needs (Table 16.8). Rates are particularly high among one person households and lone parent households.

**Table 16.8 Percentage of Renters with Affordable Housing Needs by Household Type (2007)**

Household Type	Percentage of Renting Households with Affordable Housing Needs
One family household	30.8%
Couples with children	17.7%
Multiple-family households	35.0%
Non-family households : One person only	45.7%
All couples	19.8%
One-family households : Lone parents	47.8%
Non family households	43.5%
Non-family households: Two or more persons	29.3%

Source: Hardy Stevenson and Associates (2007)

Note: Affordable dwellings are those that cost less than 30% of total before-tax household income. Household income refers to the total annual before-tax household income from all sources, and from all members of the household 15 years of age and over. Shelter costs refers to the monthly shelter cost paid by the household for their dwelling, which may include rent/mortgage payments, any payments for electricity, fuel, water, and other municipal services.

#### 16.4.1.1.2 Project Environmental Effects Mechanisms for Change in the Accommodation Market

During Construction, initial estimates predicted that the Project will require up to 1,500-2,000 accommodation units, depending on the number of workers that can ultimately be sourced locally. Based on recent housing construction levels (*i.e.*, approximately 500 units per year), the market in Greater Saint John is currently projected to be able to meet the existing trend in demand, without the Project (Hardy Stevenson and Associates 2007). During Operation, additional accommodations will be required for an estimated 750 workers and their families on a permanent basis. During periodic refinery maintenance/upgrade periods, accommodations for an estimated 1,500 to 2,000 workers will be required for the Project.

A high demand for accommodations may lead to shortages in supply, a lack of diversity in the available supply, and price inflation. This may also lead to the displacement of low income individuals and families due to an increase in housing costs. Particularly vulnerable households are those defined as having core housing needs. The latter interaction is of particular concern given that the current high level of poverty within the City of Saint John. The eventual gentrification of neighbourhoods may specifically affect those who rely on affordable and subsidized housing.

#### 16.4.1.1.3 Mitigation for Change in the Accommodation Market

As mitigation, and as described in the Project Description (Chapter 3), Project accommodations built specifically to house non-local workers during Construction will likely be required even with phasing the pace and sequence of construction activities over a longer 6-8 year period. If they are needed, it is expected that these developments will be undertaken, owned and managed by third parties. The Proponent will communicate requirements for accommodations to third party developers well in advance of the start of Construction. Developments will be subject to the relevant municipal approval process, and developers will be required to adhere to established Project design principles to avoid potential adverse environmental effects (Section 3.2.4).

Though many of these workers could be housed in existing accommodation and housing units in the Greater Saint John area if the capacity exists at the time, the following options for providing additional accommodations for workers are being considered:

- The probable requirements for additional accommodation and housing units over the life of the Project will be communicated to private developers, local municipal authorities, and local non-

government organizations (NGOs). Particular attention will be paid to developers' ability to provide plans for the adaptive reuse of the facilities after the completion of the Project. Plans for adaptive reuse demonstrating flexible design to support the maximum use of the facilities to the benefit of the community will be encouraged (e.g., conversion to affordable family or senior-oriented housing units); and/or

- Developing one or more privately managed worker accommodations that could house a large group of non-local workers with the same objectives of considering longer term use following completion of the Project. With respect to the operation of large accommodation facilities, if considered, additional mitigation will be considered where feasible and appropriate, such as:
  - Provision of 24 hour security services for each facility, with gated and controlled site access;
  - Application and enforcement of a Drug and Alcohol Policy;
  - Application and enforcement of a Residential Standards of Behaviour Policy;
  - Provision of dedicated health and dental care services, either on site or at an alternate Project site; and
  - Provision of essential retail and entertainment services on site (e.g., convenience store, video store, etc.).

Additionally, phasing of the pace and sequence of Construction activities over a longer duration (approximately 6-8 years) will extend the time over which labour is required and reduce the annual demand for accommodations.

The above measures will reduce adverse environmental effects on Community Services and Infrastructure due to the Project accommodations. In particular, this includes potential adverse environmental effects on the level of service provided by emergency response services, ongoing health care services, and social service providers within the Greater Saint John area.

The above mitigation will assist in preventing low income families and individuals that are vulnerable to shortages in affordable housing from potential displacement. The Proponent will continue to communicate with members of the community, including government, developers and social service NGOs, to identify creative and viable ideas to address affordable housing needs. Continued discussion with the broader Greater Saint John community will be undertaken by the Proponent to help develop appropriate strategies to mitigate adverse environmental effects on affordable housing.

Further mitigation, if implemented by the Greater Saint John community, would include programs identified by the Benefits Blueprint Initiative (Hardy Stevenson and Associates 2008). Recommendations of this initiative include the development of a program designed specifically to address the issue of poverty through neighbourhood capacity building, which will result in initiatives focusing on community safety, cleanliness, skills upgrading, literacy, civic engagement, and communication between residents. A Saint John housing strategy is also recommended focused on expanding accommodation options to avoid housing shortages and escalating rent levels, as well as providing more higher-end housing options (Hardy Stevenson and Associates 2008).

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#### 16.4.1.1.4 Characterization of Residual Project Environmental Effects for Change in the Accommodation Market

The sales and rental markets for long-term accommodations are active in the Greater Saint John area. Statistics indicate that housing construction is able to meet the current demand for new units, but allowing for little slack in the inventory. The Project's needs for accommodations during Construction

are expected to be met by the market and the development of up to 1,500-2,000 Project accommodation units. Needs for short-term accommodations will also be met by the over 1,500 guestrooms available in the Greater Saint John area, new hotel construction, and interest in the construction of additional hotels in the area to meet the demand (J. Madore, personal communication, February 27, 2008); given this substantial capacity in available units, residual environmental effects on short-term accommodations are predicted to be low in magnitude, within the variability in vacancy rates that is currently experienced. With respect to long-term accommodation, there are predicted to be environmental effects resulting in shortages in supply and price inflation, but with the given mitigation the environmental effects are expected to be local and of moderate magnitude.

