STP MCKAY THERMAL PROJECT – PHASE 2

SOCIO-ECONOMIC IMPACT ASSESSMENT

Submitted to Southern Pacific Resource Corp.

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1. Introduction

1.1 Project Description

In November 2010, Southern Pacific Resource Corp. (STP) received regulatory approval from the Energy Resources Conservation Board (ERCB) and Alberta Environment (AENV) to begin construction of a 12,000 barrel per day (bpd) in situ facility, known as the STP McKay Thermal Project – Phase 1. The facility is located in the Regional Municipality of Wood Buffalo (RMWB), approximately 40 km northwest of Fort McMurray, in Township 91, Ranges 14-15 west of the 4th meridian. Other oil sands developments in the vicinity of the STP McKay Thermal Project – Phase 1 include:

- Suncor Mackay Phase 1; and
- Athabasca Oil Sands Corp (AOSC) Mackay River Pilot (joint with PetroChina).

STP is proposing an expansion of the McKay Thermal Project to increase productive capacity to a total of 36,000 bpd. The STP McKay Thermal Project – Phase 2 (Phase 2) will be located in the same project area as the Phase 1 Project and is designed to be constructed incrementally in two phases (Phase 2A and 2B).

Actual timing of construction will depend on the timing of regulatory approvals and market conditions. For the purpose of this assessment, the following schedule has been assumed:

- Phase 2A (12,000 bpd), start of construction in mid 2013 and start of operations in 2015; and
- Phase 2B (12,000 bpd), start of construction in mid 2014 and start of operations in 2016.

If approved, the Project will operate for approximately 25 years following the completion of Phase 2B.

The capital costs of Phase 2 are subject to uncertainty and will be refined as detailed engineering takes place. For the purposes of this analysis, and based on preliminary engineering estimates, the construction capital costs will total $1.14 billion for both Phase 2A and 2B. This includes:

- construction of the central processing facility;
- initial well pad, pipeline, and road construction; and
- drilling of initial well pairs.

Bitumen recovered by Phase 2 will be diluted and transported by pipeline for upgrading elsewhere in Alberta. The pipeline is subject to its own application and approval.

Mitigation and Enhancement

Phase 2 has the following characteristics which serve to mitigate the socio-economic effects of the project, including:

- pipelines to deliver diluents to and dilbit from the project;
- a progressive reclamation program;
- a trapper compensation program;
- community investment programs;
- an on-site camp for construction and operations;
- on-site security staff during construction;
- basic first responder medical capability on site during operations; and onsite medical response during construction;
- a fly-in-fly-out program and bussing from the Fort McMurray Airport to the project site during operations.

1.2 Summary of Conclusions

Phase 2 will create positive economic and fiscal effects on the Socio-Economic Regional Study Area (RSA) consisting of the RMWB and the nearby First Nation communities. The Project is estimated to create:

- 300 person years of engineering employment;
- 2,220 person years of on and off-site employment related to the construction of the plants, the field facilities, and the drilling of initial well pairs between 2013 and 2016;
- 51 operations positions to be hired between 2013 and 2016; and
- 70 person years of employment annually linked to ongoing drilling.

Once fully operational, Phase 2 will add an estimated $2.6 million annually in municipal property taxes to the RMWB and $28.2 million (2011 dollars) over the life of the project, assuming no change in mill rates. Phase 2 will also contribute an estimated $150 million (2011 dollars) and $225 million (2011 dollars) to provincial and federal corporate income taxes respectively and $550 million (2011 dollars) in provincial royalties over its

25 year operating life, assuming an $85 real (2011) price of oil. All values presented above reflect the net present value of anticipated future payments in 2011.

STP will take a developmental approach to local hiring and procurement, using local contractors and workers where appropriate. With construction and operations activity planned for over 25 years, Phase 2 will periodically assess the approach to construction and operations in view of changing circumstances in the work force, contractor availability, and social and transportation infrastructure in the RSA.

The effects of Phase 2 on many regional services and infrastructure will be muted due to the continued use by STP of construction and operations strategies that rely on on-site work camps, supported during operations by a fly-in-fly-out (FIFO) worker commute program. The long-term resident population effect of Phase 2, estimated at around 75 people, will have a marginal effect on regional services and infrastructure. In addition, various mitigation and management measures are and will be taken by STP to address the effects of its project and oil sands development in general.

Cumulatively, the region is anticipating strong population growth in the years ahead, reaching an urban population of 114,500 by 2017 under Planned Development Case (PDC) assumptions, along with a work camp population that is expected to reach over 30,000 workers for the foreseeable future.

Responsible authorities are in a better position to deal with this future growth than in previous years as a result of new funding, policy and planning mechanisms put in place by government and industry. These initiatives have helped to alleviate a number of socio-economic pressures and enhance the quality of life for local residents. In addition, the global financial crisis of 2008 and 2009 led to a period of more moderate growth in the region giving service providers additional time to plan and act.

Avoiding future socio-economic pressures will depend upon current planning initiatives being properly resourced and carried out in a timely manner. Without timely land release and upgrades to regional infrastructure and services, future growth could once again place pressures on the region.

1.3 Scope of the Socio-Economic Assessment

The Socio-Economic Impact Assessment (SEIA) evaluates the impacts of the construction and operations of Phase 2 on the communities of the region. The potential socio-economic impacts of the construction and operation of Phase 2 include economic and fiscal benefits as well as demands on regional services and infrastructure.

The SEIA draws on and refers to ongoing consultation by STP in the context of the project and other initiatives.

The SEIA approach includes:

- identifying and screening potential socio-economic issues;
- selecting key indicators of socio-economic conditions; and
- defining temporal and spatial Study Area boundaries.

1.3.1 Regulatory Setting

The SEIA addresses the Terms of Reference (TOR) for the Environmental Impact Assessment (EIA) of the Project as issued by AENV (Terms of Reference, 2011).

1.3.2 Key Issues and Questions

The SEIA draws on the following sources for identifying the key socio-economic issues:

- Section 7 of the TOR for the EIA of the Project, as issued by Alberta Environment in 2011 (AENV 2011);
- discussions with regional service providers;
- STP's ongoing consultation in the region;
- analysis of recent SEIAs for other oil sands projects;
- the responses by the Alberta Energy Resources Conservation Board (ERCB), other stakeholders, and intervenors, to recent oil sands SEIAs in the course of the regulatory review process, including public hearings; and
- socio-economic studies and reports prepared by government, industry or regional service providers.

These sources indicate that the key socio-economic issues to be considered in this analysis fall into the following categories:

- regional and provincial economic benefits, including:
  - personal and business income; and
  - government tax and royalty income;
- employment effects;
- traditional land use effects;
- population effects;

- effects on regional infrastructure and services, including:
  - housing, including worker housing;
  - policing and emergency services;
  - health services;
  - social services;
  - education services;
  - recreation activities;
  - municipal infrastructure and services; and
  - transportation effects.

1.3.3 Key Indicators

The key indicators used to assess the effects of the Project on communities in the study area are:

- workforce;
- income;
- population change;
- effects of population changes on regional services and infrastructure;
- effects of increased traffic on the regional road network; and
- traditional land use and culture.

The key indicators used to assess the Project's income and taxation consequences for governments are:

- municipal taxes;
- provincial corporate tax and resource royalty income; and
- federal corporate tax income.

Many of these key indicators are well suited for quantification and provide an easy-to-interpret measure for potential effects. Effects on service providers are based, in part, on key respondent interviews and are treated mostly qualitatively.

1.3.4 Assessment Cases

This analysis defines three assessment cases to evaluate key socio-economic issues and associated key indicators. They are:

- Base Case**,** consisting of all the current economic activity in the RSA plus those large industrial projects that are currently under construction or have regulatory approval.
- Application Case, consisting of all the economic activity assumed under the Base Case, plus Phase 2;
- Planned Development Case (PDC), consisting of all the economic activity assumed under the Application Case, plus those large industrial projects that were disclosed as of August 1, 2011.

1.3.5 Study Boundaries

1.3.5.1 Temporal Considerations

The SEIA covers the life of Phase 2, from construction through to the end of operations. It will concentrate on the time between 2013 and 2017, reflecting that:

- on-site construction for Phase 2A is expected to take place between early 2013 and mid 2015, with Phase 2B to be built between mid 2014 and mid 2016;
- Phase 2 operations are expected to begin in mid to late 2015 with Phase 2A and ramp up as Phase 2B comes on stream in 2016. The first full year of combined operations will be 2017.

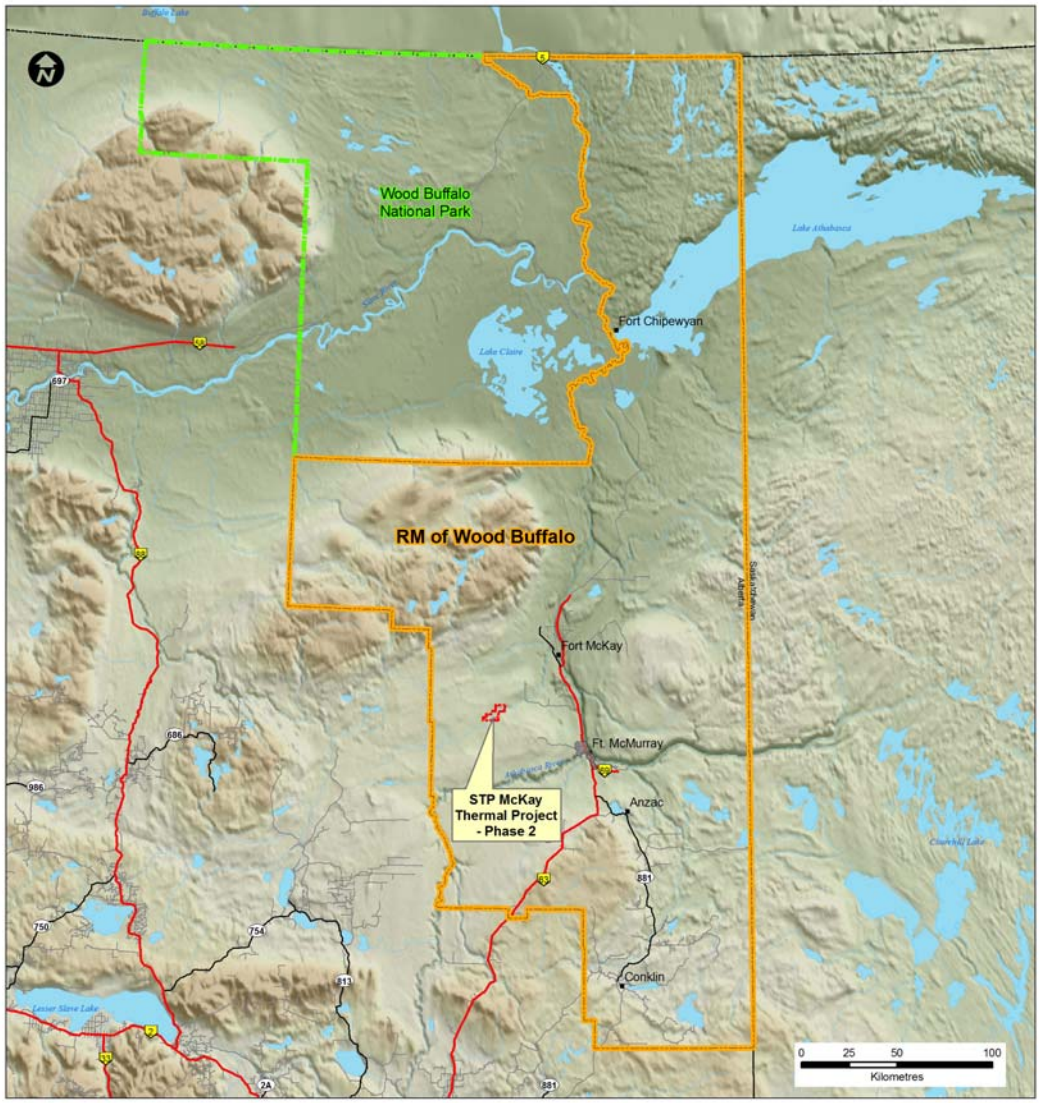
1.3.5.2 Spatial Considerations

Regional Study Area (RSA)

The boundaries of the socio-economic regional study area for the SEIA (see Figure 1.1) are the same as those of the RMWB. Particular attention is paid to Fort McMurray, the urban centre of the RMWB and the hub of the commercial and public services directly affected by Phase 2.

Where appropriate, the SEIA will consider Phase 2 effects beyond the study area. For example, the SEIA considers the effects of Phase 2 on the Alberta and Canadian economies.

Figure 1.1 Regional Study Area



1.3.6 Analytical Approaches

The differences between the Base, Application, and Planned Development Cases are determined using a variety of methods, ranging from extensive quantitative analysis to qualitative approaches, including:

- economic input-output modeling of the Alberta economy to determine the impact of Phase 2 in terms of total employment impacts and the impact on the provincial gross domestic product (GDP);
- labour market analysis to relate the construction workforce demands to the availability of workers in light of other anticipated heavy industrial construction in the province;
- population projections to determine the effect on regional population growth and on future social infrastructure demands;
- quantification of select social infrastructure effects to illustrate generally the effect on regional services and infrastructure;
- key respondent interviews and analysis of historical performance to gauge the capacity of education, health and other systems to respond to anticipated future demands;
- data analysis and key respondent interviews with regard to construction and operations traffic issues on Highway 63; and
- review and consideration of input received through Southern Pacific's ongoing consultations with First Nations and Métis Locals in the region, available traditional land use studies, and recent responses to SEIAs of oil sands developments, as prepared by, or on behalf of, the Mikisew Cree First Nation (MCFN), Athabasca Chipewyan First Nation (ACFN) and Fort McKay First Nation (FMFN).

The choice of assessment methodology depends on the issue and the availability of data.

2. Economic and Fiscal Effects

2.1 Introduction

This section provides an overview of the current economic conditions in the RSA. It also analyzes the economic and fiscal effects of the Project.

2.2 Situational Analysis

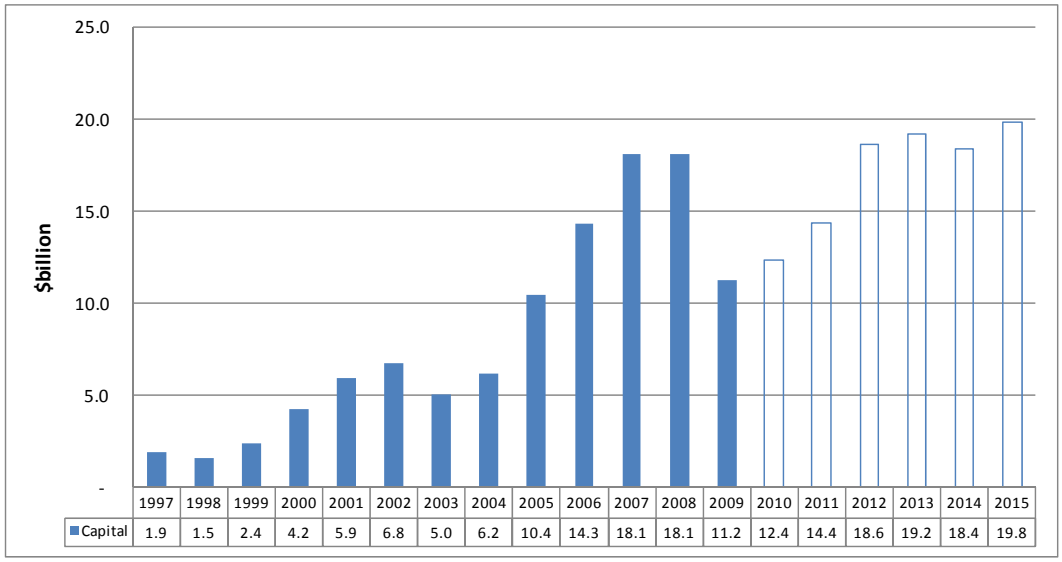
2.2.1 Wage Economy

The primary economic driver of the region is development of the oil sands. Most oil sands industrial activity is north of Fort McMurray near Fort McKay, but more recent developments are also taking place to the south of Fort McMurray, notably near Anzac and Conklin. The oil sands facilities are supported by a range of contractor and support services in the study area, most of which are located in the urban service area of Fort McMurray.

