Section 5.0
Land Use and Economy

TABLE OF CONTENTS

PAGE

LIST OF TABLES

LIST OF FIGURES

5.0 LAND USE AND ECONOMY

5.1 Rationale for Selection as a VEC

The implementation of the proposed Route 11-Glenwood area to Miramichi bypass will consist of the construction, operation and maintenance of a 12 km two-lane bypass, with an additional 3 km of parallel property access roads, beginning just north of Black River (south of MacDonald Road) in Glenwood and continuing northwest until it meets the existing Route 11 between the intersections with King Street and University Avenue. The construction and OMR phases of the Project could potentially affect the way land is used along both the existing route as well as the route of the bypass. Similarly, the bypass has the potential to affect the economic structure of the area. This component was; therefore, considered a VEC for EIA.

5.2 Boundaries for Environmental Effects Assessment

The scope of assessment for the Land Use and Economy VEC is contained within both spatial and temporal boundaries, as described below.

5.2.1 Spatial Boundaries

The assessment of this VEC will consider effects of the Project on the communities of Miramichi, Napan and Glenwood (Study Area), with emphasis on those regions within 1 km of the bypass (Project Area), which is the approximate distance of the Project from Route 11: the current traffic route between Miramichi and Glenwood.

5.2.2 Temporal Boundaries

The assessment of this VEC will consider the effects of the Project during its construction as well as the OMR of the bypass.

5.3 Methodology

Current land use and economy for the Study Area was assessed through desktop studies using available mapping and imagery (NBDNR, 2012), statistics and local websites aided by observations made during visits to the Project Area.

For the purposes of the assessment, an effect is defined as the change effected on the VEC as a result of Project activities. Effects will be categorized as either negative (adverse) or positive. Any adverse effects will be determined to be significant or non-significant in consideration of assessment criteria discussed above. The assessment will focus on those interactions between the VEC and Project activities which are likely.

5.4 Description of Existing Environment

The following subsections describe the socio-economic setting of the Study Area.

5.4.1 Population and Labour Force

The proposed Project spans and connects the communities of Miramichi, Napan and Glenwood, NB in the Parishes (PARs) of Glenelg and Chatham, Northumberland County.

The major commercial centre within the Study Area is Miramichi, located at the northwest limit of the bypass ROW. The smaller villages of Napan and Glenwood are located along Route 11 and provide some commercial needs, but not to the extent that Miramichi does. Table 5.1 illustrates the population of Glenelg and Chatham PARs, and the City of Miramichi (Statistics Canada, 2016) as per the 2011 census.

The City of Miramichi, Glenelg parish and Northumberland County all experienced a population decrease (1.8 to 2.7%) between 2006 and 2011 (Statistics Canada, 2016). Chatham PAR grew by 4.0% within the same time frame; similar to the 2.9% growth recorded in the Province as a whole.

Table 5.1 Census Population by Study Area Municipality

Municipality	Area (square kilometres (km^2))	2006	2011	% Change
Chatham (PAR)	22.26	502	522	4.0
Glenelg (PAR)	505.22	1,652	1,610	-2.5
Miramichi (City)	179.93	18,129	17,811	-1.8
Northumberland (CT)	12,932.70	49,714	48,355	-2.7
New Brunswick (Province)	77,377.18	729,997	751,171	2.9

Source: Statistics Canada, 2016 Canadian Census.

English was the only language known by 81.5% of the reporting population, 0.3% French only, 18.1% bilingual in the official languages, and 0.06% reported to know neither of the official languages. According to the 2011 National Household Survey, 7645 residents of the City of Miramichi were employed, 45 of which were commuting to locations in the PAR of Glenelg for work (Statistics Canada, 2016). Top occupations included were customer service or retail personnel, nurses, teachers and janitors/building superintendents.