Preference for the developer selection for Project accommodation will be given to those developers that can demonstrate that the project design process was conducted collaboratively with provincial and municipal government and social service NGOs, and that projects are consistent with and supportive of local community values. Additional preference will be given to developers incorporating plans for the adaptive reuse of the facilities after Project use. Plans for adaptive reuse should demonstrate flexible design to support the maximum utilization of the existing facilities to the benefit of the community (e.g., conversion to affordable family or senior-oriented housing units).

Overall, it is predicted that, given Project accommodations developed within Greater Saint John during Construction, the residual environmental effects will be local and of moderate magnitude. With the continued advancement of community strategies to address affordable housing needs, it is predicted that residual environmental effects on vulnerable individuals and households can be mitigated. With the proposed mitigation, as well as mitigative measures already in place, the environmental effect of Change in the Accommodation Market on Community Services and Infrastructure, during all phases of the Project, is rated not significant. This prediction has a moderate level of confidence, with uncertainties primarily due to the unknown extent to which the private sector will respond to the change in accommodation demand.

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#### 16.4.1.2 Change in the Level of Service from Community Services and Public Infrastructure

The Project may change the level of service from community services and public infrastructure by affecting the level of demand. Of particular concern are the potential environmental effects on public health services and the adequacy of the community health and social support provided by government and NGOs. Unique concerns, such as increases in the need for addictions treatment and crisis intervention, may place additional strains on the current services. A lack of available space within the existing public education system, as well as recreation facilities and programs, is also a potential concern. Capacity to accommodate an increase in population within the Greater Saint John area may be limited.

Mitigation for Change in the Level of Service from Community Services and Public Infrastructure include working with government and NGOs to encourage discussion and the sharing of ideas about the provision of services to vulnerable groups, as well as continuing the ongoing community engagement. Other mitigation will include the provision of some non-emergency health care (e.g., a nurse on-site) to individuals employed for the Project, and an Employee Assistance Program offered by the Proponent to its employees. In order to address the issues regarding the strain experienced by the health care system, it is also recommended that the Proponent actively enforce corporate health and safety policies and encourage healthy lifestyle choices among its employees. Furthermore, various planned projects including the Peel Plaza development, the construction of the new YMCA, as well as

upgrades to the Saint John Regional Hospital will all add to the existing infrastructure and service capacities within the Greater Saint John area.

Residual environmental effects with respect to a Change in Level of Service from Community Services and Public Infrastructure are expected to be moderate in magnitude. Service levels are expected to decline, particularly in the short to medium-term (less than five years), but remain within acceptable service standards. However, given the influx of temporary workers during Construction, the demands on local health and social services (e.g., mental health services, addiction services, crisis intervention, needle exchange services, sex trade worker outreach) are potentially high. In order to mitigate these environmental effects, additional efforts are required to manage the activities of the temporary non-local workers within the community. The Project Description (Chapter 3) incorporates the use of several relatively small-scale worker accommodation facilities to be constructed in areas already zoned and serviced for such developments, as additional mitigation if required to minimize potential adverse environmental effects on Community Services and Public Infrastructure. However, if an accommodation facility is required, the construction of a single, large, relatively isolated and well provided worker accommodation facility is recommended.

#### 16.4.1.2.1 Existing Conditions for Change in the Level of Service from Community Services and Public Infrastructure

The former Region 2 Health Authority has approximately 4,700 employees, including about 400 physicians on staff (Atlantic Health Sciences Corporation 2006), which translates to a per capita basis of approximately 0.035 employees per resident and 0.003 physicians per resident. The Saint John Regional Hospital has approximately 524 beds, while St. Joseph's Hospital offers about 104. Statistics on the number of beds, bed occupancy rates and number of beds occupied, for acute care and long term beds at both facilities, are shown in Table 16.9. These statistics serve as indicators of the level of service currently available with respect to health services for a current total population of approximately 135,000 that reside within the jurisdiction of the former Region 2 Health Authority.

**Table 16.9 Bed Occupancy Rates for Saint John Regional Hospital and St. Joseph's Hospital**

Facility	2004-2005	2005-2006
<b>Annual Bed Occupancy Rate (Acute Care)</b>		
Saint John Regional Hospital	84.8%	88.3%
<b>Annual Bed Occupancy Rate (Long Term)</b>		
Saint John Regional Hospital	88.6%	0.0%
St. Joseph's Hospital	85.5%	92.0%
<b>Number of Beds on March 31 (Acute and Long Term)</b>		
Saint John Regional Hospital	548	524
St. Joseph's Hospital	104	104
<b>Estimate of Average Number of Beds Occupied (Acute and Long Term)</b>		
Saint John Regional Hospital	475	463
St. Joseph's Hospital	89	97

Source: Adapted from Atlantic Health Sciences Corporation (2006).

Statistics on the number of clients for addictions services by type of dependency, on both an inpatient treatment and community outpatient basis, is shown in Table 16.10. This covers main addiction treatments conducted out of the Ridgewood Addictions Centre, again servicing a current total population of approximately 135,000 that reside within the jurisdiction of former Region 2 Health Authority.

**Table 16.10 Approximate Number of Clients for Addictions Services by Type of Dependency, 2005/06**

Dependency	Inpatient Treatment	Community Outpatient
Alcohol	278	940
Cocaine/other	92	130
Gambling/other	6	98
Alcohol and Other	4	111
Cannabis	23	312
Co-dependency	0	98
Hallucinogens	11	19
Nicotine	0	0
Prescription Drugs	261	146
Total	675	1,854

Source: Adapted from Atlantic Health Sciences Corporation (2006).

With respect to public education, current total enrolment in School District 6 is approximately 12,750 students among about 23 schools, while total enrolment in School District 8 is approximately 10,370 students among about 37 schools. According to the functional capacity report released for School District 8 in September 2007 (J. MacDonald, personal communication, November 21, 2007), only two of the 37 schools within the District were assessed as having over 80% of available space occupied. Within School District 6, many of the schools are operating at full capacity (C. Toole, personal communication, November 27, 2007). Recommendations contained within a new five-year plan are expected to include recommendations that will see a new elementary school built, as well as an addition to an existing high school.