The regional economy expanded significantly from the mid-1990s to 2008 as a result of growth in the oil sands industry. For example, revenue from construction and sustaining capital expenditures in the province's oil sands industry increased from $1.5 billion in 1998 to over $18 billion in 2008 (CAPP and Nichols Applied Management).

In the fall of 2008, declining world energy prices, driven by the shrinking global economy, led to a pullback in energy sector investments in Alberta. With this, some construction projects in the Wood Buffalo region were scaled back and some postponed. Between 2008 and 2009, annual construction and sustaining capital expenditures in the province's oil sands industry dropped by nearly 40%.

Figure 2.1 Oil Sands Industry Construction and Sustaining Capital Expenditure



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Capital	1.9	1.5	2.4	4.2	5.9	6.8	5.0	6.2	10.4	14.3	18.1	18.1	11.2	12.4	14.4	18.6	19.2	18.4	19.8

Source: CAPP and Nichols Applied Management

Growth in the oil sands industry is set to recover in the near term. Based on current industry plans and pronouncements, construction and sustaining capital expenditures are likely to rise; by 2012, levels may be in line with those seen in 2007 and 2008.

Other contributors to the regional economy include:

- Forestry – the Alberta-Pacific Forest Industries Inc. (Al-Pac) Forestry Management Area covers much of the study area. Logging takes place throughout the region. Fort McMurray-area forestry operations include Northland Forest Products and Millar Western Forest Products.

- Conventional oil and gas exploration and production – this takes place in the southern half of the study area. The pipeline industry carries local production to southern markets.

- Tourism and outdoor recreation - the Oil Sands Discovery Centre in Fort McMurray is a popular attraction in Fort McMurray. Gregoire Lake is a favourite recreational site for local residents, and Fort Chipewyan is a staging point for trips into Wood Buffalo National Park. Most hotels and other tourism infrastructure, such as restaurants, charter airlines and tour operators, are in Fort McMurray.

Other economic activities in the region include mineral exploration, commercial fishing, outfitting, hunting, and trapping. The region also supports a number of traditional economic activities, such as subsistence hunting, trapping and plant gathering. All of

these activities are supported by a range of contracting and other service providers in the areas of transportation, construction, logistics, wholesale and retail trade.

A limitation for business growth in the region has been the shortage of commercial and industrial land. In early 2011 the Government of Alberta responded by selling a 982-acre parcel of land to meet the region's need for commercial space, specifically for the development, service and oil industry. A second parcel of land (about 600 acres) has also been released but not yet sold (FMT 2011a). Continued growth will necessitate further land releases.

2.2.2 Labour Force

The expansion of the regional economy has created employment growth. Examples include:

- Construction– growth is created as new oil sands facilities are built, existing operations expand, new residential, commercial and institutional buildings are erected and municipal, highway and other infrastructure expands.
- Oil sands industry operations – as production volumes increase, additional workers and contractors are required for operations and sustaining maintenance.
- General economy (primarily the service and governmental sectors) – employment opportunities grow in the general economy as new businesses establish themselves in the region and operational ones expand.

The estimated unemployment rate in the Wood Buffalo-Cold Lake region was 5.7% in July 2011. This is above both the unemployment rate of 4.7% in July 2010 and the estimated 5.5% June 2011 unemployment rate for the province (E&I July 2011).

There is concern that the labour shortage experienced prior to the 2008 to 2009 recession will return. Indeed, while it became somewhat easier to attract and retain semi-skilled and unskilled workers during the recent economic recession, attracting and retaining skilled workers was, and remains, a challenge for many employers.

In addition to the resident workforce of the RSA, there are approximately 25,000 mobile workers living primarily in camps, but also in hotels, motels and campgrounds throughout the region (RMWB 2010). The use of mobile workers is standard practice in the construction and operation of heavy industrial projects and these workers are likely to continue to be present in the RSA for the foreseeable future.

Aboriginal Employment

Unemployment rates tend to be higher among Aboriginal people compared with the rest of the population. In July 2011, unemployment among off-reserve Aboriginal people in Alberta was about 13.7%. The corresponding estimate for the areas outside Edmonton and Calgary was 12.9% (E&I 2011).

Employment and unemployment on reserves in the region is a fluid situation. An analysis conducted by the Athabasca Tribal Council (ATC) indicates unemployment rates on reserves in the region range from 38% to 54%, which is well above the Alberta off-reserve rates (ATC 2006). Generally, the relatively lower levels of unemployment are found among the First Nations north of Fort McMurray and located closer to the well-established oil sands mining facilities. Almost half of the employed respondents to the ATC Labour Pool study worked in general labour (ATC 2006).

The ATC study indicates four barriers to employment:

- lack of education, for example, almost 75% of respondents left before completing high school;
- lack of transportation to the worksite, for example, 47% of respondents did not have a driver's licence;
- lack of employability skills and training, especially in safety and driver training; and
- alcohol- and drug-related constraints; for example, 26% of respondents indicated they would not pass a drug or alcohol test if subjected to one.

Respondents from the Aboriginal communities also raised concerns that community members often have to travel from, or leave, their community to participate in the wage economy.

The ATC study indicated a high desire among respondents to upgrade skills. Most of those currently not in the labour force are enrolled in academic upgrading or training programs. About 59% of employed respondents and 85% of unemployed respondents indicated a willingness to upgrade academically.

2.2.3 Income

Strong economic growth in the region is reflected in family incomes, as shown in Table 2.1.

Table 2.1 Median Family Income – 2008

	Couple Family	Lone-Parent Family	Persons Not in Census Families
	CAD $		
Alberta	94,170	41,170	33,150
Fort McMurray	167,870	60,970	71,220
Anzac	163,650	71,800	55,520
Fort McKay	104,890	23,840	29,260
Conklin	80,420	28,150	40,690
Fort Chipewyan	80,010	25,600	25,760

Source: Statistics Canada 2010a

Income data for Fort McMurray, the main population centre in the study area, show:

- Incomes are above the provincial average by as much as 78% for couple families, 48% for lone-parent families and 115% for persons not in census families (i.e., mostly unattached single persons).
- The median family income for couple families is about 2.8 times higher than for lone-parent families, while in Alberta median family income for couple families is only 2.3 times higher than lone-parent families.

Data for outlying communities indicates that:

- Incomes in Anzac are higher than those in Fort McMurray for lone parent census families, but lower than Fort McMurray for couple families and persons not in census families.
- Incomes in Fort McKay are above the provincial average for couple families but not for lone-parent families or persons not in census families.
- Incomes for couple families and lone-parent families in Fort Chipewyan and Conklin trail the Alberta average by about 15% to 40%.

Total income in the small communities is influenced by the higher percentage of lone-parent families, which is about 29% for Fort McKay, 31% for Fort Chipewyan and 20% for Conklin. This is compared with 9% for Alberta. Accounting for the different percentages of couple families, lone-parent families and persons not in census families indicates that the overall median income for selected smaller communities in the study area is as follows:

- Anzac: $114,060
- Fort McKay: $45,720
- Conklin: $50,100

- Fort Chipewyan: $45,000

The corresponding overall median incomes for Alberta and Fort McMurray are $67,660 and $125,149 respectively per year, higher than the estimates for most of the outlying communities, except Anzac. Between 2006 and 2008, overall median incomes in the smaller communities grew at a faster rate (from 13% to 21%) than the provincial average of 10%.

2.3 Income Effects

2.3.1 Construction Expenditure by Region

Total capital expenditure during construction of Phase 2 is estimated at $1.14 billion. Construction capital expenditures include wages and salaries paid to construction workers, professional engineering and environmental services, and the direct purchase of goods and services, such as equipment modules and structural elements. Capital outlays will likely begin before the construction period for items such as engineering and purchases of long lead-time equipment.

Table 2.2 provides a breakdown of the estimated construction expenditure by region, based on published supply ratios by industry, discussions with local service contractors, information provided by STP, and the past experiences of similar projects in the region (Alberta Finance, 2011). The table indicates that an estimated 46% of the total expenditure will accrue to Alberta, including the RSA (2%). An additional 28% will accrue to the rest of Canada, and the balance to foreign suppliers. The expenditure accruing to foreign suppliers is related primarily to the purchase of machinery and equipment.

Table 2.2 Construction Expenditure by Region

Expenditures	RSA	Other Alberta	Other Canada	Foreign	Total
	[$ millions]				
Engineering	-	40	15	-	**55**
Labour	20	205	200	-	**425**
Materials/Equipment	-	260	100	300	**660**
Total	**20**	**505**	**315**	**300**	**1,140**
Total [%]	**2**	**44**	**28**	**26**	**100**

– Not significant.
Note: Totals may not add to 100% due to rounding.

An estimated $20 million (or 2%) will accrue to the RSA, primarily in the form of wages paid to local contractors during construction of Phase 2. This estimate is net of the spending that accrues to contractors who use out-of-region crews.

2.3.2 Sustaining Capital and Ongoing Drilling Expenditures by Region

Once operational, Phase 2 will incur costs in the form of ongoing drilling and sustaining capital expenditure. These expenditures include wages and salaries for

drilling/completions contractors, as well as pipeline, well pad, road and plant related materials and equipment required to maintain the designed productive capacity of the plant. Sustaining capital and ongoing drilling expenditures will begin in 2016 and average $50 million per year over the life Phase 2. More than three-quarters of the annual sustaining capital and ongoing drilling expenditures will accrue to Alberta suppliers, reflecting the supply capabilities of the Alberta drilling and pad and pipeline construction sectors.

2.3.3 Operations Expenditure by Region

Once fully constructed, the annual operations expenditure related to Phase 2, excluding fuel and utilities, will average approximately $81 million. These costs are in addition to the sustaining capital and ongoing drilling expenditures of approximately $50 million.

Table 2.3 provides a breakdown, by region, of the annual operations expenditure based on published supply ratios by industry (Alberta Finance, 2011). An estimated 74% of the expenditures will accrue to Alberta, including the RSA, and an additional 15% to Canada.

Table 2.3 Operations Expenditure by Region

Expenditures	RSA	Other Alberta	Other Canada	Foreign	Total
	[$ millions]				
Labour	1	19	6	-	**26**
Materials/Equipment	-	39	6	10	**55**
Total	2	58	12	10	**81**
Total [%]	2	72	15	12	**100**

– Not significant.
Note: Totals may not add to 100% due to rounding.

Approximately 2%, or $2 million, of the operations expenditure is expected to accrue to local area workers and contractors. Some of the contractor spending is likely to accrue to out-of-region workers in the early years of operations in view of the relatively small size of the RSA labour force. These estimates may change over time as the work force in the region develops.

2.4 Total Income Effects

The construction expenditures associated with Phase 2 will constitute income for contractors, suppliers and workers. These primary recipients will, in turn, spend a portion of this income on goods and services, thus circulating the expenditures throughout the economy, compounding the income effect.

2.4.1 Construction

Based on published statistics the direct, indirect and induced impact[1] of Phase 2 in terms of Gross Domestic Product (GDP), and household income is approximately $800 million and $500 million respectively (Alberta Finance 2011).

2.4.2 Operations

The total (direct, indirect and induced) GDP impact of operating, ongoing drilling, and sustaining capital expenditures are estimated at $110 million annually. The total labour income effect of operating, sustaining capital, and ongoing drilling expenditures for Phase 2 is estimated at $60 million annually. The estimates represent an average annual impact over the life of the project and are based on published multipliers (Alberta Finance 2011).

2.5 Fiscal Effects

The project contributes property taxes to the RMWB, oil sands royalties to the provincial government and corporate taxes to the provincial and federal government. Project tax and royalty payments expand the ability of the different levels of government to fund programs and initiatives in the RSA and elsewhere.

2.5.1 Municipal Fiscal Effects

The amount of municipal taxes that will be paid in relation to Phase 2 is uncertain, as both the actual assessment of the facility and the tax rates in effect when it becomes operational are unknown. A preliminary estimate of the municipal tax payment related to Phase 2 is $2.6 million in 2017, when the project is fully operational. Over the life of Phase 2, assuming that the 2010 municipal tax rates remain in effect and a discount rate of 8%, the present value in 2011 of the municipal taxes paid in relation to Phase 2 is approximately $28.2 million. In reality, setting municipal tax rates is the prerogative of the RMWB Council and generally tax rates for different property classes are set based on the gap between required revenue to fund operating and capital budgets and other sources of funding, such as grants, fees and licenses.

The use of on-site operations and construction camps and a fly-in-fly-out operations model will limit the impact of Phase 2 on municipal expenditures. The project will not be tied directly into the water and sewer system of the RMWB as STP plans to draw on well water and build an onsite potable water treatment facility and an onsite wastewater treatment facility. The municipal tax payments are expected to be an order-of-

[1] Direct effects are those associated with the initial industry expanding to meet the new demand for its output. Indirect effects are those associated with the expansion of industries that supply inputs into the initial industry. Induced effects are those associated with the spending of income paid to new workers employed in the expanding industries (Alberta Finance 2011).

magnitude higher than the municipal costs, making Phase 2 a net contributor to the municipal fiscal health of the RMWB.

2.5.2 Provincial Fiscal Effects

Once Phase 2 is operational, royalties will be paid to the provincial government. Future royalty payments are subject to uncertainty as they are directly related to the prevailing market price of oil, the Canadian-US dollar exchange rate, and the differential between light and heavy crude oil. Production costs, including fuel, also impact the calculation of royalties.

The following assumptions inform this analysis:

- discount rate of 8%;
- the Project is considered as a single, fully integrated (ring fenced) entity;
- a long-term West Texas Intermediate (WTI) price of USD $85; and
- the 2008 Alberta government royalty framework is in effect for the life of the project.

Under these assumptions, Phase 2 is estimated to result in approximately $550 million (NPV 2011) being paid in royalties over the life of the project.

STP will also pay provincial and federal corporate income taxes on revenue derived from Phase 2. Under the same assumptions described above and assuming the present tax framework applies over the life of the project, STP will pay approximately $150 million and $225 million (NPV 2011) in provincial and federal corporate income taxes, respectively over the life of the project.

These provincial fiscal benefits are not net of potential costs to the province of social and physical infrastructure investment driven by oil sands industry expansion, including Phase 2. The Comprehensive Regional Infrastructure Sustainability Plan (CRISP) outlines the requirement of provincially funded infrastructure in the Athabasca Oil Sands area, which includes the RSA, as bitumen production increases (CRISP 2010). These costs notwithstanding oil sands are a net contributor to the fiscal position of Alberta. Bitumen royalties were $3.6 billion in 2010/11, are forecasted at $4.1 billion in 2011/12 and targeted at $7.1 billion in 2013/14 (GOA 2011f). Most of the bitumen royalties are paid by projects in the RSA.