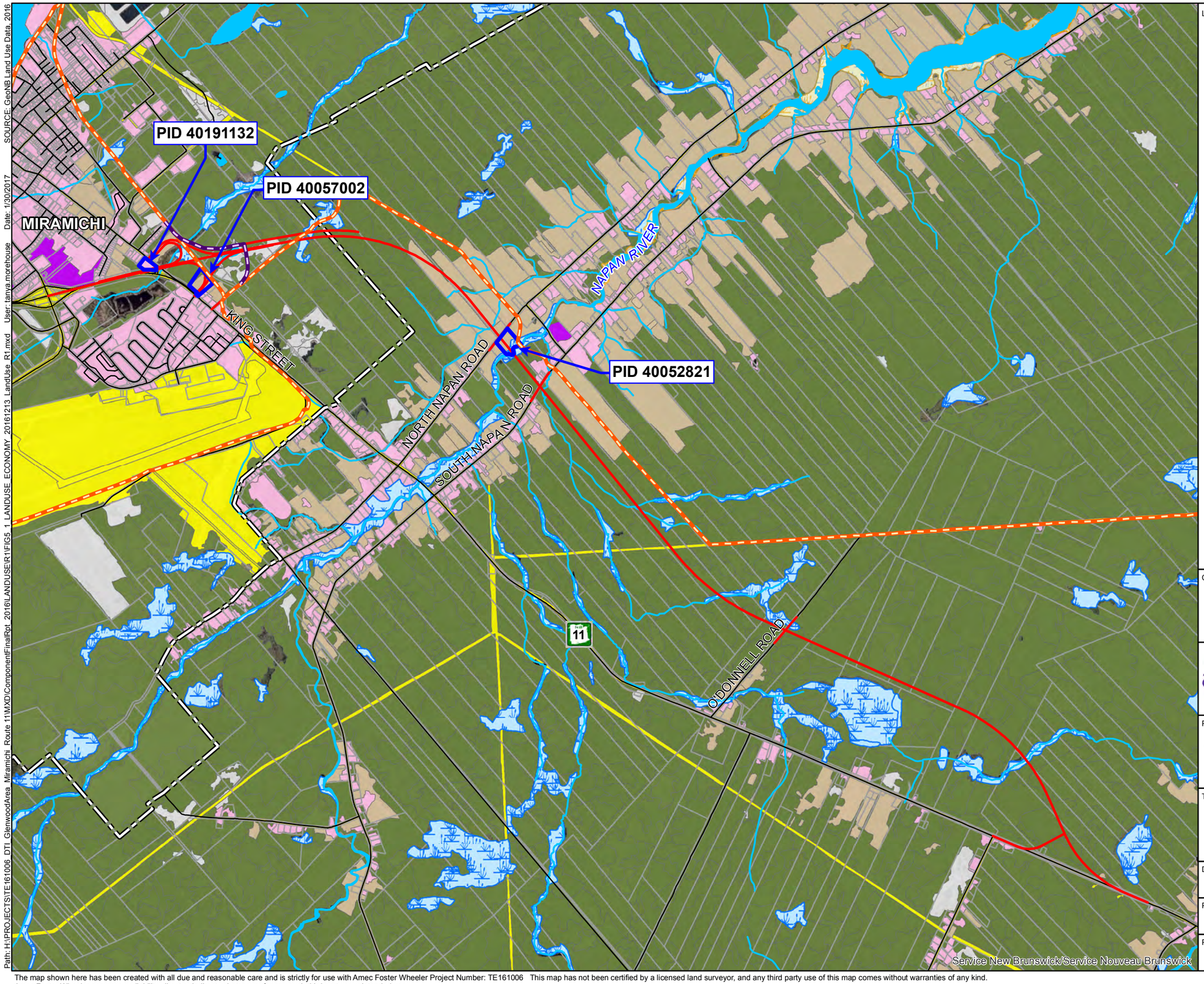
5.4.2 Local Economy

The proposed bypass provides service to Miramichi, the principal industrial and commercial centre for the area. The City has the sixth largest municipal tax base in the Province at $1,241,863,072 in 2012 (City of Miramichi, 2016).

5.4.3 Existing Land Use

5.4.3.1 Zoning

The City of Miramichi is the result of the 1995 amalgamation of two towns, Chatham and Newcastle, three villages and several local service districts (Miramichi Airport, 2016). Figure 5.1 illustrates City Limits and the rural regions within the Study Area. The proposed bypass ROW lies within primarily rural zones. Zoning maps are available online (Greater Miramichi Regional Service Commission, 2016).