The types of recreation facilities available within the Saint John CMA, and associated capacity estimates, are shown in Table 16.11. These facilities currently serve a baseline population within the Saint John CMA of approximately 122,400 in 2006 (Jacques Whitford 2008n). Estimates of the number of facilities and capacity are used as indicators to understand if the Project will have an environmental effect on functional capacity of recreation programs.

**Table 16.11 Primary Recreation Facilities in the Greater Saint John Region**

Location	Primary Recreation Facilities	Number of Facilities	Capacity
City of Saint John	Arenas	3	≤250 each
	Arena	1	1,000
	Arena	1	6,000
	Arena	1	1,500
	Community Centre	6	≤250* each
	Fields	46	n/a
	Tennis Facilities	18	n/a
	Playgrounds	66	n/a
	Beaches (supervised)	4	n/a
	Beaches (unsupervised)	2	n/a
	Parks	10	n/a
Town of Quispamsis	Arena	1	500
	Community Centre	1	250
	Community Centre	1	92
	Tennis Facilities	2	n/a
	Playgrounds	7	n/a
	Beaches (supervised)	2	n/a
	Beaches (unsupervised)	1	n/a
Parks	5	n/a	

**Table 16.11 Primary Recreation Facilities in the Greater Saint John Region**

Location	Primary Recreation Facilities	Number of Facilities	Capacity
Town of Rothesay	Arena	1	250
	Community Centres	5	≤500 each
	Fields	7	n/a
	Playgrounds	10	n/a
	Beaches (supervised)	3	n/a
	Parks	5	n/a
Town of Grand Bay-Westfield	Arena	1	800
	Community Centres	3	≤150 each
	Fields	3	n/a
	Tennis Facilities	1 (3 courts)	n/a
	Playgrounds (municipal)	3	n/a
	Beach (supervised)	1	n/a
	Parks (municipal)	4	n/a
	Parks (green space)	30	n/a

Notes:

\* = the number denoted may vary and is dependent on active participation levels; n/a = not applicable.

Source: Recreation Online Database, Recreation New Brunswick (2007); K. Watson, personal communication, November 15, 2007; R. Roberts, personal communication, November 15, 2007; G. Clark, personal communication, November 15, 2007.

#### 16.4.1.2.2 Project Environmental Effects Mechanisms for Change in the Level of Service from Community Services and Public Infrastructure

Employment and expenditure activities associated with both Construction and Operation may increase demands on on-going health and social services. Community health and social support services are potentially most vulnerable to increases in demand. An increase in the regional population and incomes will lead to an increase in the need for many of these services, which can include addiction services, crisis intervention, and mental health services, among others. Many of the on-going support services provided by surrounding public sector facilities and social service NGOs may experience an increasing strain on resources and staffing, as well as a lack of physical space, therefore affecting the level of service. In order to maintain quality service, service wait times for programs are often increased. Information provided during interviews confirmed the current challenges within the community health and social services sector with respect to resourcing and staffing, meaning that with an increase in the demand, assistance to clients may not be provided in as timely a fashion as would be best (Jacques Whitford 2008n).

The increase in regional employment directly and indirectly associated with the Project may also increase demands on public education as provided by School Districts 6 and 8. Many workers moving to the region, particularly for permanent positions during Operation, can be expected to bring with them families with children. Each school district may experience a strain on resources, staffing, and physical space. Information gathered during interviews confirmed that each district faces different challenges with respect to the provision of public education (Jacques Whitford 2008n).

Employment and expenditure activities associated with both Construction and Operation may also increase demands on existing recreational programs, services and facilities. As much of the services and infrastructure is provided by the various municipalities and the volunteer sector, the influx of workers and their families may result in a potential environmental effect, including lack of physical space, resources, and programs. Consequently, the result may be a decline in the availability of recreation services.

### 16.4.1.2.3 Mitigation for Change in the Level of Service from Community Services and Public Infrastructure

Mitigation for change in the level of service from community services and public infrastructure includes the continuation of community-level dialogue with government and NGO service providers in support of maintaining and improving the level of service to vulnerable groups. This includes, for example, the provision of addiction services, crisis intervention, and mental health services. Although provision of these services is ultimately the responsibility of and best delivered by the current government and NGO services providers, the Proponent may play a role by effectively communicating the activities of the Project and the schedule of those activities as it may affect regional service demand.

The phasing of the pace and sequence of Construction activities over a longer duration (approximately 6-8 years) than initially forecast will extend the time over which labour is required and, thus, reduce the average number of workers required for the Project at any one time. While phasing is not considered in appreciable detail in this Chapter, it will have the overall effect of limiting demand and will help mitigate adverse environmental effects on the level of service from Community Services and Public Infrastructure.

In addition, to mitigate the environmental effects on on-going health services, it is expected that some non-emergency health care will be provided to individuals employed by the Project. An Employee Assistance Program will also be offered by the Proponent to its employees. Workforce education to encourage healthy lifestyle choices, sensitivity training, and strict enforcement of the Proponent's health and safety policies will also serve to mitigate environmental effects. For example, sensitivity training would raise the level of awareness regarding the potential environmental effects that workers can have on the community and their families by engaging in certain activities, such as drug and alcohol use. Furthermore, various planned projects including the Peel Plaza development (also formerly known as the North of Union Development), the construction of the new YMCA, as well as the upgrades to the Saint John Regional Hospital will all add to the existing infrastructure and service capacities within the Greater Saint John area.

Further mitigation includes programs identified by the Benefits Blueprint Initiative (Hardy Stevenson and Associates 2008). Lack of available childcare services may lead to a number of woman and some men unable to participate in the workforce. Recommendations made by the Benefits Blueprint Initiative to curtail this include an increase in the capacity and quality of existing child care services to 3,750 over the next two years. The recommended expansion and upgrading will include an after-hours facility to accommodate those persons who work shifts and odd hours, as well as the creation of 250 new caregiver positions, improved wages and annual salaries, incentives for both regulated and unregulated child care facilities to participate in Early Childcare Education, and an established contingency fund for physical improvements. Furthermore, a Benefits Blueprint recommendation includes the creation of a prioritized list of infrastructure initiatives for the region.