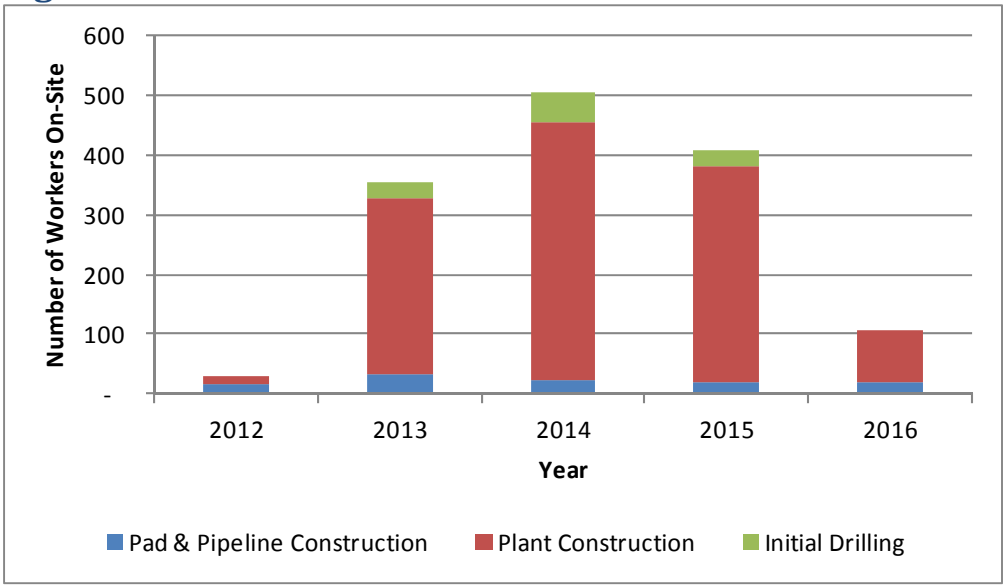
2.6 Employment Effects

2.6.1 On-Site Construction Employment

Construction of Phase 2 is expected to require 1,295 person years on-site during the 2013 to 2016 period. In addition to the construction of the central facility, there will be initial drilling and completions activity which is expected to generate an additional 100 person years of employment between 2013 and 2017.

All together and under the assumed schedule, the construction of the plants, field facilities and the drilling of wells will create close to 1,395 person years of on-site employment over the five-year construction period, with a peak of roughly 500 in 2014, as shown in Figure 2.2.

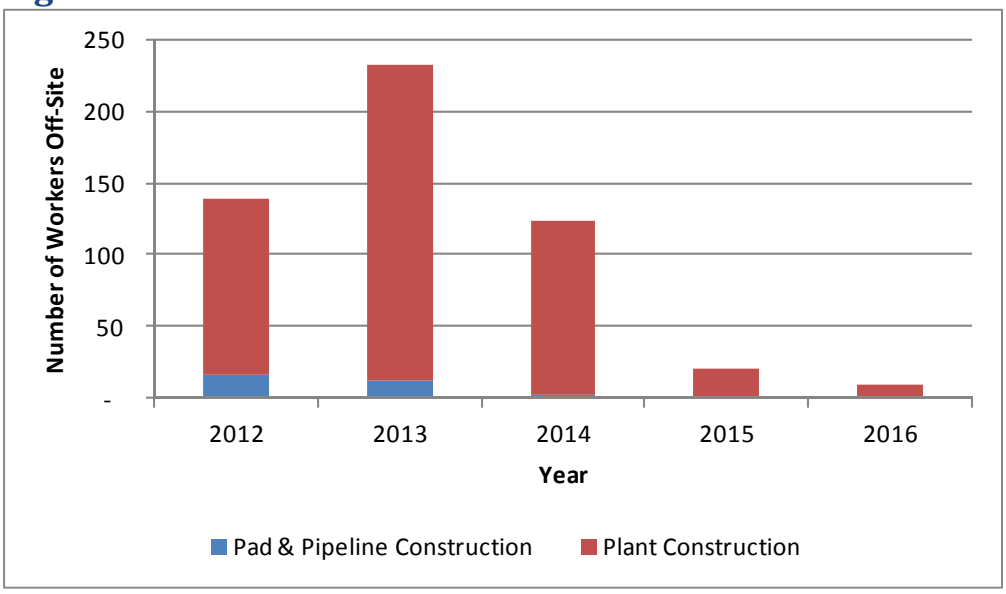
Figure 2.2 On-Site Construction Workforce



2.6.2 Off-Site Construction Employment

The construction of Phase 2 will create work in fabrication shops and construction yards outside of the RSA, mostly in the Edmonton area. The total off-site construction is estimated to be 525 person years during the 2012 to 2016 period. Figure 2.3 shows that the off-site workforce is expected to peak at approximately 220 workers during 2013 given the assumed construction schedule.

Figure 2.3 Off-Site Construction Workforce



2.6.3 Construction Employment by Type

Phase 2 will employ a broad range of construction trades during the on-site plant, well pad and pipeline construction activities, the bulk of which will be pipe fitters, plumbers, electricians and iron workers. Phase 2 will also create significant work for general labourers.

As noted, there will be drilling operations during the construction period. The skills required for this work include the full range of rig workers, including roughnecks, motormen and drillers. Off-site workers, employed in fabrication yards, will include metal fabricators, pipe fitters and welders.

2.6.4 Engineering Employment

Phase 2 is expected to create an estimated 300 person years of engineering employment for engineering contractors. The majority of this work will accrue to engineering firms outside of the RSA in Edmonton and Calgary.

2.6.5 On-Site Operations Employment

Once fully operational, Phase 2 is expected to increase the total workforce of the STP McKay Thermal Project by 51 positions, from 63 to 114 positions. Approximately 70% of these full-time positions are expected to be STP employees with the balance staffed by contractors.

During the operational phase of the project, there will be continuous drilling activities to ensure the productive capacity of each phase is maintained throughout the life of the project. Ongoing drilling activity and associated field construction for Phase 2 is

expected to employ approximately 70 person years of labour annually on-site. This estimate is an annual average as the actual volume of drilling will vary from year to year and be performed primarily in the winter months.

In addition to the permanent operations employment, Phases 1 and 2 will collectively employ between 100 and 220 contractors for approximately two weeks every year for scheduled turnarounds.

2.6.6 Off-Site Operations Employment

Some of the activities related to the operation of Phase 2 will be performed off-site. For example, well pad equipment will be fabricated in production facilities in the greater Edmonton area. This employment is expected to average between 5 and 10 person years of employment annually over the life of the project.

2.6.7 Total Employment Effects

The economic activity associated with Phase 2 will stimulate employment with suppliers to the project and in the general economy as the affected workers spend their income on goods and services, hence creating employment in consumer goods and services sectors. The employment effect of the project on suppliers is referred to as indirect employment effects and the employment generation effect in the general economy as induced employment effects. An order-of-magnitude estimate of these indirect and induced employment effects using published multipliers derived from an Input-Output model of the Alberta economy (Alberta Finance 2011) is presented below.

The total direct employment effect of construction of Phase 2, including the on- and off-site workforces, initial drilling and engineering is estimated at 2,220 person-years. The total direct, indirect and induced employment effect is estimated at 3,870 person-years over the construction period.

The total direct employment effect of operating Phase 2, including the regular operations workforce, the ongoing maintenance workforce and ongoing drilling activities is estimated at 121 full-time equivalent positions. The total direct, indirect and induced employment is estimated at 400 person years annually.

2.7 Local Hiring and Procurement Practices

STP has policies in place to hire locally first and to use Alberta-based contractors as often as possible subject to labour availability, cost and quality considerations. STP will also encourage the participation of Aboriginals and Aboriginal businesses in the construction and operation of Phase 2 by providing information to First Nations communities on the potential employment and contracting opportunities available and how to apply for or bid on them. STP is open to considering further options for

encouraging increased participation by local Aboriginal workers and businesses in the construction and operation of Phase 2.

3. Traditional Land Use and Culture

3.1 Introduction

This section discusses issues pertaining to the traditional lands and culture of Aboriginal peoples in the RSA. The discussion is informed by ongoing consultations with Aboriginal communities, as well as review and consideration of available traditional land use studies, and recent responses to SEIAs of oil sands developments, as prepared by, or on behalf of, First Nations in the RSA.

3.2 Situational Analysis

3.2.1 Changes in Traditional Land Use and Culture

Aboriginal peoples in the region have been engaged in traditional activities such as hunting, fishing, and gathering for thousands of years. While traditional land use remains essential to Aboriginal culture, it has changed:

- during the first half of the 20th century until the mid-1960s, most Aboriginal people pursued a traditional hunting and gathering lifestyle, even though many of their children attended school and some adults participated in the wage economy;
- with emergence of oil sands development, the economic importance of traditional pursuits in Aboriginal communities declined as the wage activities increased; and
- traditional cultural and environmental knowledge is moving from a mostly oral and activity-based tradition of preservation to greater emphasis on systematic documentation.

3.2.2 External Influences on Traditional Culture

The traditional culture of Aboriginal communities in the RSA is affected by a number of external influences, similar to those impacting Aboriginal communities elsewhere in Canada, including:

- increased use of traditional lands for non-traditional purposes, whether it be resource development such as oil sands development in the Wood Buffalo region or diamond mining in the Northwest Territories, or increased agricultural development and encroaching urbanization in other parts of the country,
- education initiatives that limit the learning of traditional knowledge values and practices, and

- increased access to other cultural influences through advancements in technology (e.g. satellite, internet, cell phones).

3.2.3 Effects of Oil Sands Development

Oil sands development is placing pressure on the traditional lands and culture of Aboriginal peoples in the region in a number of different ways, including:

- making portions of land unavailable for traditional pursuits for a sizeable period of time, thereby reducing opportunities to carry out traditional activities and to transmit traditional culture and oral history while on the land;
- raising concerns among Aboriginal persons regarding the effect of pollutants on traditional lands and resources, thereby affecting how and where traditional practices are carried out;
- using local waterways which in turn has led to concerns about the quantity of water in the region which is relied upon for carrying out traditional activities (e.g. fishing, means of accessing traditional lands, etc.);
- offering opportunities for increased engagement in the wage economy which limits opportunities for carrying out traditional pursuits and transferring traditional knowledge to Aboriginal youth while on the land; and
- increasing the non-Aboriginal population in the region, thus increasing the competition for traditional resources from non-Aboriginal community members and increasing the exposure of Aboriginal persons to outside cultural values that might run contrary to the values associated with Aboriginal use and stewardship of traditional lands.

Along with these pressures, oil sands development has also had positive effects on traditional culture, including:

- increasing participation of local Aboriginal persons in the wage economy, leading to greater household spending power, lower need for government transfer payments, and an improved sense of self-worth for some;
- supporting traditional land use (TLU) and traditional ecological knowledge (TEK) studies, oral history projects, and other initiatives;
- supporting Aboriginal community projects, cultural retention programs, and historical preservation initiatives; and
- supporting Aboriginal community consultation offices (e.g. Industry Relations Corporations, Government and Industry Relations, Sustainability Department).

These positive effects have provided Aboriginal communities with additional resources with which to manage social and cultural change.

3.3 Effects Assessment

3.3.1 Base, Application and Planned Development Cases

Additional land disturbance and population growth associated with approved and proposed oil sands projects will diminish opportunities for traditional pursuits in the region and place increasing stress on traditional culture. However, it will also enhance a number of the benefits associated with development including increased wage opportunities, support for TLU and TEK studies, as well as support for cultural retention and historical preservation initiatives.

3.4 STP Mitigation

STP recognizes the effects of oil sands development on traditional land use and culture. The proponent will therefore undertake the following initiatives to enhance the positive and minimize the adverse effects of its project:

- undertake progressive reclamation, giving priority to lands of Aboriginal importance, whenever possible;
- managing construction and operations worker access to the project lease;
- discouraging camp residents from fishing, hunting, and driving recreational vehicles on traditional lands;
- promoting cultural diversity awareness to STP employees and contractors regarding respect for traditional resource users, traplines, cabins, trails and equipment;
- providing access to trappers and traditional users across the project area;
- compensating trappers directly affected by the project, according to industry standards;
- potentially entering agreements with First Nations whose traditional land uses are directly affected by the project;
- becoming a member of the appropriate Industry Relations Corporations (IRC) and Government Industry Relations (GIR) groups;
- supporting cultural retention initiatives, such as elder and youth programs, where appropriate;

- participating in regional multi-stakeholder planning and research initiatives that incorporate consideration for the long-term sustainability of effective traditional land use; and

- continuing to work with Aboriginal communities in the region to ensure that their concerns with respect to traditional land use and culture are continually considered during project planning and operation.

4. Population

4.1 Introduction

This section presents the population effects on the Study Area under Base Case, Application Case and PDC assumptions, with particular emphasis on the urban service area, defined as Fort McMurray and the community of Saprae Creek.

4.2 Situational Analysis

4.2.1 Regional Population

The dynamic nature of the demographics in the RMWB makes estimating the population size difficult, especially because of the high number of boarders living in private residences (e.g., renting rooms or illegal suites). The most recent population estimate from the 2010 municipal census indicates a regional population of 104,340. [2]

Population growth in the RSA is shaped by development of the oil sands industry. Rapid oil sands industry expansion, from the late 1990s until 2008, led to significant population growth. Between 1999 and 2008, the population in Fort McMurray grew by an estimated 7.5% per year (RMWB 2010d). More recently, delays in oil sands project schedules in the wake of the financial crisis of 2008 has led to a more moderate population growth rate of 3.0% per year (2008 – 2010).

The RMWB's population can be divided into the following categories (RMWB 2010d):

- those occupying owned or rented dwellings, often referred to as the resident population; and
- those occupying camp-based or other temporary dwellings such as area hotels, motels and campgrounds, often referred to as the non-resident population.

4.2.1.1 Resident Population

The resident population of the region is located in communities of two types:

- urban communities, including Fort McMurray and Saprae Creek; and
- rural communities, including the settlements of Fort Chipewyan, Fort McKay, Anzac, Janvier and Conklin, as well as a number of reserve communities.

[2] Population counts, forecasts, and methods have been the subject of considerable discussion between the RMWB and various departments of the Alberta government. Alberta Municipal Affairs has not accepted the RMWB 2008 Municipal Census and has continued to use the RMWB 2007 Census as the basis of its Official Population List. Discussions about the RMWB 2010 Census were ongoing in mid-2011.

Since 1999, the resident population has grown by an annual average of 6.6%, reaching approximately 80,000 people in 2010.[3] The urban communities account for about 95% of the resident population, while the rural communities account for the remaining 5%. Although most of these residents are permanent to the region, some maintain a permanent residency outside the region (e.g., Edmonton, Calgary, and elsewhere).

Differences Between Urban and Rural Communities

The urban and rural communities of the Wood Buffalo region differ from one another in terms of their demographic characteristics and their integration into the regional wage economy. Table 4.1 provides a summary of some key differences between urban and rural communities. Persons residing in urban areas are:

- more tightly integrated into the oil sands economy and have substantially higher incomes; and
- mostly non-aboriginal, as compared to mostly aboriginal in the rural communities.

The table also shows that the population in both the rural and urban communities is relatively young.

Table 4.1 Selected Differences Between Urban and Rural Communities

Selected Indicators	Urban Communities	Rural Communities
Labour Force Participation Rate	83%	62%
Unemployment Rate	3.7%	16.5%
Persons Employed in Selected Oil Sands Industry and Related Occupations (as percent of total labour force)	43%	32%
Median Family Income	109,546	65,853
Aboriginal Identity Population (as percent of total population)	9%	71%
Persons Aged 19 Years or Less (as percent of total population)	27%	34%

Note: Persons employed in selected oil sands industry and related occupations are defined here as those employed in the mining and oil and gas extraction, construction, and utilities industries.
Source: Statistics Canada, 2006 Census; Nichols Applied Management.

Differences Within the Urban Service Area

The population living in the urban service area can be divided into three identifiable groups, which differ from each other in terms of their integration into the oil sands economy:

- Group 1 is comprised of people working in the oil sands industry, either directly for the developers or indirectly for the various contractors. This segment of the

[3] There is also a homeless population in the region's urban service area, estimated at 549 people in 2010, more than double the estimate in 2005 (232 people).

urban resident population is thriving economically and by and large capable of dealing with the high cost of housing.

- Group 2 is comprised primarily of people working in the public service sectors, including government, education and health care. This part of the urban population is coping but stressed by the high cost of housing. The high cost of housing contributes to the difficulty that public service employers have in recruiting and retaining employees.

- Group 3 includes people working in the retail and other services sectors as well as those who live on the margins of the wage economy. These people experience the pressures of growth and suffer the consequences of living on the margins of a thriving economy where the cost of housing is high.

Differences Between Rural Communities

Not all rural communities in the Wood Buffalo region are alike. Anzac, for example, stands out as a rural community that is increasingly integrated into the oil sands economy. The participation of its population in the labour force and other key indicators of involvement are generally closer to urban levels than to the rural average, as shown in Table 4.2.