SOURCE: GeoNB Land Use Data, 2016
Date: 1/30/2017
User: tanya.morehouse
Path: H:\PROJECTS\TE161006_DTI_GlenwoodArea_Miramichi_Route 11\MXD\ComponentFinalRpt_2016\LANDUSE\R1\FIG5_1_LANDUSE_ECONOMY_20161213_LandUse_R1.mxd

LEGEND:

- Rerouted Trail Network
- Bypass Alignment
- New Brunswick Federation of Snowmobile Clubs (NBFSC) Trail Network
- Municipal Area (Miramichi)
- Road Network
- SNB Property Boundaries (Northumberland County)

LAND USE

- Agriculture
- Industrial
- Transportation/Utilities
- Recreation
- Residential
- Forest
- Potentially Affected Properties

SOURCE: NBDNR Snowmobile Trail Data, 2016

N W E S

0 200 400 800 1,200 1,600 2,000
Metres

CLIENT:
NEW BRUNSWICK
DEPARTMENT OF
TRANSPORTATION AND INFRASTRUCTURE

amec foster wheeler

PROJECT:
ENVIRONMENTAL FIELD STUDIES
VALUED ENVIRONMENTAL COMPONENT ASSESSMENT
ROUTE 11 GLENWOOD AREA TO
MIRAMICHI BYPASS PROJECT

TITLE:
LAND USE AND ECONOMY

DATUM:	DWN BY:	DATE:
NAD 83 CSRS	TM	JAN 2017
PROJECTION:	CHK'D BY:	SCALE:
NB Stereographic	CD	1:32,000
PROJECT NO:	REV NO:	FIGURE NO:
TE161006	R1	5.1

5.4.3.2 Industrial

Miramichi operates and maintains two industrial parks, one of which is located in the Study Area off Route 11, near the western limit of the proposed bypass (Chatham Industrial Park).

5.4.3.3 Commercial

Service industries form the primary occupation in Miramichi, having a wide range of retail and tourism outlets. Commercial outlets along the bypassed area include gas stations, restaurants and service/sales centres.

5.4.3.4 Residential

The proposed bypass runs through a primarily rural area, with residential properties clustered on Napan Road North and Napan Road south. One residential property on (PID 40052821) is located less than 10 m from the centreline of the current bypass alignment and will need to be removed prior to construction (Figure 5.1). A business on PID 40057002 will also need to be removed, and it is yet to be determined if the church on PID 401191132 will need to be removed to accommodate construction of the new interchange.

5.4.3.5 Resources

The bypass alignment traverses land primarily used for agricultural land and forest.

5.4.4 Cultural/Institutional

There are approximately 35 places of worship in Miramichi, some of which are located in the Study Area; the United Pentecostal Church being located directly adjacent to the proposed ROW of the bypass. The Miramichi Regional Multicultural Association (MRMA) is a non-profit organization which assists settling immigrants and promotes harmony among all cultures (City of Miramichi, 2016). There are various historic/genealogical societies and a museum. Miramichi is also host to a variety of seasonal festivals, such as Rotary Spring Fest, Canada's Irish Festival on the Miramichi, Acadian Day, the Miramichi Folk Song Festival, Miramichi Celebration of Scots, First Nations Pow-Wows and Fiddler's weekend (Miramichi Airport, 2016).

5.4.5 Recreational

Miramichi hosts a myriad of recreational facilities, such as parks and trails, sports fields and arenas, pools and golf. The Miramichi River is famous for recreational fishing, rafting tours and tubing. Camping, hotels, motels and bed & breakfasts serve as accommodations for tourism. ATVs and snowmobile trails are used in the Study Area as well. The snowmobile trails illustrated in Figure 5.1 comprise a managed section of the NB Federation of Snowmobile Clubs (NBFSC) Trail Network, which are also used by ATVs.