In addition, the recent provincial health plan of the Government of New Brunswick highlights a number of changes to medical services, including: an online hospital-by-hospital list of wait times for surgical and diagnostic procedures; a system to let people travel to the hospital with the shortest wait time; more emphasis on prevention programs to boost health; an expanded psychosis intervention program for adolescents and young adults; more incentives to recruit health professionals; six new community health centres; and an expansion of the methadone treatment program. Furthermore, upgrades to the Saint John Regional Hospital will help to facilitate better access to medical services.

#### 16.4.1.2.4 Characterization of Residual Project Environmental Effects for Change in the Level of Service from Community Services and Public Infrastructure

With respect to the residual project environmental effects for change in the level of service from on-going health services, the projected change in hospital bed occupancy rates, number of beds occupied, and number of employees and physicians on staff within the former Region 2 Health Authority are used as indicators of the environmental effect. Current statistics are described in Section 16.4.1.2.1. The described mitigation will mean that the increase in the demand for the services will be less than what would be predicted on a per capita basis with the increase in regional population.

During Construction, to maintain the same level of on-going health care service provided by the former Region 2 Health Authority, the number of employees is estimated to need to increase by less than about 126 and the number of physicians on staff by less than about 11. Similarly, the total average number of beds occupied within Saint John Regional Hospital and St. Joseph's Hospital can be expected to increase by less than about 15 and the average hospital bed occupancy rates by less than 2.4% (from about 89.2% to 91.6%). (Estimate assumes an average influx of 3,600 new individuals to the Greater Saint John region during Construction, based on an influx of an average 1,500 workers from outside the region and conservatively an average household size of 2.4).

The projected increase in the need for addiction services during Construction are provided in Table 16.12. Again, with mitigation the residual Project environmental effects are predicted to be less than stated in the table.

**Table 16.12 Estimated Number of Clients for Addictions Services by Type of Dependency During Construction**

Dependency	Inpatient Treatment		Community Outpatient	
	Number of Clients	Increase from 2005-2006	Number of Clients	Increase from 2005-2006
Alcohol	285	7	964	24
Cocaine/other	94	2	133	3
Gambling/other	6	0	101	3
Alcohol & Other	4	0	114	3
Cannabis	24	1	320	8
Co-dependency	0	0	101	3
Hallucinogens	11	0	20	1
Nicotine	0	0	0	0
Rx Drugs	268	7	150	4
Total	692	18	1,903	49

During Operation, to maintain the same level of on-going health care service provided by Region 2 Health Authority, the number of employees is estimated to need to increase by less than about 63 and the number of physicians on staff by less than about five. Similarly, the total average number of beds occupied within Saint John Regional Hospital and St. Joseph's Hospital can be expected to increase by less than about 7 and the average hospital bed occupancy rates by less than 1.1% (from about 89.2% to 90.3%). (Estimate assumes an average influx of 1,800 new individuals to the Greater Saint John region during Operation, based on an influx of an average 750 workers from outside the region and conservatively an average household size of 2.4.)

The estimated projected increase in the need for addiction services during Operation are provided in Table 16.13. Again, with mitigation the residual Project environmental effects will be less than stated in the table.

**Table 16.13 Estimated Number of Clients for Addictions Services by Type of Dependency during Operation**

Dependency	Inpatient Treatment		Community Outpatient	
	Number of Clients	Increase from 2005/06	Number of Clients	Increase from 2005/06
Alcohol	282	4	952	12
Cocaine/other	93	1	132	2
Gambling/other	6	0	99	1
Alcohol and Other	4	0	112	1
Cannabis	23	0	316	4
Co-dependency	0	0	99	1
Hallucinogens	11	0	19	0
Nicotine	0	0	0	0
Prescription Drugs	264	3	148	2
Total	683	8	1,877	23

With respect to public education, overall School District 8 is operating well below functional capacity, while School District 6 is currently challenged with accommodating existing demand. But with an average of approximately 1,500 new workers to the Greater Saint John region during Construction, based on initial estimates, and an average of about 750-1,000 new workers during Operation, the corresponding additional demand for public education for children will be low in magnitude relative to the current number of students. In addition, given that funding of public education in New Brunswick is based on enrolment, any increases in demand would be matched by increases in resources to the school district (C. Toole, personal communication, November 27, 2007).

Regarding community recreation facilities, the increase in the regional population due to Construction and Operation is similarly small relative to the diversity of facilities and capacities currently serving the Saint John CMA. Limited availability with certain recreation programs (e.g., hockey) for specific age groups can be expected; however, over time municipalities are expected to be able to make adjustments to the programs and space offered in response to changes in demand. The Proponent will work with the City in respect of recreation issues as appropriate.

In summary, many residual environmental effects with respect to a Change in the Level of Services from Community Services and Public Infrastructure are expected to be moderate in magnitude. Service levels are expected to decline, particularly in the short to medium-term (less than five years), but remain within acceptable service standards. These residual environmental effects are predicted to occur during both Construction and Operation.

Given the initial estimates of an influx of an average of 1,500 workers during Construction, peaking at approximately 3,500, increased demands are expected on local community health and social services (e.g., addiction services, crisis intervention, needle exchange services, and sex trade worker outreach), additional mitigation is required to prevent likely significant environmental effects. While the phasing of the pace and sequence of construction activities to a longer period than initially forecast may reduce the potential for significant environmental effects, for conservatism, the potential additional mitigation for the potential environmental effects of the influx of temporary non-local workers on Community Services and Public Infrastructure that could result from phasing has not been considered in the discussion that follows. Ignoring phasing, additional efforts are required to mitigate these environmental effects due to the activities of these temporary non-local workers within the community so that they are not significant. This includes the need to directly address potential environmental effects associated with consumption of alcohol and substance abuse, and the direct and indirect

environmental effects that the influx of a large number of these workers may have on vulnerable individuals.