Table 4.2 Selected Differences Between Anzac and Other Rural Communities

Selected Indicators	Anzac	Other Rural Communities, Including Fort McKay
Labour Force Participation Rate	82%	56%
Unemployment Rate	2.86%	22.36%
Persons Employed in Selected Oil Sands Industry and Related Occupations (as percent of total labour force)	44%	26%
Median Family Income	104,386	49,757
Aboriginal Identity Population (as percent of total population)	25%	85%
Persons Aged 19 Years or Less (as percent of total population)	35%	34%

Note: Persons employed in selected oil sands industry and related occupations are defined here as those employed in the mining and oil and gas extraction, construction, and utilities industries.
Source: Statistics Canada, 2006 Census, Nichols Applied Management.

4.2.1.2 Non-Resident Population

Since 1999, the non-resident population has grown from under 4,000 to nearly 25,000 in 2010. Over 23,300 workers, or 90%, live in work camps, or lodges, in the outlying rural communities, whereas the remaining 1,500 people primarily live in hotels, motels and campgrounds in, or near, the urban service area. Most of the workforce camps in the RMWB are temporary construction camps, but there are an increasing number of permanent operations camps both north and south of Fort McMurray. As oil sands operations move farther from the RMWB urban service area, additional permanent

operations lodges are being established in light of health, safety and worker efficiency considerations.

As the size of the camp-based population has grown, camp providers have increased the breadth and quality of on-site camp amenities and services including security, health and recreational services. Improvements have also been made in the content and layout of individual rooms and shared spaces, quality of food services available and free-time activities offered. While these improvements serve to attract workers to the region, they also help to reduce the demands of the non-resident population on existing regional social infrastructure.

However, the proliferation of camps in the region has also raised concerns, including their effect on policing, emergency and health services, as well as municipal infrastructure (e.g. water, wastewater, and solid waste). Both the AOSA CRISP and the Draft Municipal Development Plan (MDP) incorporate language of consolidating camp locations and developing housing and transportation systems to allow at least the operations workers within commuting distance of Fort McMurray to make the transition from camp to community living.

4.2.2 Responding to Population Growth

4.2.2.1 Planning

In August 2011 the provincial and municipal governments signed a memorandum of understanding (MOU) for the creation of an Urban Development Sub-Region (USDR). The MOU is intended to give the RMWB jurisdiction over sufficient land to undertake residential, commercial and industrial development for up to 200,000 residents (RMWB 2011a).

In addition, the RMWB, with the support of the provincial government, has recently undertaken a number of other planning initiatives to accommodate population growth including: updating its Municipal Development Plan (MDP); extending the urban services area to include the Parsons Creek Area; and adopting several area structure plans and redevelopment plans. The RMWB is also developing new planning frameworks for rural communities which, once completed, are expected to indicate where population growth may be accommodated.

The development of communities in the RMWB will also be influenced by other regional initiatives currently underway, most notably:

- The draft Lower Athabasca Regional Plan (LARP), an initiative of the Land Use Secretariat of Alberta Sustainable Resource Development (ASRD). LARP is intended to provide guidance to provincial and local decision-makers regarding land-use management for the region by establishing a long-term vision based on desired economic, environmental and social outcomes and objectives. As of

summer 2011, consultations in the region have been completed on a draft version of the plan.

- The Comprehensive Regional Infrastructure Sustainability Plan (CRISP) for the Athabasca Oil Sands Area (AOSA). The AOSA CRISP is an initiative of the Oil Sands Sustainable Development Secretariat (OSSDS) in cooperation with a number of Alberta government departments and local area municipalities, including the RMWB. The plan links oil sands industry expansion to population growth and requirements for provincially funded infrastructure.

4.2.2.2 Forecasting

In 2009 the RMWB developed a population forecasting tool with input from a committee of local stakeholders and provincial government representatives. The purpose of the model was to develop a common set of population projections for use by the Municipality and key stakeholders. Some aspects of the RMWB population model include the following:

- It forecasts employment growth in oil sands and related industries based on specified bitumen production forecasts and a listing of anticipated oil sands projects that captures construction and operating employment;
- It assumes net migration into the region to be equal to the number of new jobs created minus the natural growth of the resident labour force;
- It delineates population projections by permanent, nonpermanent and project accommodations (rural) to account for the particularity of the population in the region; and
- It uses the standard component method (i.e., accounting for births, deaths, and migration) to project and age the permanent population.

A version of the RMWB model has been used to support the Athabasca Oil Sands Area (AOSA) Comprehensive Regional Infrastructure Sustainability Plan (CRISP). There has also been discussion about providing stakeholders a way to run custom scenarios (e.g., in support of regulatory applications). As of August 2011, this discussion is still ongoing.

The development of the RMWB population model is in addition to the Urban Population Impact Model developed by the OSDG in 1997 to facilitate the planning of the RMWB, school boards, and other agencies. The model, which provides population estimates for the urban service area of the region, incorporates, among other variables:

- oil sands project-specific information on construction and operations employment;

- regional multipliers to capture the indirect and induced jobs created by the expansion of the oil sands industry; and
- an age cohort survival module.

Both the RMWB and OSDG models produce population projections based on the assumption that employment needs in the region are fully met. This is subject to considerable uncertainty based on various factors including available employment opportunities in other communities, the region's attractiveness in comparison to other communities from which workers could be recruited and the personal preferences of individual workers and their families.

This SEIA acknowledges the different population models and draws on them all. As of summer 2011, the models are in general alignment with regards to medium term population estimates (2011 – 2020) for the urban service area. However, recent projections from the RMWB model do yield higher long-term (beyond 2020) estimates derived from an elevated production scenario as compared to the OSDG model and the CRISP version of the RMWB model. Longer-term population projections are open to greater uncertainty as a result of:

- likely changes in the number and timing of oil sands projects;
- potential technological advancements, thereby altering the workforce needs of oil sands projects;
- possible environmental thresholds that might serve to limit future oil sands development; and
- the impact of other planning initiatives, such as LARP, on future development.

4.3 Effects Analysis

The SEIA is focused on medium term population estimates as peak effects related to Phase 2 will occur during this time period. The PDC is based on the RMWB population model projections as of summer 2011, but draws on the OSDG model to derive base and application case projections.

4.3.1 Resident Population

4.3.1.1 Base Case

Based on the industry's growth plans and limiting the analysis to only those projects that are under construction or have regulatory approval in the spring of 2011, the resident population in the urban service area is expected to grow by approximately 4% annually, reaching nearly 99,000 by 2017. Some additional population is likely to accrue

to the rural communities in the RSA, especially if land and planning constraints faced by these communities are resolved.

Currently planned projects may not proceed or not proceed along their current timelines or with the same scope. There is therefore uncertainty associated with the long-term Base Case forecast.

4.3.1.2 Application Case

The Application Case layers the effects of Phase 2 of the STP Thermal Project over the Base Case effects and provides an estimate of the resident population effect related to Phase 2. Because Phase 2 is still in the planning phase, STP's workforce estimates, on which the population effects are based, contain a margin of uncertainty. Therefore, the population effects also contain a level of uncertainty and should be treated as estimates only and not as certain outcomes.

Resident population growth associated with Phase 2 will largely accrue to the urban service area beginning in 2013, the start of on-site construction. The peak population effect is just over 420 and will occur in 2015 when on-site construction and operations employment overlap. Once on-site construction is complete and full operations are underway, the long-term resident population effect of Phase 2 is estimated at approximately 75 people.

The effect of Phase 2 on the Wood Buffalo resident population is limited during both the construction and operations phases by its lodge-based approach. If the project were to operate using the conventional operation model that sees all workers living in the region, the long-term resident population effect associated with Phase 2 would be over 300 people.

4.3.1.3 Planned Development Case

The Planned Development Case includes a number of projects over and above those considered in the Base and Application Case. Under the PDC the long-range population growth trend of the urban population of the RMWB is expected to be 6% per year, reaching approximately 114,500 by 2017. This is 16% higher than the Base Case.

Most newcomers to the region take up residence in Fort McMurray and its bedroom communities. However, in recent years urban population growth has spilled over to some rural communities in the vicinity of the urban service area, driven mainly by the presence of new subdivisions in these communities. Future growth among the region's smaller rural communities is anticipated as a result of cumulative development in the region. Most of this growth is expected among communities in close proximity to the urban service area, such as Anzac.

Population projections are open to uncertainty and should be treated as estimates only. A number of factors could affect population growth including changes in the timing and size of individual projects, additional projects being brought forward, future technological advances in oil sands construction and operation, and the potential emergence of new communities in the region.

4.3.2 Non Resident Population

The level of construction activity implied in the PDC will likely see the regional camp-based workforce exceed 30,000 during much of the forecast period. The size of the camp-based population has given rise to discussions through the AOSA CRISP and the Draft MDP of the potential development of a new community north of Fort McMurray and a planned work camp community near Conklin (GOA 2011d, RMWB 2011).

4.4 STP Mitigation

In line with the standard approach to construction of oil sands facilities in the RSA, construction workers associated with Phase 2 will largely be housed in on-site camps. On-site accommodations are expected to be able to accommodate up to 400 workers. During periods when the on-site construction-related workforce exceeds this number, open camps near the project site will be used.

The project will also have a dedicated on-site operations camp. The camp will be designed to accommodate the project's operations work force for the duration of the operations lifespan and will offer a range of services, including dining and recreation services.

The camp-based operations model is used by developments throughout the RSA. The effects on the human environment from such a model include:

- reducing the resident population in the region;
- reducing demands on housing, service providers and infrastructure in the region;
- reducing daily commuting traffic volumes on Highway 63;
- reducing the numbers of workers with spouses and family members in the region who would otherwise be available to fill job vacancies in the region;
- helping spouses and family members of camp-based workers remaining active in the labour force in the community in which they permanently reside; and
- spreading the economic benefits of industrial development to other communities.

5. Housing

5.1 Introduction

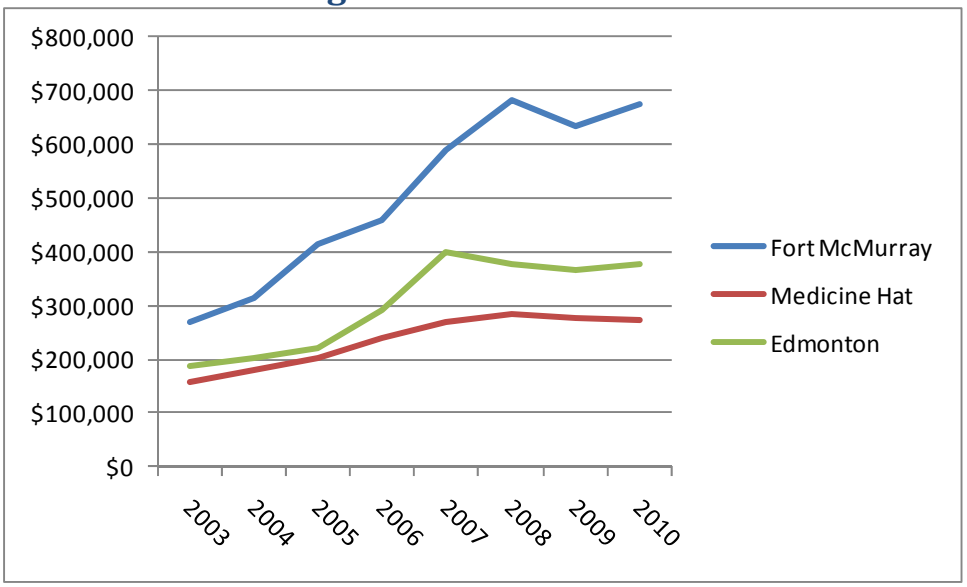
This section discusses the housing issues facing residents and assesses effects on housing in the RSA under Base Case, Application Case and PDC assumptions.

5.2 Situational Analysis

5.2.1 Price and Availability

High rates of population growth in the region, along with a lack of available land and the high costs of development, have contributed to a housing shortage and high house prices in Fort McMurray. As shown in Figure 5.1, the average price for single family dwellings more than doubled between 2003 and 2008 before dropping in 2009 in response to the economic recession. House prices began increasing again in 2010, rising to levels comparable with 2008. Preliminary figures for early 2011 indicate that house prices have continued to climb in Fort McMurray, reaching over $740,000 as of July 2011 (FMREB 2011).

Figure 5.1 Average Owned Housing Prices, Single Family Dwellings



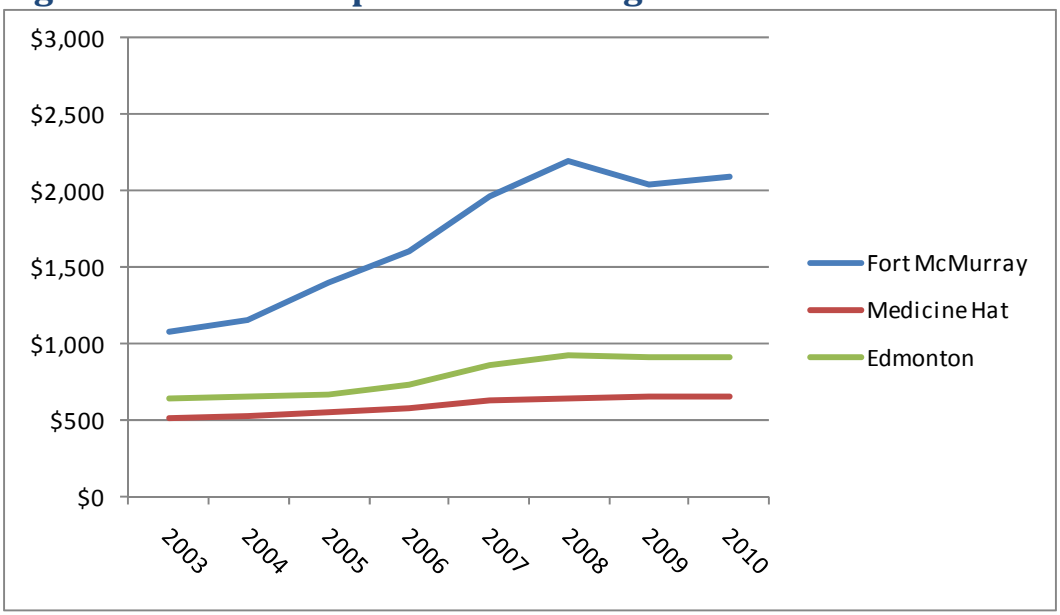
Sources: Fort McMurray Real Estate Board, Grande Prairie Real Estate Board, Medicine Hat Real Estate Board, Edmonton Real Estate Board

Despite a slowdown in housing starts in recent years, the market has shown resiliency in the past by quickly increasing housing starts in response to strong demand. Housing starts in the region increased rapidly, from 861 in 2004 to 2,175 in 2007, before dropping to 769 in 2010 (CMHC 2005; CMHC 2008; CMHC 2011a). Preliminary data from

early 2011 indicates that housing starts are once again ramping up in the region (CMHC 2011b).

Price and availability of rental accommodations has also been an issue in Fort McMurray. The average rental rates for a private apartment in Fort McMurray and selected other municipalities is shown in Figure 5.2. Rental rate increases have moderated in Fort McMurray in recent years, but rents remain the highest among all urban centres in Alberta (e.g., they are twice as high as Edmonton).

Figure 5.2 Private Apartment Average Rents



Sources: Rental Market Report, CMHC 2004, 2005, 2006, 2007, 2008, 2009, 2010.

Housing costs are the principal contributor to the high cost of living in Fort McMurray, which has repercussions for a number of different issue areas. For example, housing prices make it hard to recruit and retain staff, especially in those sectors where wage rates are relatively low, such as social services and the service sector.