The NB ATV Federation (NBATVF) has recently incorporated new trails into their network. Though a GIS layer has not yet been created to show these trail locations on the mapping in this VEC Report, the locations of these trails are known by NBDTI to cross the proposed alignment at O'Donnell Road and near the Portage Restaurant at the northern extent of the Project. Access will not be affected at O'Donnell Road as a highway underpass will be constructed at this location.

For the crossing near the Portage Restaurant, NBDTI proposes that the NBATVF trail be routed through the highway underpass along with the service road and NBFSC trail.

5.4.6 Traffic Circulation

5.4.6.1 Highway

The Study Area contains a section of Route 11, which connects Shediac to Campbellton, passing through Bouctouche, Richibucto and Miramichi.

5.4.6.2 Rail

The nearest VIA Rail Canada station is located outside the Project Area, near the King George Highway in Newcastle.

5.4.6.3 Air

The Miramichi Airport (YCH) is located within the Study Area (Figure 5.1). In 2012 the runway was expanded from 5899 feet to 10,006 feet and is maintained year round. It serves as the home base for the NBERD and Energy Air Tanker Operations and Forest Protection Limited (Miramichi Airport, 2016) and services charter flights. The nearest airport serving domestic and international commercial passenger and cargo flights is in Moncton.

5.4.7 Utility Corridors

5.4.7.1 Electricity

There are several NB Power corridors within the Study Area (Figure 5.1), one of which crosses the bypass alignment between South Napan Road and O'Donnell Road. A power substation exists within City Limits adjacent to the water treatment lagoons north of the bypass.

5.4.7.2 Water / Sewer

Municipal water and sewer services are available within the City Limits (Figure 5.1). Beyond City Limits, buildings rely on domestic, individual water wells and sewers.

5.4.8 Emergency and Medical Services

Horizon Health Network administers the overall health services for the Miramichi region, which includes the Study Area. The Miramichi Regional Hospital, located approximately 10 km from the western limit of the proposed bypass, is a 150-bed facility providing ambulatory care as well as inpatient services such as surgery, psychiatry and oncology (Horizon Health Network, 2016).

A nursing home in the Study Area, Mount Saint Joseph of Chatham, is a 133-bed facility which is slated for closure in the early future, to be replaced by a new 240-bed facility (Canadian Broadcasting Corporation (CBC) News, 2015).

Emergency services for the Study Area are provided through the 911-service. The City of Miramichi Fire Department is located within the Study Area in Chatham. Together with the station in Newcastle, the Department is staffed by 20 firefighters and 35 volunteer firefighters (City of Miramichi, 2016). Police Protection is provided by the City of Miramichi Police Force in Chatham within City Limits, and by RCMP beyond City limits in communities such as Napan and Glenwood.

5.5 Potential Effects Assessment

5.5.1 Construction Phase Potential Effects

5.5.1.1 Potential Effects on Land Use

The potential environmental effects on recreational and residential land use adjacent to the proposed bypass alignment include a potential loss of enjoyment of property or activities as a result of noise, vibration, dust and air emissions during construction and changes to access to property. Managed and non-managed recreational trails will be crossed by the alignment and a re-route of the NBFSC trail at one location is being proposed (Figure 5.1).

5.5.1.2 Potential Effects on Economy

Project construction is expected to translate into benefits to existing retail sales and service businesses in the Miramichi region through an increase in demand for accommodations, meals and other supplies and services. It is expected that the Project will result in the creation of temporary construction-related labour employment. Local spending by Project employees is anticipated to benefit the local retail and services based economy. Local industry, businesses and services are not expected to be inconvenienced (e.g. loss of access) during construction as most construction activities will take place outside of the central Miramichi commercial area and much of the clearing in rural areas has already taken place.

5.5.2 Operation, Maintenance and Rehabilitation (OMR) Phase Potential Effects

5.5.2.1 Potential Effects on Land Use

Residential and recreational land use located along the existing Route 11 in areas that will be by-passed will benefit from a substantial reduction to traffic adjacent to their properties. Noise, vibration and air emissions that result from operation of the new Project may cause loss of enjoyment of residential and recreational land uses adjacent to the new alignment.