As discussed previously, Project accommodations will be built specifically to house the required non-local workers during Construction. In addition to the previously described attributes of the worker accommodations (*i.e.*, provision of 24 hour security services, gated and controlled access, provision of dedicated health care services, provision of essential retail and entertainment services), as additional mitigation to the type of facility described in Chapter 3, it is recommended that, especially for non-local foreign workers, a single accommodation facility be developed that is sufficiently large to serve the needs of the Project during the Construction peak. Foreign workers may face additional challenges due to cultural and social differences, and/or lack the support of local family, that could strain social services. While this scale of facility was not anticipated by the Project Description, it is apparent through this environmental effects analysis that it is desirable to have a single, relatively isolated accommodation facility instead of a number of smaller facilities that may be more integrated within the community, to further mitigate potential environmental effects on Community Services and Public Infrastructure. A single, large, and well-provided accommodation facility is expected to mitigate potential adverse environmental effects on community health and social services by helping to prevent large numbers of workers from directly interacting with the community in an un-moderated manner. The overall approach is to provide a state-of-the-art accommodations complex in terms of rooms and dining, recreation and entertainment facilities and services so that construction workers are less likely to overwhelm the local community. The Proponent will work on developing this mitigation; should the facility require permits or EIA approval, a separate EIA registration would be provided.

With the additional mitigation, the residual environmental effects of Change in the Level of Service from Community Services and Public Infrastructure, during all phases of the Project, are rated not significant. This prediction has a moderate level of confidence, with uncertainties primarily due to the extent to which the public sector will respond to the change in community services and public infrastructure demand.

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## 16.5 Assessment of Cumulative Environmental Effects

There is the potential for cumulative environmental effects with a number of other projects and activities within Greater Saint John, as additional demands are placed on the accommodation market (Table 16.14). Other projects that may interact cumulatively with the Project include other existing and planned industrial land uses and infrastructure projects (*e.g.*, Point Lepreau II, Potash Corporation expansion of mining operations, development of the Coast Guard site in Saint John), as well as projected increases in industrial activity associated with the Port of Saint John.

During Construction and Operation, the potential environmental effects on Community Services and Public Infrastructure as described above may also occur as cumulative environmental effects with other projects. In total, all proposed large-scale investment projects will result in a combined total of approximately \$12.8 to \$18.5 billion in construction over the next decade (Hardy Stevenson and Associates 2007:2). These large-scale construction projects will add to the influx of workers. Furthermore, planned infrastructure projects have the potential for positive cumulative environmental effects given that a rejuvenation of existing infrastructure, as well as the direct expenditure and employment with the new construction, will add to and enhance the infrastructure available to the Greater Saint John area in support of further economic development.

**Table 16.14 Potential Cumulative Environmental Effects to Community Services and Infrastructure**

Other Projects and Activities With Potential for Cumulative Environmental Effects	Potential Cumulative Environmental Effects	
	Change in the Accommodation Market	Change in the Level of Service from Community Services and Public Infrastructure
Industrial Land Use	2	2
Infrastructure and Land Use	2	2
Forestry and Agricultural Land Use	0	0
Recreational Land Use	0	0
Planned of Future Industrial/Energy Projects	2	2
Planned Infrastructure Projects	2	2
Planned Marine Use	2	2
<p><b>Cumulative Environmental Effects</b>                      Notes: Cumulative environmental effects were ranked as follows:                      0 Project environmental effects do not act cumulatively with those of other projects and activities.                      1 Project environmental effects act cumulatively with those of other projects and activities, but are unlikely to result in significant cumulative environmental effects or Project environmental effects act cumulatively with existing significant levels of cumulative environmental effects but will not measurably change the state of the VEC.                      2 Project environmental effects act cumulatively with those of other projects and activities, and may result in significant cumulative environmental effects or Project environmental effects act cumulatively with existing significant levels of cumulative environmental effects and may measurably change the state of the VEC.</p>		

Table 16.15 provides a summary of the assessment of residual cumulative environmental effects on Community Services and Infrastructure. Recreation, forestry and agricultural land use projects and activities are predicted to not act cumulatively with the Project (Table 16.14) because they do not involve substantial employment and expenditures. Those projects and activities are predicted not to be substantial contributors to the assessed residual cumulative environmental effects as summarized in Table 16.15.



**Table 16.15 Summary of Residual Cumulative Environmental Effects on Community Services and Infrastructure**

Cumulative Environmental Effect	Case	Other Projects, Activities and Actions	Proposed Mitigation and Compensation Measures	Residual Cumulative Environmental Effects Characteristics						Significance	Prediction Confidence	Likelihood	Proposed Follow-up and Monitoring Programs
				Direction	Magnitude	Geographic Extent	Duration and Frequency	Reversibility	Ecological/ Socio-economic Context				
Change in the Accommodation Market	Cumulative Environmental Effect with Project (Future Case)	Other existing and planned industrial land uses and infrastructure projects (e.g., Lepreau II, Potash Corporation expansion of mining operations), as well as projected increases in regional industrial activity.	<ul style="list-style-type: none"> <li>▪ Development of Project accommodations to house temporary construction workers;</li> <li>▪ Phasing of the pace and sequence of Construction over a longer duration than initially forecast;</li> <li>▪ Continued dialogue with government, developers and the NGO community on accommodation needs and strategies.</li> </ul>	A	M	R	MT/C	R	N/A	N	M	H	None.
	Project Contribution to Cumulative Environmental Effect			A	M	R	MT/C	R	N/A	N	M	H	

**Table 16.15 Summary of Residual Cumulative Environmental Effects on Community Services and Infrastructure**

Cumulative Environmental Effect	Case	Other Projects, Activities and Actions	Proposed Mitigation and Compensation Measures	Residual Cumulative Environmental Effects Characteristics						Significance	Prediction Confidence	Likelihood	Proposed Follow-up and Monitoring Programs
				Direction	Magnitude	Geographic Extent	Duration and Frequency	Reversibility	Ecological/ Socio-economic Context				
Change in the Level of Service from Community Services and Public Infrastructure	Cumulative Environmental Effect with Project (Future Case)	Other existing and planned industrial land uses and infrastructure projects (e.g., Lepreau II, Potash Corporation expansion of mining operations), as well as projected increases in regional industrial activity	<ul style="list-style-type: none"> <li>▪ Phasing of the pace and sequence of Construction over a longer duration than initially forecast;</li> <li>▪ Workforce education and enforcement of health and safety policies;</li> <li>▪ Provision of non-emergency health care to workers;</li> <li>▪ Employee Assistance Program;</li> <li>▪ Continued dialogue with government and NGO service providers in support of maintaining and improving the level of service to vulnerable groups.</li> </ul>	A	M	R	MT/C	R	N/A	N	M	H	None.
	Project Contribution to Cumulative Environmental Effect			A	M	R	MT/C	R	N/A	N	M	H	