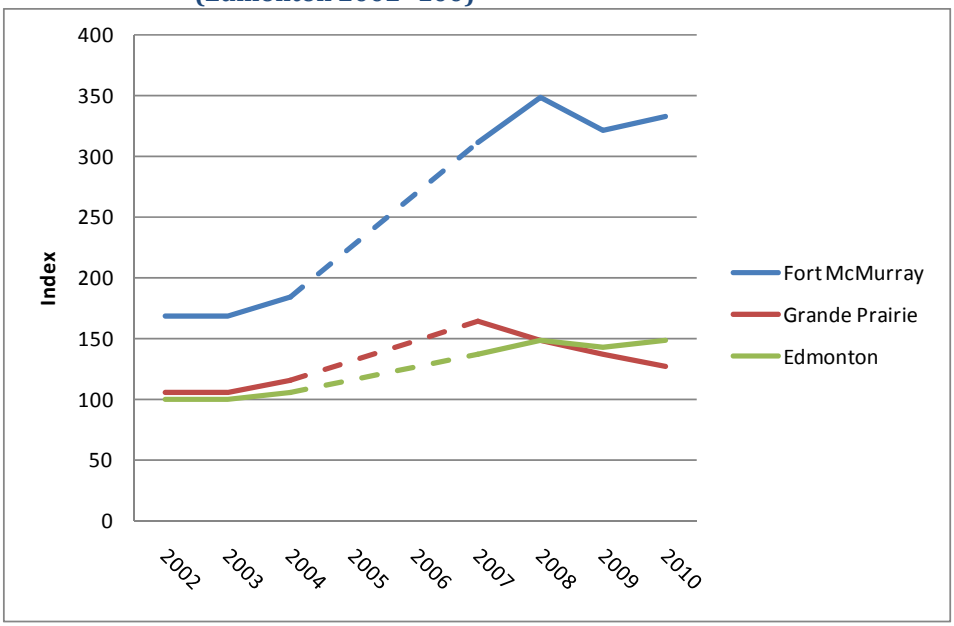
5.2.2 Affordability

The effects of the high cost of rental and owned housing prices on the residents of Fort McMurray is dependent upon income levels. For many residents in Fort McMurray, particularly those working in the oil sands sector, higher wages relative to other communities in the province, as well as housing allowances, help to offset high housing prices. The median income in Fort McMurray of two-parent families in 2008 was $167,870, or 78% above the provincial average of $94,170 (Statistics Canada 2010a). Taking into account the cost of housing and levels of income in different communities, the proportion of residents in Fort McMurray that might face housing affordability

challenges is higher than Grande Prairie or Medicine Hat, but roughly on par with Edmonton.[4]

However, not all residents can benefit from high earning opportunities. With rising house prices, low-income residents in particular (e.g., workers employed in the service sector, as well as lone-parent and single-income households), are put under increased pressure to find affordable accommodation. As illustrated in Figure 5.3, residents with annual incomes of $40,000 or less are substantially worse off in Fort McMurray with regards to the cost of housing, as compared to Edmonton and Grande Prairie.

Figure 5.3 Cost of Housing to Fixed Income Index
(Edmonton 2002=100)



Note: The Cost of Housing to Fixed Income Index is a relative measure of housing affordability for residents on fixed income based on the percentage of a $40,000 per year income required to rent an average apartment in Fort McMurray and other comparator communities over time as compared to Edmonton in 2002.
Source: CMHC, Rental Market Report, 2002-2010

High housing costs and lack of affordable housing has given rise to homeowners renting out rooms on the formal or informal rental market.

5.2.3 Rural Communities

Many rural communities in the RMWB are also experiencing housing pressures as a result of:

[4] If housing affordability is defined as having home ownership costs within 30% of income, an estimated 83% of all families in Fort McMurray did not have the income to afford a single family dwelling in 2008. This is comparable to Edmonton, where 84% of families could not afford a single family home. Home ownership costs assume buying a house in 2008 with a 10% down payment and a 6% 20-year mortgage. Variations in these home ownership cost assumptions will affect the housing affordability estimate (e.g. higher or lower mortgage rates or down payments, longer or shorter mortgage periods).

- community members returning, often from Fort McMurray, to avoid high housing prices there,;
- a young population and early family formation; and
- housing policies and funding allocations by Aboriginal Affairs and Northern Development Canada (AANDC) that do not tend to respond quickly to changing situations.

In close proximity to the urban service area, Anzac's housing market mirrors Fort McMurray's in many respects, with comparable average sale prices for single family dwellings, albeit with larger lot sizes. This is a reflection of Anzac's emerging role as a commuting centre to Fort McMurray as well as influences from in situ development along Secondary Highway 881.

5.2.4 Response to Growth Pressures

5.2.4.1 Ongoing Planning and Development

A number of planning initiatives have been completed or are underway to make sufficient land available for residential and other uses in the various communities in the region:

- signing of an MOU between the municipal and provincial governments for the creation of an Urban Development Sub-Region (USDR);
- adoption of the Lower Town Site Area Redevelopment Plan (adopted May 2009);
- development of the Parsons Creek Design and Outline Plan (June 2009);
- extension of the urban services area to include the Parsons Creek Area (adopted August 2009);
- commitment of more than $241 million by the Government of Alberta to develop lands in the Parsons Creek and Saline Creek Plateau areas (AHUA 2009);
- development of new planning frameworks for rural communities; and
- carrying out of a market demand study in early 2011 for residential lot development in Fort Chipewyan to help inform the Area Structure Plan (ASP) and any potential land releases from the municipality.

The development of communities in the RMWB will also be influenced by other planning initiatives currently underway, most notably LARP, AOSA CRISP, and the RMWB MDP.

Among the elements of the AOSA CRISP that would directly affect the level and type of future housing requirements is the:

- designation of selected areas as planned camp communities which may or may not develop into permanent settlements; and
- designation of one consolidated camp location north of Fort McMurray and Fort McKay to serve as a residential community for mostly operations workers of mines around Fort McKay.

As of August 2011, the implementation process for the AOSA CRISP is in its early stages.

5.2.4.2 Support for Social and Affordable Housing

The Wood Buffalo Housing and Development Corporation (WBHDC) currently has projects underway to increase the supply of affordable housing in the region. Additional support has also been provided for social and affordable housing in the region, including:

- $11.7 million from the Government of Alberta for the Fort McMurray Family Crisis Society to develop a 78-unit apartment (FMT 2011a);
- a commitment that 20% of the 2,000 new homes associated with the first phase of Parsons Creek development will be designated as affordable housing, with rents to be set below market rate (AHUA 2009);
- $45 million from the Government of Alberta to develop 300 affordable housing units in the RMWB (GOA 2007a); and
- northern (or housing) allowances paid to public sector workers (GOA 2007b).

5.3 Effects Assessment

5.3.1 Base Case

The housing needed to accommodate Base Case population growth is estimated at 1,300 units for the period between 2011 and 2017. This level of annual demand is above the number of annual housing starts in 2010 (769 units) but below the average annual housing starts experienced in the region over the last five years (1,415 units).

This estimate implies an average of 2.8 people per dwelling and does not account for any unmet housing demand as of 2010. The actual number of housing units might vary based on the number of people per dwelling, which is an amalgam of single-family houses and multifamily units. Housing availability and affordability are expected to remain a concern in the near term.

5.3.2 Application Case

Phase 2 will have a negligible impact on the urban area housing market. The permanent housing need associated with the long-term population effects of Phase 2 is estimated at about 27 dwelling units over and above the units needed under Base Case assumptions. The use of an operations camp will reduce the housing requirement associated with Phase 2 by about 80 dwelling units.

5.3.3 Planned Development Case

The population forecast for the PDC is estimated to generate housing demand for about 2,100 additional dwelling units by 2020, above Base Case assumptions.

5.4 STP Mitigation

STP's camp-based approach to both construction and operations has the ancillary effect of reducing the resident population effect of Phase 2 and thus, the anticipated demand for housing.

STP recognizes that the study area, and Urban Service Area of Fort McMurray in particular, are experiencing housing pressures. To help address these issues, STP is:

- a member of the OSDG and therefore supportive of OSDG efforts to work with municipal and provincial planners and home builders to facilitate the timely development of residential land and dwellings;
- open to considering independent support for community level initiatives aimed at addressing housing pressures (e.g. social and affordable housing); and
- open to working with the Government of Alberta and other stakeholders as the AOSA CRISP moves forward with implementation.

6. Social Infrastructure

6.1 Introduction

Social infrastructure includes a diverse range of human services and infrastructure including health, education, social, policing and emergency services. Oil sands development has, and will continue to have, an effect on social infrastructure in the RSA primarily via its population effect. This section discusses those effects and provides order-of-magnitude estimates of select social infrastructure effects along with associated costs under the Base, Application and Planned Development Case scenarios.

Particular attention is paid to the urban service area where population effects, and therefore social infrastructure effects, are concentrated. An overview of existing key social infrastructure in Fort McMurray is listed in Appendix A.

6.2 Situational Analysis

Social infrastructure is important to a community as a means of:

- supporting the functioning of the community by sustaining the well-being of its residents and building social cohesion; and
- sustaining economic growth by making the community more attractive to those considering investing or relocating to the region.

All residents rely to some degree on social infrastructure. In some cases, such as education, the services are a part of everyday life for many residents. In other cases, such as fire and ambulance services, residents avail themselves of social infrastructure primarily during an emergency.

The provision and availability of social infrastructure is affected by a number of demand-side and supply-side factors including population growth, social stressors, available labour supply and funding. The following section discusses a number of these factors affecting social infrastructure in the Wood Buffalo region. A more detailed overview of current social infrastructure delivery issues, along with public and private-sector responses, is found in Appendix B.

6.2.1 Demand side

Population Growth

From the late 1990s until 2008, rapid population growth in the region, often in the range of 6% to 9% annually, led to increased demands on social infrastructure. Available resources often did not keep pace with this growth leading to increased strains and pressure on regional service providers. In response, government and industry have

increased funding for social infrastructure as well as introduced new planning processes and initiatives to alleviate the pressures of rapid growth and to enhance the quality of life of local residents.

More recently, the global financial crisis of 2008 and 2009 led to a period of relatively moderate growth in the region, giving service providers additional time to plan and act. As of mid-2011, service delivery outcomes have improved in a number of social infrastructure areas including health and emergency services (e.g. reduced emergency department wait times, targeted emergency response times being met).

Non-Resident Population Demands

The non-resident population, primarily camp-based workers, in the region has grown exponentially over the past decade, placing increased demands on regional social infrastructure, including health services, rural policing and emergency response; recreational facilities; and social services. The enhancement and expansion of in-camp amenities and services has helped to reduce some of these demands, but concerns remain as the regional camp population is anticipated to exceed 30,000 during much of the forecast period (see Sections 4.2.1.2 and 4.3.2).

Urban Issues

With the increase in oil sands development, Fort McMurray has grown from a relatively small, isolated northern town with few amenities into one of Alberta's larger urban centres. This transition means that service providers in Fort McMurray have to increasingly address complex social issues more often associated with urban communities, including social isolation, reduced community cohesion, increased homelessness, crime and traffic. The affect on Aboriginal residents is further compounded by the social stressors associated with departure from traditional pursuits and culture.

The ability of service providers to address these issues has also expanded in recent years as a result of increased resources (e.g. funding) and growth in the breadth and nature of social infrastructure services available. For example, policing, emergency, education, social and health services have all expanded their service offerings.

Health Status of Residents

The health status of regional residents is an important determining factor in how often residents need to draw on a number of regional services, particularly health and social services. Generally, research shows that Canadians in rural, remote, and northern communities have a lower health status relative to other Canadians (CPRN 2006; CIHI 2006).

Several high-level health indicators indicate that residents of the former Northern Lights Health Region (which encompasses the RMWB) score well on such things as life

expectancy, infant mortality, and perceived health as compared to Canada and Alberta as a whole. But they scored worse on such indicators as obesity, heavy drinking, rates of substance-related disorders and incidence rates for infectious diseases (RSCEP 2010; Statistics Canada 2011a; Statistics Canada 2011b; Statistics Canada 2009).

To address these issues, health services in the region have already benefited from increased staffing and infrastructure in recent years. In addition, actions are being taken on a number of other infrastructure and service provider fronts which serve to improve health, including increased social housing, improved traffic infrastructure and increased quality and quantity of social and emergency services. As well, Alberta Health Services (AHS) has initiatives underway to work with regional residents in developing community-specific responses to identified health issues (e.g. Community and Rural Health Planning Frameworks, Health Advisory Councils).

6.2.2 Supply Side

Labour Force Availability

A significant challenge faced across social infrastructure areas is the shortage of appropriately skilled labour. Both public sector agencies and private sector companies have experienced difficulties attracting workers as a result of:

- the high cost of living (e.g., housing costs);
- stressful working conditions for existing staff coping with staff shortages for various disciplines; and
- the RSA's remote location (e.g., limited professional development opportunities).

In many cases, particularly in the social services sector, experienced workers have been attracted away by higher-paying jobs or better working conditions in other sectors, such as the oil sands. In other cases, such as with higher-skilled positions (e.g., health professionals or emergency service workers), there is often simply not enough existing labour supply to meet demand on a regional, provincial and sometimes national level.

Skill shortages have improved somewhat in recent years as a result of the recession of 2008/09. Initiatives put in place by regional service providers, including housing or cost-of-living allowances, relocation assistance, and specialized training and recruitment programs have also served to reduce labour recruitment and retention issues. A number of service providers, including policing, health and emergency services, report improved staffing levels as compared to 2007.

Initiatives aimed at recruiting and retaining workers will continue to be needed.

Funding Levels

Resourcing challenges faced by regional service providers has been well documented over the years through government and industry-sponsored reports including the Wood Buffalo Business Case (2002), Wood Buffalo Business Case 2005 Update, Sustainable Community Indicators Report (2006), and Radke Report (2007).

In response, government funding has increased significantly in recent years to address growth pressures in the region. Specifically:

- Since 2007 the Government of Alberta has committed $2.25 billion to infrastructure and services in the Wood Buffalo region, including (AHUA 2009, GOA 2007a, GOA 2008a):
  - Over $60 million for policing infrastructure (e.g. RCMP Phase 1 new RCMP detachment, Timberlea site)
  - Over $120 million for new schools and school modernization projects
  - Over $200 million for health services and infrastructure (e.g. new community health centres)
- The RMWB has also invested in major infrastructure developments, including RCMP detachment buildings and regional fire halls. Under the RMWB's *2011-2014 Fiscal Management Strategy*, the municipality is set to invest a further $2.1 billion in capital projects between 2012 and 2017, in addition to the $1 billion in committed projects in the 2011 and pre 2011 capital budgets.

Planning Initiatives

In response to the challenges posed by growth in the region, a number of short and long-term planning initiatives have been carried out by both the provincial and municipal governments. Specifically, in 2007 the provincial government established the Oil Sands Sustainable Development Secretariat to coordinate and improve planning, communications and service delivery to Alberta's oil sands regions, including the Wood Buffalo region. Among the Secretariat's initiatives are the AOSA CRISP process and *Responsible Actions: A Plan for Alberta's Oil Sands* (GOA 2009).

The municipality has also been carrying out a number of planning initiatives to accommodate future demands for infrastructure and services (see Section 7.2 and Appendix B).

Service Delivery in Rural Areas

The Regional Municipality of Wood Buffalo is among Canada's largest municipalities, covering an area of 70,000 square kilometers including approximately nine established rural communities outside the urban service area. Servicing these rural communities presents its own unique challenges both in terms of delivery (e.g. distance, capacity,

staff recruitment) as well as demands (e.g. associated changes in traditional culture). A number of northern and remote communities across Western Canada face similar issues.

Recognizing the challenges in delivering services to rural communities, the RMWB recently completed a review of 21 municipal service functions, including emergency response, recreation, enforcement and community support, in rural communities in the region. The Rural Service Delivery Review Report is intended to serve as a guiding document for the municipality to strategically direct and coordinate rural service delivery (RMWB 2010e).

6.3 Effects Assessment

6.3.1 Resident Population

6.3.1.1 Urban Service Area

Oil sands development assumed under Base Case, Application Case and PDC assumptions will lead to increases in population that will in turn require additional social infrastructure in the RSA. The increase in demand for social infrastructure will require additional facilities, programming and staffing, some of which has been quantified in Table 6.1. This table provides an overview of effects on key social infrastructure indicators by 2017, the first full year of Phase 2 operations. Table 6.2 provides an estimate of the anticipated annual operating expenses associated with each of the regional social infrastructure indicators selected.