Hunting in the Project area may be affected as a result of increased noise; density of game in the area may be reduced if these species relocate as a result of increased noise and traffic in the Project area. Recreational land uses, such as hiking, cross-country skiing, wildlife watching, snowmobiling and use of ATVs in the alignment will have been relocated to adjacent areas upon construction of the Project.

The Chatham Industrial Park will benefit from having the bypass located in close proximity to its entrance, enhancing trucking services.

5.5.2.2 Potential Effects on Economy

Several businesses located on the current Route 11 alignment, such as the Portage Restaurant, rely on drive-by-traffic. Redirection of highway traffic upon completion of the new Project could result in decreased numbers of customers for some of these businesses. Improvements to the transportation network through completion of the new Project will likely result in lower transportation costs and increased safety for local industry. Completion of the new interchanges associated with the Project could result in adjacent land becoming more attractive for new development opportunities.

5.5.3 Accidents, Malfunctions and Unplanned Events

During all phases of the Project there is a potential for accidents to occur. Some accidents may have significant consequences. The following accidents and malfunctions have been selected:

- chemical and fuel spills;
- storm events; and
- fires.

5.5.3.1 Chemical and Fuel Spills

Malfunctions or accidents may result in spills of petroleum hydrocarbons, hazardous materials, or other substances during construction and operation of the Project. Such spills may contaminate soils and private property.

5.5.3.2 Storm Events

A major or catastrophic storm event could cause sediment protection measures and other on-site safeguards to fail and thus damaging adjacent private property.

5.5.3.3 Fire

Accidental fires could potentially be caused during construction or operation. During construction, sources of fire include hot exhaust or equipment, discarded cigarettes, or sparks. Potential causes of fire during the operational phase include those listed above as well as from motor vehicle accidents, which result in fire. This event has the potential to effect adjacent private properties through the loss of residential dwellings or loss of economically important timber harvest assets.

5.6 Mitigation Measures

Mitigation measures to be employed in order to minimize potential effects to the land use and economy in the region during construction and OMR are presented in Table 5.2.

amec foster wheeler

Table 5.2 Summary of Mitigation Measures for Land Use and Economy

Environmental and Project Component	Summary of Potential Effects	Standard NBDTI EMM Mitigation Measures[1]	Additional Recommended Mitigation Measures
Construction			
Land Use			
All aspects of highway construction, including clearing and grubbing, roadbed construction, surfacing, construction of access roads.	• Reduced/altered access to the recreational, commercial and private lands as well as the Chatham Industrial Park. • Traffic delays during construction. Elevated noise levels at adjacent and nearby receptors from construction equipment and activities. • Altered access and use of NBFSC and interconnected ATV trails.	5.5 Detouring 5.23.1 Agricultural Lands 5.23.3 Forest Resources 5.23.6 Noise Sensitive Areas 5.24 Working Near Pipelines and Other Underground Services	• Alternative access will be provided during construction activity, when required. • Flow of traffic will be maintained to the extent possible around and within the Project area. • Complaints related to noise from the construction of the Project will be addressed by the contractor and NBDTI. • Consultation with NBFSC and the NBATVF.
Operation, Maintenance and Rehabilitation (OMR)			
Infrastructure and Winter Maintenance			
All aspects of highway OMR phase.	• Altered access to the agricultural, recreational and private lands. • Traffic delays during maintenance activities. • Elevated noise levels at adjacent and nearby receptors from maintenance equipment and activities.	5.4.4 Culvert Maintenance 5.5 Detouring 5.15.2 Structure Maintenance 5.16 Summer Maintenance 5.21 Winter Maintenance 5.23.6 Noise Sensitive Areas	• Continued access will be provided during maintenance activities. • Flow of traffic will be maintained around and within the areas being maintained. • Complaints related to noise from the maintenance activities will be addressed by NBDTI. • Provide continued access to NBFSC and NBATVF managed trails.
Accidents, Malfunctions and Unplanned Events			
Hazardous Material Spill			
All aspects of Project construction, and OMR activities.	• Change in land use and/or economy, damage to private property.	5.5 Detouring 5.12 Spill Management 5.13 Storage and Handling of Petroleum Products 5.14 Storage and Handling of Other Hazardous Materials 5.19 Vehicle and Equipment Management	• No additional protective measures required.