**Table 16.15 Summary of Residual Cumulative Environmental Effects on Community Services and Infrastructure**

Cumulative Environmental Effect	Case	Other Projects, Activities and Actions	Proposed Mitigation and Compensation Measures	Residual Cumulative Environmental Effects Characteristics						Significance	Prediction Confidence	Likelihood	Proposed Follow-up and Monitoring Programs
				Direction	Magnitude	Geographic Extent	Duration and Frequency	Reversibility	Ecological/ Socio-economic Context				
Combined Cumulative Environmental Effects	Cumulative Environmental Effect with Project (Future Case)	Other existing and planned industrial land uses and infrastructure projects (e.g., Lepreau II, Potash Corporation expansion of mining operations), as well as projected increases in regional industrial activity	Same as above.							N	M	H	None.
	Project Contribution to Cumulative Environmental Effect									N	M	H	



**Table 16.15 Summary of Residual Cumulative Environmental Effects on Community Services and Infrastructure**

Cumulative Environmental Effect	Case	Other Projects, Activities and Actions	Proposed Mitigation and Compensation Measures	Residual Cumulative Environmental Effects Characteristics						Significance	Prediction Confidence	Likelihood	Proposed Follow-up and Monitoring Programs
				Direction	Magnitude	Geographic Extent	Duration and Frequency	Reversibility	Ecological/ Socio-economic Context				
<p><b>KEY</b></p> <p><b>Direction:</b>                      P Positive                      A Adverse</p> <p><b>Magnitude:</b>                      L Low: Level of service will remain what within what is currently achieved                      M Moderate: Level of service declines but remains within acceptable service standards                      H High: Level of service declines and results in level of service outside of acceptable standards</p> <p><b>Geographic Extent:</b>                      S Site-specific: Within the PDA                      L Local: Within the Saint John CMA                      R Regional: Outside of the Saint John CMA, but within southern New Brunswick</p>		<p><b>Duration:</b>                      ST Short term: Less than 1 year                      MT Medium term: 1 to 5 years                      LT Long term: Greater than 5 years                      P Permanent</p> <p><b>Frequency:</b>                      O Occurs once                      S Occurs sporadically at irregular intervals                      R Occurs on a regular basis and at regular intervals                      C Continuous</p> <p><b>Reversibility:</b>                      R Reversible                      I Irreversible</p>		<p><b>Ecological/ Socio-economic Context:</b>                      U Undisturbed: Area relatively or not adversely affected by human activity                      D Developed: Area has been substantially previously disturbed by human development or human development is still present                      N/A Not Applicable</p> <p><b>Significance:</b>                      S Significant                      N Not Significant</p> <p><b>Prediction Confidence:</b>                      Based on scientific information and statistical analysis, professional judgment and effectiveness of mitigation                      L Low level of confidence                      M Moderate level of confidence                      H High level of confidence</p>						<p><b>Likelihood:</b>                      Based on professional judgment                      L Low probability of occurrence                      M Medium probability of occurrence                      H High probability of occurrence</p> <p><b>Other Projects, Activities and Actions:</b>                      List of specific projects and activities that would contribute to the cumulative environmental effects.</p>			



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## 16.5.1 Change in the Accommodation Market

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### 16.5.1.1 Project Cumulative Environmental Effect Mechanisms for Change in the Accommodation Market

For the purposes of cumulative environmental effects assessment for Change in the Accommodation Market, all projects within the RAA were considered, with emphasis placed on those projects that have considerable labour demands and Project-related expenditures that may overlap with either Construction or Operation.

#### **Base Case**

Current industrial land use, infrastructure land use, and marine projects have the potential to act cumulatively with the Project due to their labour demands and local expenditures. The projects include, in particular, the Lepreau Refurbishment Project, Canaport Liquefied Natural Gas Marine Terminal and Multi-purpose Pier, the Potash Corporation expansion of mining operations, and the Port of Saint John shipping activities. All existing and approved planned projects that require a substantial influx of workers, largely not likely from the available supply within the region, have the potential to contribute to an increase in the demand on accommodations. Those projects would be complete before the Construction of the Project.

#### **Project Case**

Employment and expenditure activities associated with Construction and Operation have the potential to act cumulatively on the accommodation market within Greater Saint John. During Construction, the Project is predicted to require up to 1,500-2,000 accommodation units, based on initial estimates, in addition to what the market in Greater Saint John is currently projected to provide (*i.e.*, the base case). During Operation, initial estimates are that additional accommodations will be required for approximately 750-1,000 workers and their families on a permanent basis. During periodic refinery maintenance/upgrade periods, accommodations for an estimated 1,500 to 2,000 workers will be required for the Project.

A high cumulative demand for accommodations may lead to shortages in supply, a lack of diversity in the available supply, and price inflation. This may also lead to the displacement of low income individuals and families due to an increase in housing costs. Particularly vulnerable households are those defined as having core housing needs. The latter interaction is of particular concern given that the current high level of poverty within the City of Saint John.

#### **Future Case**

Foreseeable future projects that may act cumulatively on the Greater Saint John area accommodation market include other planned industrial land uses and infrastructure projects (*e.g.*, Point Lepreau II, development of the Coast Guard site in Saint John). Given current unknowns in the design and implementation schedule of these projects, the specific nature and timing of the additional demand placed on the accommodation market is uncertain, and could occur during Construction and/or Operation. Overall, a cumulative increase in demand may result in housing shortages, price inflation, rental shortages and inflation, and potential displacement of low income families and individuals.