It's important to note that the Base Case provides an estimate of additional social infrastructure and associated operating expenditures required by 2017, over and above existing levels. Additional social infrastructure required under PDC is over and above Base Case assumptions.

The social infrastructure indicators were selected with a view to illustrate generally the effect of oil sands development in the region, not to conduct a full needs assessment for the social infrastructure areas under consideration. Further analysis will be required by the appropriate planning authorities and service providers for planning purposes.

Table 6.1 Additional Social Infrastructure Required by 2017[1]

Assessment Cases	Police Services *(No. of Officers)*[2]	Emergency Services *(No. of Staff)*[3]	Health Services *(No. of Physicians)*[4]	Education *(No. of Teachers)*[5]	Social Services *(No. of Staff)*[6]
Base Case[7]	46	43	20	191	9
Application Case ***(Project Effect Only)***	0.1	0.1	0.06	0.6	0.03
Planned Development Case [8]	28	26	12	116	6

Notes:

1) Urban service area only
2) Number of RCMP officers (full-time equivalents)
3) Number of fire and ambulance personnel (full-time equivalents)
4) Number of full-registered physicians
5) Number of licensed teachers (full-time equivalents)
6) Number of Neighbourhood and Community Development Branch (RMWB) staff (full-time equivalents)
7) Additional social infrastructure required over and above existing levels
8) Additional social infrastructure required over and above Application Case assumptions in 2017

Table 6.2 Estimated Annual Costs for Additional Social Infrastructure Required by 2017

Assessment Cases	Police Services[1]	Emergency Services[1]	Health Services[2]	Education[1]	Social Services[3]
	Operational Expenditures ($ million)				
Base Case	$6.90	$6.80	$6.70	$38.50	$1.10
Application Case ***(Project Effect Only)***	$0.02	$0.02	$0.02	$0.11	$0.003
Planned Development Case	$4.20	$4.20	$4.10	$23.50	$0.60

Notes:

1) Annual operating expenses associated with related social infrastructure indicator identified in Table 7-1.
2) Fee-for-service physician payments associated with additional numbers of physicians identified in Table 7-1
3) FCSS budget (provincial and municipal contributions) associated with population growth identified under Base Case and PDC assumptions.

Phase 2 will have a small effect on social infrastructure in-line with its effect on the resident population. The effects of Phase 2 on social infrastructure will begin with the start of on-site construction in 2013. During the overlap of construction and operations hiring in 2015, when population effects are most pronounced, Phase 2 will create demand for social infrastructure higher than the long-term average identified in Table 6.1, in line with Phase 2's population effect (see Section 4.3.1.2).

Although demands for social infrastructure are expected to increase in the next few years, service providers are in a much better position to deal with this increased growth than in previous years largely as a result of additional resources made available and planning being carried out (see Appendix B).

Responsible authorities are aware of anticipated future growth and have been carrying out planning initiatives in anticipation of this growth (e.g. LARP, AOSA CRISP, RMWB MDP). It is imperative that these planning initiatives be properly resourced and carried out in a timely manner so as to avoid socio-economic pressures associated with growth.

The outcome of ongoing or contemplated planning exercises may substantially alter the effects discussed in this section. For example, a policy decision by the RMWB and or the Alberta Government to create a residential, commercial and industrial service growth node in the RMWB outside of Fort McMurray will change both the level and location of the effects discussed here.

6.3.1.2 Rural Communities

While most population effects, and therefore social infrastructure effects, are concentrated in the urban service area, rural communities will also experience increased demand for social infrastructure resulting from oil sands development primarily through:

- Urban population growth that has spilled over to some rural communities. Most of this growth is expected among communities in close proximity to the urban service area, such as Anzac. Growth in many of the smaller communities is somewhat constrained by the limited residential and commercial opportunities.

- Associated social changes that development brings to many Aboriginal communities. Many Aboriginal community members need, and will likely continue to need, assistance in managing these changes. This assistance is likely to be needed in different forms for different people. Some will need programs to help keep their children in school, while others will need counseling for a range of social issues, including addictions (See Section 3).

6.3.2 Non-Resident Population

The social infrastructure metrics provided above are driven off of population growth in the resident population. However, growth in the nonresident population, primarily camp-based workers, is also expected to affect demand for social infrastructure in the region. Many effects are mitigated by camp distances from Fort McMurray, restrictions on personal vehicles allowed on-site and available camp services (e.g. health, recreation).

6.3.3 Facility-Related Effects

Oil sands projects are large-scale industrial projects that often require specialized emergency responder capabilities. While emergency and medical services are available on-site, oil sands projects in the region also increase the potential for industrial accidents and emergencies that could in turn place demands on emergency and health services in the region.

A primary concern for policing services in the region is traffic issues related mainly to the construction of oil sands projects. Construction-related traffic will increase traffic volumes on the regional road network (See Section 8). Because of the extended construction period for these projects, these increased traffic volumes will lead to the need for increased policing resources to monitor traffic safety and respond to traffic collisions.

6.4 STP Mitigation

STP is committed to following through on a number of initiatives to both mitigate the marginal social infrastructure effects of Phase 2 and to support its role as a good corporate citizen in the region. Specifically, STP will:

- Offer in-camp services to mitigate the effects of its camp-based workforce on regional service providers, including:
    - basic first responder medical capability on site during operations and onsite medical response during construction;
    - onsite security staff during construction; and
    - recreational opportunities.
- Put in place additional project-related measures to mitigate effects on regional social infrastructure, including:
    - developing and implementing an emergency response plan which includes the required personnel, procedures and equipment resources (e.g., vehicles, fire response, medical response, and rescue);

- maintaining explicit and enforced camp and workplace policies with regards to the use of alcohol, drugs, and illegal activities; and

- providing employees with access to the company's confidential employee assistance plan, which provides support for families and individuals who may experience difficulty dealing with personal, family, or work-life issues that can affect one's health and well-being.

- Support for local community initiatives (e.g. financial and in-kind contributions to social groups, education institutions, and health care providers), where appropriate

- Cooperate with service providers, government, and industry to assist in addressing effects of its project and oil sands development in general by:

  - communicating its development and operational plans with the appropriate agencies; and

  - working with the provincial and municipal governments on the implementation of relevant planning initiatives, where appropriate (e.g. LARP, AOSA CRISP, RMWB's MDP).

In addition, STP is committed to continuous monitoring of their mitigation measures via their engagement with regional and provincial stakeholders. The results of this monitoring will be reported as part of ongoing community consultation and will help inform future project-related and collaborative industry responses.

7. Municipal Infrastructure and Services

7.1 Introduction

This section discusses the Base, Application and PDC effects on municipal infrastructure and services and presents STP's mitigation initiatives.

7.2 Situational Analysis

Like other municipalities, the RMWB is responsible for:

- planning residential growth;
- providing sufficient quality water, wastewater and solid waste facilities and services;
- planning, building, operating, and maintaining arterial roads;
- delivering selected emergency and social services; and
- ensuring adequate recreation facilities.

The RMWB has been experiencing demand for services and municipal infrastructure as the population of the municipality grows (see Section 4). At the same time, development of the region's oil sands has provided the RMWB with increased financial ability to respond to these growth pressures. Property assessment in the Rural Service Area of the RMWB, which consists mostly of oil sands industry facilities, grew on average by 24% per year from $6.6 billion in 2005 to 24.1 billion in 2011. The rural nonresidential (oil sands) assessment currently contributes over 90% of the RMWB's property tax revenue.

In addition, both the municipal and provincial governments have responded to increased demand on municipal services and infrastructure with significant investments of time and resources into planning and carrying out infrastructure development and renewal (see Table 7.1).

Table 7.1 Selected Government Responses

	Municipal Government	Provincial Government
Planning	• updating the Municipal Development Plan (MDP) • updating a number of municipal infrastructure master plans (e.g. Water Master Plan, Parks and Recreation Master Plans, Transportation Master Plans, etc.) • development of a population forecasting tool (see Section 4) • taking into consideration the population growth expected over the next 15 to 20 years in capital budgets and infrastructure planning • completed other planning work including the Fringe Area Study and the RMWB's Plan to End Homelessness 2010 to 2020	• provided the municipality with $3.6 million over three years (2007 to 2010) for strategic planning support • worked with the RMWB via Alberta Municipal Affairs and Housing to design and implement a long-term municipal fiscal model
Investment	• $1.4 billion of major infrastructure works in progress as of August 2010, including water, sewer, roads and expansion to water and wastewater treatment facilities (Kuehne 2010)	• $241 million to support Crown land development in the Parsons Creek and Saline Creek Plateau areas • $103 million for a replacement sewage treatment facility and upgraded water treatment plant in Fort McMurray, which is in addition to a $136 million four-year interest-free loan • $30 million in support of the lower townsite wastewater collection system upgrade • $15 million in support of regional landfill development

The municipality still has some concerns with meeting infrastructure and service demands, including:

- The relatively higher costs of providing infrastructure in the RMWB as compared to municipalities in the southern half of the province. These cost concerns are offset by recent and expected increases in the RMWB's rural nonresidential assessment base.

- reduced management capacity within the municipality as a result of staff attraction and retention difficulties. The RMWB has a number of initiatives in place to address staff recruitment and retention, including a housing allowance, relocation assistance and house equity protection.

The long-term ability of the RMWB to finance critical infrastructure projects, carry increased debt load and maintain operating services will depend upon future municipal tax revenue from oil sands development coming on stream as planned. The RMWB's Fiscal Management Strategy 2011 to 2014, states that the rural nonresidential taxation class "will have a tax burden that provides the municipality with a balanced budget while taking into account other taxation classes" (RMWB 2011c).The assessment in the Rural Service Area of the RMWB will expand further as projects currently under construction come on stream and additional projects are sanctioned and built.

7.3 Effects Assessment

7.3.1 Base Case

Additional population under the Base Case will require additional investment in municipal infrastructure and services. As noted above, the RMWB has undertaken a number of planning studies and is investing in infrastructure and service capacity expansion. The Government of Alberta has provided assistance on some of these projects.

In more general terms, the RMWB anticipates much of the population growth under the Base Case assumptions and has put in place a long-term capital program worth $3.1 billion for the period between 2011 and 2017 (RMWB 2011c).

7.3.2 Application Case

Phase 2 will have limited or no effect on municipal services. The project will provide its own water and sewer services for the different mining areas and the associated infrastructure, including camps. The resident population effect associated with Phase 2, estimated at approximately 75 people over the long term, will have a negligible effect on the region's municipal infrastructure above the forecasted Base Case.

7.3.3 Planned Development Case

The PDC population forecast calls for the regional population to reach 114,500 by 2017. Planning and investment currently underway assumes population levels in line with the population estimate associated with the PDC.

While the planned oil sands developments assumed in the PDC will drive further population growth, nonresidential assessment will also grow, thus expanding the RMWB's ability to pay for municipal services and infrastructure.

7.4 STP Mitigation

The effect on municipal infrastructure and services from Phase 2 is mitigated by:

- the project's provision of its own water and sewer services, and
- the use of camps to house construction and operations workers, thereby reducing Phase 2's population effect.

In addition to minimizing demands on municipal infrastructure and services, Phase 2 will also result in an increase in property taxes to the municipality, estimated in the range of $2.6 million annually (see Section 2.5.1), which can be used to increase investment in public infrastructure and services or lower taxes.

Beyond that, STP is committed to working with the RMWB to keep it informed of its development plans and their timing. STP is also an active participant in the OSDG, which provides the municipality with information about the industry on an ongoing basis.

8. Transportation

8.1 Scope

This section addresses the traffic effects under Base Case, Application Case and Planned Development Case assumptions. The focus is on Highway 63 between the urban service area of Fort McMurray and the AOSTRA road. The forecast period used is between the years 2011-2020.

8.2 Situation Analysis

8.2.1 Regional Road Network

Highway 63 is the primary roadway throughout the study area, connecting southward with the wider provincial road network. Secondary Highway 881, which intersects with Highway 63 roughly 20 km south of Fort McMurray, serves as the other highway connection within the study area.

Highway 63 is the only highway between Fort McMurray and Fort McKay, and the oil sands facilities north of the urban service area. Highway 63 crosses the Athabasca River by means of the Peter Lougheed bridge near the community of Fort McKay and continues past the Muskeg River Mine and Aurora Mine turnoffs where it becomes a local road.

There are a number of other roads north of Fort McMurray, all of which use Highway 63 as the main connector. These include:

- AOSTRA road to the Suncor MacKay River plant and the STP McKay Thermal Project;
- The Fort McKay Access Road to the community of Fort McKay and to the access road to the Horizon project and the future Joslyn North Mine project; and
- The Canterra road to a number of current and planned oil sands projects east of the Athabasca River, including Suncor Firebag, Imperial Kearl, and Husky Sunrise projects.

8.2.2 Traffic Volume

Oil sands expansion in the RMWB has led to increased traffic throughout the region and beyond. Traffic volumes outside of Fort McMurray are higher to the north than the south, reflecting the daily traffic generated between the urban service area and the oil sands facilities to the north.

Traffic volumes over the last five years have increased by approximately 8.4% per year on the segment of highway 63 between Fort McMurray and the AOSTRA road intersection. In 2010, the traffic volume between Fort McMurray and the AOSTRA road intersection recorded by Alberta Transportation was 20,630 AADTs (average annual daily traffic [two-way vehicle movements]). A recent Traffic Impact Assessment (TIA) examined the intersection of Highway 63 and the AOSTRA road and determined that the aforementioned intersection does not currently provide an adequate level of service during the peak hours of 6:15 to 7:15 am and 5:15 to 6:15 pm (Stantec 2009).

8.2.3 Traffic Safety

While traffic safety is a concern for many residents, both Highway 63 and Highway 881 continue to have collision rates below the provincial average for comparable roadways (see Table 8.1). For example, the 2009 collision rate for the highway segment between Fort McMurray and the AOSTRA road is 51% of the provincial average for that roadway type.

Table 8.1 Collision Statistics on Study Area Highways

Highway/Segment	2005	2006	2007	2008	2009	2009 Provincial Rate	2009 as % of Provincial Rate
	(Collision rate per 100 million vehicle km)						
Highway 63							
Fort McMurray to AOSTRA Turnoff[1]	49	35	50	40	30	59	51
Highway 881 Turnoff to Fort McMurray[1]	62	60	69	63	57	59	97
Highway 55 to Highway 881 Turnoff	83	91	98	99	94	110	85
Secondary Highway 881							
Highway 63 to Anzac Access	83	89	100	95	95	140	68
South of Anzac Access	74	71	60	57	52	140	37

Notes:

1 Segment twinned as of 2002

2 Collision rates for highway segments based on five-year rolling averages (e.g. 2009=average collisions during 2005-09 period)

Source: Alberta Transportation Collision Statistics (annual 2001 to 2009) and Nichols Applied Management

8.3 Transportation Effects

8.3.1 Base Case

Base Case traffic levels will continue to increase, as a result of continued construction and operations of oil sands activities, related indirect activities supporting industry, as well as general population growth in the study area. Traffic volumes on Highway 63 between Fort McMurray and the AOSTRA road turnoff are expected to rise by 33% from 20,630 AADT in 2010 to 27,335 AADT in 2020. This estimate is based on the traffic volumes associated with the long term operations of oil sands projects which access Highway 63. Traffic may peak above 27,335 AADT during the forecast period due to temporary construction activity. The AOSA CRISP highlights the need to expand the transportation network north of Fort McMurray and suggests additional north-south highway corridor crossing the Clearwater River east of Fort McMurray and bus-based rapid transit north of Fort McMurray. If implemented, these developments would decrease the traffic numbers on Highway 63 between Fort McMurray and AOSTRA Road.