Table 5.2 Summary of Mitigation Measures for Land Use and Economy

Environmental and Project Component	Summary of Potential Effects	Standard NBDTI EMM Mitigation Measures[1]	Additional Recommended Mitigation Measures
Erosion and Sediment Control Failure			
All aspects of Project construction and OMR activities.	• Change in land use and/or economy, damage to private property.	5.7 Erosion and Sediment Management	• No additional protective measures required.
Fire			
All aspects of Project construction and OMR activities.	• Change in land use and/or economy, damage to private property.	5.10 Fire Prevention and Contingency	• No additional protective measures required.

Note:
1. Source: NBDTI EMM (2010)

5.7 Significance of Residual Effects

For Land Use, a significant adverse residual environment effect is one where the proposed use of land for the Project and related facilities is not compatible with adjacent land use activities as designated through a regulatory land use process, and/or the proposed use of the land will create a change or disruption that widely restricts or degrades present land uses to a point where the activities cannot continue at current levels and for which the environmental effects are not mitigated or compensated.

Table 5.3 below identifies the likelihood of the potential of the proposed Project activities to cause significant adverse environmental effects on land use and economy.

Table 5.3 Significance of Residual Effects to Land Use and Economy after Mitigation

Project Related Environmental Effect	Magnitude	Geographic Extent	Duration and Frequency	Reversibility	Ecological Context	Significant Effect
Construction – Activities / Interactions						
Operation of vehicles and heavy equipment	L	L	During Construction	Yes	Tourism, local residents.	No
Operation, Maintenance and Rehabilitation (OMR) – Activities / Interactions						
Alternate access to private properties associated with residents and businesses	L	L	OMR Period	Yes	Local residents and businesses.	No
Increased Safety (Positive)	H	L	OMR Period	Yes	Local, Regional, National Users.	Yes

Notes:

Magnitude:

High (H)	Values regularly exceed guidelines (Entire Route 11 affected);
Moderate (M)	Values affected, but generally below guidelines (Route 11 between Glenwood and Miramichi affected); and
Low (L)	Values not affected (Sections of Route 11 between Glenwood and Miramichi affected).

Geographic Extent:

High (H)	Entire Route 11 affected;
Moderate (M)	Route 11 between Glenwood and Miramichi affected; and
Low (L)	Sections of Route 11 between Glenwood and Miramichi affected.

5.8 Monitoring and Follow-up Requirements

No follow-up or monitoring is recommended at this time.

5.9 Land Use and Economy - References

Canadian Broadcasting Corporation (CBC) News. 2015. Accessible: http://www.cbc.ca/news/canada/new-brunswick/miramichi-gets-new-240-bed-nursing-home-1.3076077.

City of Miramichi Imagery. 2010.

City of Miramichi. 2016. Accessible: http://miramichi.org/en/community-profile/.

Greater Miramichi Regional Service Commission. 2016. Accessible: http://greatermiramichirsc.ca/en/by-laws-zoning-policies/zoning-maps.

Horizon Health Network. 2016. Accessible: http://en.horizonnb.ca/home/facilities-and-services/facilities.aspx?geo=1&r=mira.

Miramichi Airport. 2016. http://www.miramichiairport.com.

New Brunswick Department of Natural Resources (NBDNR). 2012. Imagery.

New Brunswick Department of Transportation (NBDTI). 2010. Environmental Management Manual. Fourth Edition. Accessed online: http://www.gnb.ca/0113/publications/EMM/EMM-e.pdf.

Statistics Canada. 2016. Accessible: https://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CSD&Code1=1309050&Geo2=PR&Code2=01&Data=Count&SearchText=miramichi&SearchType=Begins&SearchPR=13&B1=All&Custom=&TABID=1.

5.9.1 Personal Communications

Chaisson, Pierre. New Brunswick Department of Energy Resource Development (NBERD) Land Use Inventory Section Manager. Contacted on 13 December, 2016.