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### 16.5.1.2 Mitigation of Cumulative Environmental Effects for Change in the Accommodation Market

Mitigation of cumulative environmental effects for changes in the accommodation market is as previously identified for mitigation of environmental effects (Section 16.4.1). In brief, mitigation includes:

- Project accommodations built specifically to house these workers during Construction;
- The phasing of the pace and sequence of Construction of the Project in two phases and over a longer duration than initially forecast at the Project concept stage (approximately 6-8 years rather than 4-5 years initially forecast); and
- Continued dialogue with members of the community, including government, developers and social service NGOs, to identify creative and viable ideas to address affordable housing needs.

Further mitigation includes programs identified by the Benefits Blueprint Initiative (Hardy Stevenson and Associates 2008). A Saint John housing strategy is focused on expanding accommodation options towards avoiding housing shortages and escalating rent levels, as well as providing more higher-end housing options (Hardy Stevenson and Associates 2008).

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#### 16.5.1.2.1 Characterization of Residual Cumulative Environmental Effects for Change in the Accommodation Market

Cumulatively, considering current and foreseeable future projects, Hardy Stevenson and Associates (2007:72) estimate that direct construction-related employment will peak at approximately 8,300 in the year 2014 within the Saint John CMA. Taking into account local labour supply and opportunities to increase the local participation rate, approximately 5,800 construction-related workers will be required from outside of the Greater Saint John area. Hardy Stevenson and Associates (2007:31) further estimate that through to 2031 an average of approximately 450 new accommodation units per year will be required, above what is currently being produced by the market based on current trends.

However, the Project's needs for accommodations during Construction will be largely met by the development of up to 1,500-2,000 Project accommodations, as required. Needs for short-term accommodations are also expected to be met by the over 1,500 guestrooms available in the Greater Saint John area, new hotel construction, and interest in the construction of additional hotels in the area to meet the demand (J. Madore, personal communication, February 27, 2008). With respect to long-term accommodation, there are predicted to be residual cumulative environmental effects resulting in shortages in supply and price inflation. But over time, housing markets are expected to be able to respond to help meet the unfulfilled demand. With the continued advancement of community strategies to address affordable housing needs, it is predicted that residual cumulative environmental effects on vulnerable individuals and households can largely be avoided, although some level of displacement can be expected. The proponents of other projects that are expected to act cumulatively on the displacement of low income individuals and families also have a responsibility to become engaged in the development of mitigation initiatives. Overall, the environmental effects are predicted to be of moderate magnitude and limited primarily to within the Saint John CMA.

Because of planned improvements and since the market will respond to increased demand, with the proposed mitigation, the environmental effect of Change in the Accommodation Market on Community Services and Infrastructure of all past, present and reasonably foreseeable projects/actions, in combination with the environmental effect of the Project, is rated not significant.

With the proposed mitigation, the Project contribution to cumulative environmental effects of Change in the Accommodation Market on Community Services and Infrastructure is rated not significant. This prediction has a moderate level of confidence, with uncertainties primarily due to the unknown extent to which the private sector will respond to the change in accommodation demand.

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## 16.5.2 Change in the Level of Service from Community Services and Public Infrastructure

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### 16.5.2.1 Project Cumulative Environmental Effect Mechanisms for Change in the Level of Service from Community Services and Public Infrastructure

For the purposes of cumulative environmental effects assessment for a Change in the Level of Service from Community Services and Public Infrastructure, all projects within the RAA were considered, with emphasis placed on those projects that have considerable labour demands and project-related expenditures that may overlap with either Construction or Operation. Also of focus were projects that have the potential to act positively and/or contribute to the mitigation of cumulative environmental effects. Residual cumulative environmental effects for a Change in the Level of Service from Community Services and Public Infrastructure is directly related to the current rate of utilization by the existing population, and how changes in the population level associated with future projects may place additional demands that change the level of service being provided.

#### **Base Case**

Current industrial land use, infrastructure land use, and marine projects have the potential to act cumulatively with the Project due to their labour demands and local expenditures. The projects include, in particular, the Point Lepreau Refurbishment Project, Canaport Liquefied Natural Gas Marine Terminal and Multi-purpose Pier, the Potash Corporation expansion of mining operations, and the Port of Saint John shipping activities. The labour associated with these projects contributes to the demands on the regional community services and public infrastructure, potentially affecting the level of service provided. However, those projects would be complete before the Construction of the Project.

#### **Project Case**

During Construction, initial forecasts for direct Project employment average approximately 2,500 over five years and peaking at approximately 5,000 in 2013 to 2014. Ignoring the planned phasing of the pace and sequence of Construction to a longer 6-8 year periods (thereby providing a conservative environmental effects assessment), after accounting for the proportion of these jobs likely to be taken by local workers (approximately 1,000 to 1,500), there is estimated to be an influx of 1,000 to 1,500 construction workers, peaking at approximately 3,500, coming from outside of the Greater Saint John area. Permanent direct employment resulting during Operation is estimated to be approximately 750 to 1,000, with an additional 1,500 to 2,000 required during refinery maintenance/upgrade periods. It is estimated that approximately 25% of workers for Operation will likely coming from within the existing Greater Saint John population (Hardy Stevenson and Associates 2007:107).

Through Project-related employment and expenditures, there is the potential for cumulative environmental effects resulting in a Change in the Level of Service from Community Services and Public Infrastructure through an increase in the level of demand. Of particular concern are the potential cumulative environmental effects on public health services, including the adequacy of the community health and social support services provided by government and NGOs. An increase in the regional population and incomes will lead to an increase in the need for many of these services, which can include addiction services, crisis intervention, and mental health services, among others. Many of the

ongoing support services provided by public sector facilities and social service NGOs may experience an increasing strain on resources and staffing, as well as a lack of physical space, therefore potentially affecting the level of service. The increase in regional employment directly and indirectly associated with the Project may also increase demands on public education. Many workers moving to the region, particularly for permanent positions during Operation, can be expected to bring with them families with children. Each school district may experience a strain on resources, staffing, and physical space. Employment and expenditure activities associated with both Construction and Operation may also increase demands on existing recreational programs, services and facilities. As much of the services and infrastructure is provided by the various municipalities and the volunteer sector, the influx of workers and their families may result in a potential cumulative environmental effect, including lack of physical space, resources, and programs. Consequently, the result may be a decline in the availability of recreation services.