Traffic volume on the AOSTRA road is also expected to increase from the 580 AADT observed in 2010 to approximately 860 AADT in 2020. The AOSTRA road is an industry road and therefore traffic volumes fluctuate with the construction and operations activity at oil sands facilities along the road and the estimates presented above may change as companies adjust the timing of projects and workforce housing and transportation strategies.

8.3.2 Application Case

It is expected that construction workers will travel during shift rotations from their point of origin to the project site via a combination of commercial flights to Fort McMurray and private vehicles. During peak construction in the 2013 to 2014 period, Phase 2 is expected to temporarily contribute approximately 350 AADT to Highway 63 and the AOSTRA road. This represents an increase of 1.7% and 60% over current volumes on Highway 63 and the AOSTRA road respectively.

During operations, the majority of operations workers will be flown in and out of the Fort McMurray airport and bussed to site during shift rotations. Phase 2 is expected to generate approximately 40 AADT on both Highway 63 and the AOSTRA road.

8.3.3 Planned Development Case

AOSTRA road is the access road to a substantial number of planned in situ projects. Production levels from projects using AOSTRA road may increase from the current 30,000 bpd to over 300,000 bpd.

Traffic volumes on Highway 63 are driven primarily by oil sands mine developments further north than the AOSTRA road intersection. The most current (2010) data available suggests that of the 10,300 vehicles counted on Highway 63 prior to the AOSTRA road intersection, 10,070, or 98% of the traffic, continued north to oil sands project further along the highway. Development of the oil sands north of the AOSTRA road is expected to continue in the PDC, resulting in long run operations related traffic volumes of approximately 27,375 AADT in 2020. Traffic may peak above 27,375 AADT during the forecast period due to temporary construction activity. The AOSA CRISP addresses this increase in traffic volume and indicates the need for a number of road infrastructure improvements, including additional north-south highways to the east and the west of Highway 63 north of Fort McMurray.

Traffic volume on the AOSTRA road is expected to be 920 AADT in 2020. This volume will all pass through the intersection of Highway 63 and the AOSTRA road which has already been identified as operating below the level of service criteria established by Alberta Transportation during peak hours (Stantec 2009). The timing of future projects on the AOSTRA road is uncertain and the forecast traffic volumes will change as project timelines shift and new projects come forward.

8.4 STP Mitigation

Traffic related to Phase 2 will flow north on Highway 63 from Fort McMurray and turn left onto the AOSTRA road, an intersection which has been identified as not meeting the level of service criteria established by Alberta Transportation during peak hours of the day (Stantec 2009). STP is aware of this issue and may adjust the timing of vehicle traffic to and from the project site to avoid further stressing the intersection during peak hours.

STP is committed to working with other members of industry to complete a follow-up TIA to the one completed in 2009 which will present long-term improvement options for the Highway 63 and AOSTRA road intersection. The decision to pursue highway infrastructure improvements ultimately rests with Alberta Transportation and is subject to a number of factors including available resources and other competing infrastructure projects across the province.

STP is committed to taking a number of steps to minimize the effects of its project on the local road network, including:

- using on-site construction and operations camps to house workers;
- employing a fly-in-fly-out program and bussing operations workers from the Fort McMurray Airport to the project site during operations; and
- scheduling construction truck traffic (including oversized loads), commodity deliveries and material deliveries during off-peak hours.

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APPENDIX A - Select Socio-economic Information: Fort McMurray

Table A.1 Select Socio-economic Information: Fort McMurray

Issue	Description
Location and access	• 435 km northeast of Edmonton via Highway 63
Population	• As of 2010, the resident population of Fort McMurray was approximately 75,000. (RMWB 2010a) • Relatively young population with a median age of 31.6, as compared to the provincial average of 36.0 (Statistics Canada. 2006). • Federal Census 2006 figures indicate that 12% of families are headed by a single parent, as compared to 14% for Alberta as a whole.
Community	• Fast-growing urban centre, serving primarily oil sands industry construction and operations. • Rapid growth between 2000 and 2008 placed socio-economic pressures on community including a rising cost of living, especially for housing, and increased demand for services and infrastructure. Between the end of 2008 and early 2011, the community has seen an easing of some of those pressures.
Housing	• Fort McMurray continues to lead the province in average house prices. Despite dropping in 2009, the average sales price for a single family dwelling reached over $675,000 in 2010, comparable to 2008 levels (FMREB 2011). • Between 2003 and 2008 rental rates roughly doubled, and vacancy dropped to near-zero. Despite moderating in recent years, rental rates in Fort McMurray remain twice as high as in Edmonton. Vacancy rates were around 5.5% in 2010 (CMHC 2003 – 2008). • The average number of people per housing unit in Fort McMurray varies depending on the housing type. There is an average of 3.57 persons per unit in a single detached dwelling compared to 3.20 in a townhome and 2.32 in an apartment (RMWB 2010a). • The Wood Buffalo Housing and Development Corporation (WBHDC), established in 2001, assists low income residents in the RMWB with finding affordable housing. It manages a number of mandates in the urban service area of Fort McMurray and smaller rural communities of Conklin, Janvier, Anzac, and Fort Chipewyan, such as: affordable home ownership, affordable rental housing, community housing, seniors and subsidized housing, emergency shelter, and homeless support services. The WBHDC portfolio includes: 1,108 rental units, 52 rural housing units, 70 emergency shelter spaces and 269 second mortgages through the affordable home ownership program. In early 2011, the WBHDC had a waiting list of 249 individuals and families (Lutes 2011, pers. comm.) • In the RMWB, much of the regional municipality is comprised of Crown land/green zone, which is held by the Government of Alberta, primarily through ASRD. • The timely release of public lands and the development of appropriate plans is the responsibility of the province and municipality, respectively.

Issue	Description
Health Care	• Alberta Health Services (North Zone) has primary responsibility for the delivery of many provincially funded health services in the study area. A number of these services are offered through the Northern Lights Regional Health Centre in Fort McMurray, including acute care, continuing care, 24-hour emergency, laboratory, X-ray, mental health, ambulatory care, rehabilitation, home care, and community health. • Primary care services in the area are provided by individual family physicians in the region, all of whom belong to the Wood Buffalo Primary Care Network (PCN). Established in 2006, the Wood Buffalo PCN connects local family physicians with other health professionals such as nurses, dieticians, pharmacists, and others, in providing comprehensive team-based primary care to residents of the region. • A number of oil sands companies also have their own health care facilities at their work sites to treat employees and contractors. For example, Imperial Oil has an on-site health care centre to deal with routine medical conditions for workers at its Kearl work site and Syncrude Energy employs a doctor and 25 occupational health nurses at two health centres. • Over the years, rapid population growth has led to increased demands on health services in the region, including small outlying communities. Health service providers, such as the former Northern Lights Health Region,[5] have expressed a number of concerns related to the ability of the system to meet this increased need for health services. These concerns led the former Northern Lights Health Region to intervene in past public hearings related to oil sands developments in the region.
Policing	• Police services in the RMWB are provided by the Royal Canadian Mounted Police (RCMP). The main detachment in Fort McMurray has 186 officers, including approximately 46 positions dedicated to rural areas of the municipality. Traffic enforcement is handled by a dedicated traffic unit comprising 11 officers (Bane 2011, pers. comm.). There is also a 14-member Alberta Law Enforcement Response Team (ALERT) to handle organized and serious crime. The RMWB also created a dedicated position for Emergency Management in 2009. This position will provide a coordinated response to emergencies that require multiagency involvement. • The Fort McMurray RCMP detachment has one camp liaison officer who works closely with camp security personnel of camp providers. • The RCMP urban detachment has seen an increase in resources over the past few years. • The RCMP have five priorities in the region: 1) traffic; 2) organized crime and gangs; 3.) property theft; 4) safety of citizens in the downtown core; 5) police-community relations in rural areas.

[5] In May 2008, the Government of Alberta announced the establishment of the Alberta Health Services (AHS) Board – a new provincial governance board responsible for health service delivery for the entire province, replacing Alberta's nine regional health authority boards (including Northern Lights), the Alberta Mental Health Board, Alberta Cancer Board and Alberta Alcohol and Drug Abuse Commission (AADAC)

Issue	Description
Emergency Services	• The RMWB Regional Emergency Services department is responsible for all emergency response calls within the boundaries of the RMWB. Current urban staffing level consists of 124 fire and ambulance personnel and 45 support and administration positions located in four stations. • While responsibility for ground ambulance recently transitioned from the RMWB to Alberta Health Services, the RMWB Regional Emergency Services department remains the contracted emergency service provider in the region. • The RMWB Regional Emergency Services department has mutual aid agreements with a number of oil sands operators. • Recruitment and retention remains a top priority for the Regional Emergency Services department. • Providing comprehensive emergency response coverage to the region remains a challenge due to the large geographic area being covered.
Education	• The Fort McMurray Public School District provides kindergarten to Grade 12 instruction and offers a number of specialized programs including Early Childhood Development, Advanced Placement, Early Intervention, and high school French Immersion. The board operates 12 schools, including an Islamic and a Christian alternate school, and has an enrolment of approximately 5,300 students as of the 2010/2011 school year. • The Fort McMurray Catholic School District also provides kindergarten to Grade 12 instruction and offers a number of specialized programs including Early Entry, French Immersion, First Nations Métis Inuit studies, and Fine Arts. The board serves over 4,200 students and operates nine schools. • Post-secondary education services are provided by Keyano College with learning centres in other communities within the RMWB. The college delivers programs with a focus on trades training, academic foundation programs, and other adult learning courses. • Educational attainment figures indicate that the RMWB has a higher proportion of residents (aged 15 years and over) with trades certification and a lower proportion with university credentials than the Alberta average. The proportion of residents with university credentials has been increasing while the proportion with less than a high school certificate has been decreasing. • Community education concerns include the need for new schools in high-growth parts of the city, and the difficulty of recruiting and retaining teachers and other support staff.
Social Services	• There is a full range of social services in Fort McMurray, including family and child support services offered through the Northeast Alberta Child and Family Services Authority; the municipal Family and Community Support Services (FCSS); the Alberta Alcohol and Drug Abuse Commission; and a number of nongovernmental agencies, such as the Salvation Army, the Canadian Mental Health Association and SOS. The YMCA is the primary provider of childcare services. • Community concerns focus on the effects of drug and alcohol on the community and generally on community social cohesion. Service providers voice concerns about service demands, the high cost of providing services, and the difficulty of recruiting and retaining staff and volunteers.

Issue	Description

Recreation Infrastructure and Services	• There are a number of existing recreational facilities and amenities available in the urban area, including:
	  • YMCA of Wood Buffalo with squash and racquetball courts, indoor swimming pool, and running track
	  • Centennial Pool with water slides and a deep tank
	  • three area golf courses
	  • multiple baseball diamonds and soccer pitches
	  • indoor and outdoor hockey arenas
	  • Borealis Urban Park, offering a 54-km trail and parks system linking Fort McMurray's residential communities (RMWB 2010b, 2010c)
	• Recently completed new or expanded recreation amenities include:
	  • Syncrude Sports and Wellness Centre which officially opened in September 2007. The centre includes two indoor fields, three gymnasiums, wave pool, and a four-lane running track. The Centre also houses the Alberta Sports Development Centre (northeast). The centre received funding from several major companies in the region.
	  • The expanded Syncrude Timberlea Athletic Park, completed in 2008, which consists of numerous ball diamonds, soccer pitches, hockey rink, skateboard park and various other facilities.
	• Similar to other sectors in the area, recreation service providers have experienced staff recruitment and retention challenges.
	• Outdoor recreational pursuits in the study area include snowmobiling, boating, fishing, camping, and the use of ATVs.
	• There are several campgrounds with road access located in the region, mostly near the urban area.
	• With increasing industrial development and a growing regional population, access to previously hard to get to places is increasing, thus increasing competition with traditional land use.

APPENDIX B - Current Social Infrastructure Issues and Responses

Table B.1 Current Social Infrastructure Issues and Responses

Social Infrastructure Area	Issues	Public/Private Sector Response(s)
Policing	• Recruitment and retention issues have historically made it a challenge to fill all allocated positions, but the Wood Buffalo RCMP detachment reports full complement as of June 2011 (Bane 2011, pers. comm.). While staff recruitment has improved in recent years, the relatively high cost of housing remains a challenge. • Traffic safety remains a top priority for the detachment. • Community concerns include traffic safety, drug, and alcohol-related offences. • Statistics Canada reports that criminal code offences per 100,000 people in the urban service area were well above the provincial average in 2009, but comparable to Grande Prairie, a comparator community: 16,911 offences in Fort McMurray compared with 15,686 in Grande Prairie and a provincial average of 9,163 (Statistics Canada 2011c). However, the rates from Statistics Canada are based on federal census numbers, which understate the actual population in Fort McMurray and thus, overstate the rates of criminal code offences. Using municipal census numbers, the criminal code offences per 100,000 people in the urban service area was over 13,800, still above the provincial average but below Grande Prairie.	• Regional policing has benefited in recent years from increases in staffing and improvements in infrastructure, including: • a 92% increase in allocated staff positions between 2004 and 2011 for the Wood Buffalo RCMP detachment (from 97 officers in 2004 to 186 in 2011) • a new RCMP detachment building that has been built in Fort McMurray. It is a state of the art, LEEDS award-winning building, featuring a forensic lab and a fully equipped gym. • RCMP employees receive a cost-of-living allowance (introduced in 2007). • Industrial operators in the region often have in place: • explicit and enforced lodge, workplace, and flight policies with regards to the use of alcohol, drugs, and illegal activities • in-lodge security, which will assist the RCMP within, and sometimes outside, their individual lease boundaries (e.g., securing accident scenes, assisting with highway closures) • limits on private vehicles brought to the project sites, reducing commuter traffic on Highway 63, thus decreasing the need for traffic enforcement • Industry has also provided financial contributions towards additional police officer positions in the region.

Social Infrastructure Area	Issues	Public/Private Sector Response(s)

Emergency Services	• Recruitment and retention challenges have eased for the Regional Emergency Services department in recent years. As of early 2011, the urban component of emergency personnel is fully staffed. However, volunteer recruitment has been a problem in selected communities. Recruitment and retention remains a top priority for the Regional Emergency Services department.
	• As of early 2011, the Regional Emergency Services department is meeting its target response times for both fire and ambulance. However, providing comprehensive emergency response coverage to the region remains a challenge because of the large geographic area being covered. Improved coordination of provincially-supported (i.e., Alberta Health Services [AHS]) and industrial site-based emergency services is a priority for the Regional Emergency Services department (MacMillan 2011, pers. comm.).
	• The department has previously raised concerns regarding the transportation of hazardous goods on Highway 63 through Fort McMurray and the response time/coverage implications with respect to traffic incidents on Highway 63.
	• Concerns have also been raised about the increased likelihood of a major industrial accident.
		• Regional emergency service providers have benefited in recent years from increases in staffing and improvements in infrastructure, including:
		  • In early 2011 there were 124 fire and ambulance personnel and 45 support and administration positions, up from 116 fire and ambulance personnel and 34 support positions in 2007.
		  • A fifth fire hall station is expected to open in late 2011 and a sixth station is in the planning stages (MacMillan 2011, pers. comm.).
		• The Emergency Services Department has launched its new mobile training unit to improve access to firefighter training in rural areas.
		• A new approach to recruiting has been implemented, which allows the department to proactively hire new emergency personnel intended to cover positions lost through attrition (MacMillan 2011, pers. comm.).
		• Industrial operators in the region often have in place:
		  • emergency response plans, including integrated incident/crisis management teams, full-time certified emergency responders, and auxiliary emergency response teams
		  • mutual aid agreements with the RMWB and other oil sands companies that include: responding to motor vehicle accidents on Highway 63; advanced life support and ambulance support to rural residents, including transfers to the Fort McMurray hospital; responding to forest fire threats; responding to regional oil spills, and participating in the management of regional emergencies at the RMWB's Regional Emergency Operations Centre

Social Infrastructure Area	Issues	Public/Private Sector Response(s)
Emergency Services (cont'd)	• In 2010, volunteer firefighters from the Wandering River Fire Department and Plamondon fire department withdrew services from Highway 63 because they no longer felt it was safe to serve motorists as well as their own community (EJ 2011).	• In April 2011, the Government of Alberta and municipalities in the Highway 63 region committed to investing $1.3 million towards hiring up to four full-time emergency responders, developing a regional approach to fire and emergency response, and purchasing portable speed indicator devices to alert drivers near emergency scenes. The RMWB will be working with Lac La Biche County, Athabasca County and the province on the long-term strategic approach (GOA 2011b). • The RMWB recently completed a review of 21 municipal service functions, including fire response services, in rural communities in the region. The Rural Service Delivery Review Report is intended to serve as a guiding document for the municipality to strategically direct and coordinate rural service delivery (RMWB 2010e).