### Future Case

Foreseeable future projects that may act cumulatively on the Greater Saint John accommodation market include other planned industrial land uses and infrastructure projects (e.g., Point Lepreau II, development of the Coast Guard site in Saint John). Planned projects that have the potential to mitigate cumulative environmental effects include the upgrade to Saint John Regional Hospital, which is expected to provide better access to medical services to the Greater Saint John population. In addition, the planned construction of a new YMCA and the Harbour Passage Extension is expected to increase recreational opportunities (e.g., jogging and bicycling along the Harbour Passage trail system).

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#### 16.5.2.2 Mitigation of Cumulative Environmental Effect for Change in the Level of Service from Community Services and Public Infrastructure

Mitigation of cumulative environmental effects for Changes in the Level of Service from Community Services and Public Infrastructure is as previously identified for mitigation of environmental effects (Section 16.4.1). In brief, mitigation includes:

- The phasing the pace and sequence of Construction of the Project in two phases and carried out over a longer duration than initially forecast at the Project concept stage (approximately 6-8 years rather than 4-5 years initially forecast);
- Continuation of community-level dialogue with government and NGO service providers in support of maintaining and improving the level of service to vulnerable groups;
- Provision by the Proponent of some non-emergency health care services (e.g., a nurse on-site) and an Employee Assistance Program to be offered by the Proponent to its employees;
- Workforce education to encourage healthy lifestyle choices, sensitivity training, and strict enforcement of the Proponent's health and safety policies; and
- Construction of a single, large and well provided worker accommodation facility, if one is required, to help prevent large numbers of workers from directly interacting with the community in an un-moderated manner.

Various planned infrastructure projects are expected to contribute to the mitigation of cumulative environmental effects with the Project. These include the Harbour Passage Extension, the construction of a new YMCA, and upgrades to the Saint John Regional Hospital. These projects will add to the

existing community services and public infrastructure by providing an increase in the available recreational facilities and services, and improving access to medical services.

Further mitigation includes programs identified by the Benefits Blueprint Initiative, if implemented (Hardy Stevenson and Associates 2008). This includes an increase in the capacity and quality of existing child care services. A further result of the Benefits Blueprint Initiative was a prioritized list of infrastructure initiatives for the region.

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#### 16.5.2.3 Characterization of Residual Cumulative Environmental Effects for Change in the Level of Service from Community Services and Public Infrastructure

Considering all major current and foreseeable future projects throughout the Province of New Brunswick, Hardy Stevenson and Associates (2007:51) estimate that new direct, indirect and induced provincial employment will peak at approximately 33,200 in 2012. Within the Saint John CMA, Hardy Stevenson and Associates (2007:67) further estimate that the total number of new permanent residents (workers and their families) settling within the Saint John CMA is approximately 7,500 by 2011 and an additional 5,200 by 2016, resulting in a total increase of about 12,700 from 2006 to 2016.

With respect to the residual cumulative environmental effects for Change in the Level of Service from on-going health services, with proposed mitigation, the increase in the demand for the services will be less than what would be predicted on a per capita basis with the increase in regional population projected to the year 2016. To maintain the same level of on-going health care service provided by the former Region 2 Health Authority, the number of employees is estimated to need to increase by less than 445 and the number of physicians on staff by less than 38. Similarly, the total average number of beds occupied within Saint John Regional Hospital and St. Joseph's Hospital can be expected to increase by less than 52 and the average hospital bed occupancy rates by less than 8.3% (from about 89.2% to 97.5%). Similarly, the total increase in the need for inpatient treatment for addiction services is estimated to be less than 64 additional patient beds, and for community outpatient services less than 174. It is important to be mindful that these maximum changes in demand are predicted to occur over an eight year period, thus allowing time for adjustments in program resourcing and delivery to occur. Certain mitigative activities, such as the upgrade of the Saint John Regional Hospital, can be expected to further reduce the residual cumulative environmental effects.

With respect to public education, overall School District 8 is operating well below functional capacity, while School District 6 is currently challenged with accommodating existing demand. Overall, the corresponding additional demand for public education with the cumulative addition of families within the Greater Saint John region will be expected to be moderate in magnitude relative to the current number of students, and be particularly challenging for School District 6. But again, these cumulative increases in public education capacity requirements will occur over the long term, allowing increases in demand to be matched by increases in resources to the school district.

Regarding community recreation facilities, the cumulative increase in the regional population is moderate relative to the diversity of facilities and capacities currently serving the Saint John CMA. Limited availability with certain recreation programs for specific age groups can be expected, but over time municipalities are expected to be able to make adjustments to the programs and space offered in response to changes in demand.

In summary, residual cumulative environmental effects with respect to community services and public infrastructure are expected to be moderate in magnitude, whereby the current levels of service are predicted to decline but within acceptable service standards. Changes in the Level of Service are

expected to occur primarily in the short to medium-term (less than five years). Cumulative changes in demand are predicted to occur over an eight year period, thus allowing time for adjustments in program resourcing and delivery to occur.

Because of planned initiatives and improvements, and since the public sector and service groups will respond to increased demand for services, with the proposed mitigation, the cumulative environmental effects of a Change in the Level of Service from Community Services and Public Infrastructure on Community Services and Infrastructure of all past, present and reasonably foreseeable projects/actions, in combination with the environmental effect of the Project, are rated not significant.

With the proposed mitigation, the Project contribution to cumulative environmental effects of a Change in the Level of Service from Community Services and Public Infrastructure on Community Services and Infrastructure is also rated not significant. This prediction has a moderate level of confidence, with uncertainties primarily due to the unknown extent to which the public sector will respond to the change in community services and public infrastructure demand.

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## 16.6 Follow-up and Monitoring

No follow-up and monitoring is recommended specifically related to Community Services and Infrastructure. However, the Proponent will work closely with the City of Saint John and its emergency service providers (*i.e.*, fire, medical and police) throughout the Project to further identify means of mitigating environmental effects to the extent that they are not significant, and to identify the requirement for and implementation of any improvements that might be needed. As part of the assessment of potential environmental effects on Labour and Economy (Chapter 15), the monitoring of Project employment to confirm predictions and inform adaptive management is recommended.