Social Infrastructure Area	Issues	Public/Private Sector Response(s)
Health Services	• Difficulty in recruiting and retaining health care professionals and support staff – a national challenge that is intensified by difficulties in attracting staff because of the region's remote location, lack of affordable housing, higher cost of living, and significant wage competition. • Provincial funding approaches that have not adequately addressed the population growth rates of the RMWB and the health services demands of out-of-region residents. • A concern in the region, as it is in many rural areas of the province, is adequate access to appropriate health services that is comparable to other parts of the province (Kirschner 2011, pers. comm.). • The health service concerns of residents in rural areas of the region are compounded by their remoteness and the added social stressors associated with departure from traditional pursuits because of industrial development. Fort McKay and Fort Chipewyan community members are reliant on the Fort McMurray hospital for many medical services and are concerned about long wait times at, for example, the emergency ward. Other health concerns include alcohol and drug use and Elder care. Residents of Fort Chipewyan are concerned with drug and alcohol abuse as well as cancer rates.	**Recruitment of additional physicians and other health providers** While health staffing issues remain a concern in the Wood Buffalo region, improvements have been made: • Between 2006 and 2008, the number of physicians in the former Northern Lights Health Region increased by 30%, from 60 to 78 physicians (CPSA 2008). • According to Jill Sporidis, executive director of the Wood Buffalo Primary Care Network, "within Fort McMurray there's certainly that myth [that there is a physician shortage]. 55% of our physician population is accepting new patients." (FMT2010a). As well, a 2009 survey of patients visiting the Northern Lights Regional Health Centre's emergency department found that 83% of respondents reported having a regular family doctor or specialist, as compared to only 73% in 2007 (HQCA 2009a). • Provincial funding has been provided for a northern living allowance to health workers in the former Northern Lights Health Region. • Many of the challenges in recruiting health service providers to Wood Buffalo are the same challenges faced by all sectors of the regional economy looking to recruit and retain workers (e.g., remote location, high cost of living). The recent economic slowdown has provided some additional time for these service providers to plan and act in addressing these challenges.

Social Infrastructure Area	Issues	Public/Private Sector Response(s)
Health Services (cont'd)	• Some physicians in the region are requesting payment up-front from residents with out-of-region health cards because of uncertainty that these residents are covered, or additional barriers incurred in attempting to receive remuneration from other provincial health plans (FMT 2010b). • The lack of available commercial office space in the region has been creating challenges for local physicians (Kirschner 2011, pers. comm.). • There is a need for additional regional health infrastructure, including a continuing care facility and a health and wellness centre in the northern part of the urban service area.	**Additional funding to address health-related growth pressures** In response to the Radke Report, the Government of Alberta committed an additional $177 million between 2007 and 2010 to "address health-related growth pressures" in the region (GOA 2007a). More recently, in 2010 the Government of Alberta introduced a five-year funding plan for AHS which commits to providing 6% operating funding increases in each of the first three years and 4.5% increases in each of the final two years (GOA 2010a). The government continued carrying through on this commitment in its 2011 budget with a $545 million, or 6%, increase in funding for AHS over the previous fiscal year (GOA 2011c). **Additional investments in regional health infrastructure** Since 2006, the provincial government has announced plans for and moved forward with a number of infrastructure improvements to the Northern Lights Regional Health Centre, including: • renovation to the ambulatory and emergency departments ($6.0 million, under construction) • replacement of sewer line and domestic hot water circulation piping ($4.5 million, under construction) • construction of a new helipad • renovations to the hospital's pediatric unit including more rooms, new beds, new equipment and a new nursing station Funding has also been provided and planning is underway for two new community health centres in the Fort McMurray communities of Thickwood and Timberlea ($28.2 million, in planning phase) (GOA 2010a) in order to improve access by residents to primary care services. As well, the province has announced its intention to move forward with

Social Infrastructure Area	Issues	Public/Private Sector Response(s)
		plans to add 100 continuing care spaces in Fort McMurray, helping to relieve bed pressures at the Northern Lights Regional Health Centre (FMT 2010b).
Health Services (cont'd)		**Reduction in emergency wait times** • According to Alberta Health Services 2009/10 Annual Report, a series of measures implemented by staff at the Northern Lights Regional Health Centre has reduced emergency department length of stay and ensured visitors see physicians and nurses sooner. For example, the number of patients waiting more than 15 minutes to have their condition assessed by a triage nurse has reduced by 30% between 2007 and 2009, and the number of patients waiting more than two hours to see a physician has reduced by 15% over the same period (AHS 2010a). • In both 2008/09 and 2009/10, the Northern Lights Regional Health Centre emergency department discharged a higher percentage of patients within the targeted timeframe (less than 4 hours) than emergency departments in Edmonton, Grande Prairie, Lethbridge, and Medicine Hat (AHS 2010c, 2011). • In 2009/10, 89% of patients at the Northern Lights Regional Health Centre Emergency Department (ED) were treated and discharged within the targeted 4 hours, the best performance of any teaching, metropolitan, large urban, or regional hospital in the province (AHS 2010c). Looking forward, the development of new primary care facilities and plans for 100 new continuing care spaces will also help to reduce pressure on the emergency department by enhancing primary care capacity in the region and freeing up hospital beds.

Social Infrastructure Area	Issues	Public/Private Sector Response(s)
Health Services (cont'd)		**Development of a new activity-based funding formula** • AHS has a three-year strategy to "introduce equitable funding formula based on activity" (AHS 2010a). To this end, AHS introduced an activity-based funding formula for long-term care in 2010 and is currently considering new activity-based funding formulas for hospitals, emergency medical services, and designated assisted living[6] (Mazurkewich 2010). • One advantage to this system is that funding is more closely tied to actual activity levels, something which the former Northern Lights Health Region has called for in health funding. However, there are also concerns that such a funding formula could penalize rural hospitals with low utilization rates by making them compete with larger urban facilities. The details regarding this funding design for acute care, home care and mental health services are still under consideration and it is not yet clear how this funding formula will ultimately affect services in the RMWB. **Commitment to Fort McKay Health Study** In September 2011, the Government of Alberta signed a Letter of Intent to develop a comprehensive community health assessment for Fort McKay. The study is expected to involve Fort McKay First Nation, Fort McKay Metis Community, Alberta Health and Wellness and Alberta Aboriginal Relations working together to identify community health issues, determine from residents what their health-care priorities are, and design and deliver new programs to address those priorities.

[6] Activity-based funding model is essentially a fee-for-service payment for hospital care where hospitals are paid a set price by the provincial government for the services they provide to each patient.

Social Infrastructure Area	Issues	Public/Private Sector Response(s)
		Assistance from the oil sands industry The oil sands industry has also supported efforts aimed at addressing health service delivery challenges in the region. For example: • Oil sands companies have donated funds to the Northern Lights Regional Health Foundation – a not-for-profit charitable organization established to strengthen health care for residents in the RMWB. • Several industry proponents have signed separate Memoranda of Understanding (MOUs) with the Northern Lights Health Region to provide increased health services to oil sands workers in lodges in the region.
Education	• According to Accountability Pillar Survey results from Alberta Education, between 86% and 88% of teachers, parents and students surveyed in 2010 were satisfied with the overall quality of basic education in the Fort McMurray public and separate school systems. This is comparable to the provincial average of 89%. In comparison, only 77% of teachers, parents and students surveyed in the Northlands School Division were satisfied with the overall quality of basic education (FMPSD 2010; FMCSD 2010; NSD 2010a). • Schools in high-growth neighbourhoods, such as Timberlea, Thickwood, Westview and Dickensfield, are experiencing enrolment pressures. In many cases, growth is managed through modular classrooms. The Fort McMurray Public School District reports needing three new K-6 schools (FMPSD 2010; FMCSD 2010). • Services need to be expanded, in part to	**New schools and school infrastructure** • Ecole McTavish Junior High School will open in September 2011. With increased enrolment, modulars are expected to be added to the school before opening (FMPSD 2010). • Holy Trinity Catholic High School, which includes a locally funded performing arts centre, is scheduled to open in September 2011. • In May 2011, the Government of Alberta announced funding for two new Kindergarten to Grade 6 schools in Fort McMurray's Timberlea area. Both schools are expected to be open by 2014 (GOA 2011d). • Aside from new schools, the provincial government has also committed funds in recent years to other capital projects which can help increase existing capacity, including additional modular classrooms and school modernization projects. **Attraction and retention of teaching staff** • Both divisions have housing allowances in place, which have been helpful in addressing high staff turnover rates. • Both divisions have New Teacher Induction Programs which provide structured training and support programs for new teachers to the

Social Infrastructure Area	Issues	Public/Private Sector Response(s)
	accommodate new students whose first language is other than English or French (FMCSD 2010). • School boards regularly lose teaching and support staff to the private sector. Staff turnover, while still an issue, has decreased from levels experienced in previous years (FMPSD 2010; FMCSD 2010). • School boards have raised concerns about the difficulty to get contractors to do work and the cost of building maintenance and repair.	region. **Northlands inquiry** • In January 2010 the Minister of Education dismissed the Corporate Board of Northland School Division and convened the Northland School Division Inquiry to gather information and develop recommendations for improving the situation. The Northland School Division Inquiry Team provided its 48 recommendations to the Minister in November 2010 (NSD 2010b). The Minister announced in January 2011 that a community-based team will be named to analyze and respond to the recommendations.

Social Infrastructure Area	Issues	Public/Private Sector Response(s)
Education (cont'd)	• Cost of housing remains an issue in attempting to attract and retain staff. Teachers have difficulty finding suitable accommodation even with the provincial Cost of Living Allowance (FMPSD 2010). • In 2009, high school completion rates (three-year rate) were 74.9% and 67.3% for Fort McMurray's separate and public school systems respectively. The provincial average was 71.5% (FMPSD 2010; FMCSD 2010). • The Northlands School Division, whose student population is primarily First Nations, Métis, or Inuit (FNMI), had a high school completion rate of only 22.8% (NSD 2010a). Concerns have been raised about persistently weak student learning outcomes in the Northland School Division and other matters relating to the governance of the jurisdiction. • Education concerns among rural communities also include difficulty for students transitioning to high schools in Fort McMurray and challenges in facilitating the transfer of traditional knowledge, including language, from Elders to young people. • Keyano College has experienced increasing enrolment in recent years. However, the economic recession created resourcing challenges for the college as grant funding from Alberta Advanced Education and Technology was reduced and corporate training opportunities were cut back.	

Social Infrastructure Area	Issues	Public/Private Sector Response(s)
Social Services	• Social/community service providers flag a number of issues linked to population growth and economic expansion, including : - growing numbers of homeless looking for shelter and other support services; - displaced/terminated lodge-based workers placing additional demands on the homeless serving agencies in the region (Evasiuk 2011, pers. comm.); - shortage of affordable child care spaces; - work demands taking time away for family and community life; - reduced community cohesion and a sense of transience among residents; - alcohol and drug use and gambling; and - changes experienced in Aboriginal communities as members move away from traditional cultural practices. • In line with many social service providers in the province, the agencies in outlying communities are challenged by the sometimes ad hoc and project-specific funding, and the difficulty of recruiting and retaining staff.	• Additional support has been provided for social and affordable housing in the region as per Section 16.7.3 above. • The RMWB has developed its own 10-year plan to end homelessness which aligns with the provincial plan to end homelessness and outlines actions to build community support for Housing First (RMWB 2010f). • The Government of Alberta extended its cost-of-living allowance to employees of all provincially funded organizations in Fort McMurray (GOA 2007b). • A number of broader-based programs run by the provincial government benefit the RMWB, such as Alberta's 10-year provincial strategy to end homelessness and Alberta's Making Space for Children: Child Care Space Creation Innovation Fund (AHUA 2009; ACYS 2009; ACYS 2011). • The new Fort McKay Elder and Day Care Centre opened in January 2010, replacing the original building that was destroyed by fire in 2007. • The RMWB recently completed a review of 21 municipal service functions, including family and community support services, in rural communities in the region. The Rural Service Delivery Review Report is intended to serve as a guiding document for the municipality to strategically direct and coordinate rural service delivery (RMWB 2010e).
Recreation Infrastructure and Services	• A number of social and community agencies are also experiencing difficulties in attracting and retaining personnel and volunteers. • The RMWB and residents of the Wood Buffalo region have previously expressed concern regarding the limited number of recreation	**Additional recreation facilities and amenities** Recognizing the need for more recreation facilities, the RMWB, the Province of Alberta, industry and other stakeholders have added new recreation facilities and amenities in recent years. Along with the Syncrude Sports and Wellness Centre (2007) and the expanded Syncrude

Social Infrastructure Area	Issues	Public/Private Sector Response(s)
	facilities. A number of new recreation facilities and amenities have been built in recent years in response to these concerns. • Similar to other sectors in the area, recreation service providers have experienced staff recruitment and retention challenges. • With increasing industrial development and a growing regional population access to previously hard to get to places is increasing, thus increasing the competition with traditional land use • Many campgrounds are being used as semi-permanent accommodations by mobile workers, thus reducing their use for recreation purposes.	Timberlea Athletic Park (2008), the MacDonald Island Park Redevelopment, a $170 million construction project, has also reached substantial completion. Highlights of the renovated 450,000 ft^2 multiuse recreation space, touted as Canada's largest recreation centre, include: • a 56,000 ft^2 public library • two NHL-sized arenas • an olympic-sized pool • an eight-sheet curling rink • field houses and running track • an 8,000 ft^2 fitness centre • squash and racquetball courts • Indoor playground and child-minding area • baseball diamonds, basketball, and tennis courts (MacDonald Island Park 2010) MacDonald Island also hosts a number of social, cultural and athletic events including concerts, provincial hockey tournaments, Canada Day celebrations, and Family Fun Days. Outside the urban service area, the Archie Simpson Arena, a new 4,500 m^2 facility, recently opened in Fort Chipewyan. The new facility (replacing the original building whose roof collapsed in 2005) features an ice surface, computer lab, fitness centre, youth area with games like pool and foosball, a basketball court, and playground (FMT 2009).

Social Infrastructure Area	Issues	Public/Private Sector Response(s)
Recreation Infrastructure and Services (cont'd)		**Rural service delivery review** The RMWB recently completed a review of 21 municipal service functions, including recreation programs, in rural communities in the region. The Rural Service Delivery Review Report is intended to serve as a guiding document for the municipality to strategically direct and coordinate rural service delivery (RMWB 2010e). **Industry response** Industry has also responded by: • providing workers with recreation opportunities in-lodge, including exercise and games rooms • providing the RMWB with data in support of its recreation planning and development • playing a key role in providing financing for new major recreation centres in the region **Draft LARP** One of the Draft LARP objectives is to "provide a range of recreation and tourism opportunities that meet the preferences of regional residents and visitors" (GOA 2011g). Among the strategies identified for achieving this objective are: • designate new provincial recreation areas to address growing demand for recreational opportunities in the region and provide a secure land base to support tourism development • designate public land areas for recreation and tourism in the region that contain unique features or settings • coordinate the development of a regional trail system plan • collect regional data including the completion of a recreation and tourism resource inventory, a scenic resource assessment inventory and a regional recreational demand and satisfaction survey

Social Infrastructure Area	Issues	Public/Private Sector Response(s)
Recreation Infrastructure and Services (cont'd)		• As of April 2011, consultations are occurring in the region on the draft version of the plan.