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SHELL CANADA ENERGY

Appendix 7: JRP SIR 69a Cultural Effects Review

Submitted to:
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REPORT

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Golder Associates

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1.0 INTRODUCTION

This review presents a discussion of the effects associated with the Pierre River Mine (PRM) and the cumulative effects of oil sands projects on elements of culture that Aboriginal Groups have identified as important to Aboriginal communities in the Athabasca Oil Sands Region (generally the Regional Municipality of Wood Buffalo [RMWB] or the region). The reports where cultural elements are described are listed in Section 1.1, below. The purpose of this report is to respond to Joint Review Panel (JRP) Supplemental Information Request (SIR) 69a:

> *Provide a cumulative assessment of the Project's effects on Aboriginal culture, lifestyle and quality of life of Aboriginal persons for each First Nation or Aboriginal group potentially affected before and after reclamation using a pre-development baseline.*

Where possible this report links effects on Aboriginal culture to the PRM; however, effects on Aboriginal culture in the region are understood to be cumulative, as a result of all development, and institutional and societal changes over time. Cultural effects cannot be attributed to a single oil sands project in the context of development in northern Alberta.

When preparing a concise review based on multiple, lengthy literature sources, it may be necessary to paraphrase, summarize and interpret TLU information from the source material. Due to this practical limitation, it is recommended that the Joint Review Panel, and other reviewers, further examine the referenced source material in its entirety to have a fulsome perspective of the TLU information provided in those documents.

1.1 Background

Aboriginal groups have recently prepared several documents that are relevant to the review of cultural effects regarding oil sands development. This review focused on reports written and submitted by Aboriginal groups that pertain to the Shell Canada Energy (Shell) Jackpine Mine Expansion (JME) & PRM Project areas or submitted as evidence for the JME hearing. Golder Associates Ltd. (Golder) completed a Traditional Land Use (TLU) assessment for Shell's proposed JME (*May 2011, Submission of Information to the Joint Review Panel, Additional Traditional Knowledge and Traditional Use)*. Aboriginal groups expressed concern that the TLU assessment did not consider cultural information contained in reports provided by those groups. Shell agreed to complete an assessment of cultural effects to examine the JME Project's potential effects on elements of Aboriginal culture based on information provided by several Aboriginal groups, including the following documents prepared by the Fort McKay First Nation (FMFN), Mikisew Cree First Nation (MCFN), Athabasca Chipewyan First Nation (ACFN), and Fort McMurray #468 First Nation (FM468), specifically for the JME & PRM Projects:

- *Athabasca Chipewyan First Nation Supplemental Social, Economic and Cultural Effects Submission for Shell Canada's Proposed Jackpine Mine Expansion* (MacDonald 2012).
- *Integrated Knowledge and Land Use Report Assessment for Shell Canada's Jackpine Mine Expansion and Pierre River Mine* (Candler at al. 2012b).
- *Mikisew Cree First Nation Indigenous Knowledge and Use Report and Assessment for Shell Canada's Proposed Jackpine Mine Expansion, Pierre River Mine, and Redclay Compensation Lake* (Candler at al. 2012a).
- *Project-Specific Cultural Heritage Assessment*. Shell's Proposed Pierre River Mine and Jackpine Mine Expansion. Fort McKay Specific Assessment (Fort McKay IRC 2010a).

- *Fort McKay Specific Assessment: Disturbance and Access, Implications for Traditional Use*. (Fort McKay IRC 2010b).
- *Cumulative Impacts to FMFN #468 Traditional Lands and Lifeways* (Labour et al. 2012).

Additional materials relevant to the review of cultural effects regarding oil sands development include (but are not limited to) the following documents:

- ACFN Footprints on the Land (ACFN 2003a);
- ACFN Traditional Land Use Study (ACFN 2003b);
- *Submission of the Athabasca Chipewyan First Nation to the Joint Review Panel Secretariat* (ACFN 2012);
- "Barb Hermansen, Her Story" (Barb Hermansen, wife of Arne Hermansen trapped Registered Fur Management Area [RFMA] #1275 and was member of Métis Local #125) (Labour and Hermansen 2010);
- *As Long as the Rivers Flow: Athabasca River Knowledge, Use and Change*. MCFN Community Report. Submitted to Mikisew Cree First Nation (Candler et al. 2010);
- Fort Chipewyan Métis Historic Use and Occupancy: Thematic Maps(Fort Chipewyan Métis 2012);
- *Submission of the Fort McKay First Nation to the Joint Review Panel Secretariat* (Fort McKay 2012);
- *Cultural Heritage Assessment Baseline Pre-Development (1960s) to Current (2008)* (Fort McKay IRC 2009);
- Fort McMurray #468 First Nation, *Nistawayaw "Where Three Rivers Meet"* (FM468 2006);
- *A Narrative of Encroachment Experienced by Athabasca Chipewyan First Nation* (Larcombe 2012);
- *Mark of the Métis: Traditional Knowledge and Stories of the Métis People of Northeastern Alberta* (2012) Métis Local #1925 (ML 1935);
- *An Ethnohistory of the Mikisew Cree First Nation* (McCormack 2010a);
- *Fort Chipewyan and the shaping of Canadian history, 1788-1920s: "We like to be free in this country"* (McCormack 2010b);
- *An Ethnohistory of the Athabasca Chipewyan First Nation* (McCormack 2012a);
- *Submission of the Mikisew Cree First Nation to the Joint Review Panel Secretariat* (MCFN 2012b);
- *Submission to the Joint Review Panel Secretariat*. October 1, 2012 (Oil Sands Environmental Coalition 2012);
- *The Case Against the Proposed Shell Jackpine Oilsands Mine Expansion*. Backgrounder. October 2012 (Pembina 2012);
- Synenco Northern Lights Project Application [Info on Métis Local #125] (Synenco 2006); and

- *Assessing the Impacts of Oilsands Development on Indigenous Peoples in Alberta, Canada* (Westman 2006).

Shell requested that Golder, along with Nichols Applied Management (Nichols) (Sections 1.7.1, 1.7.2 and 1.7.3), consider available information to provide an assessment of the cultural effects resulting from Shell's proposed PRM. This review considers information submitted by Aboriginal groups since 2002 and feedback on the cultural effects assessment submitted by Shell for JME in May 2012. This review has been prepared for the PRM and includes consideration of updated TLU information and other Supplemental Information Request (SIR) responses prepared by Golder, Nichols and Intrinsik Inc.

1.2 Report Structure

The remainder of this section (Section 1.0) summarizes Shell's approach to community engagement and support of cultural initiatives. It also provides an introduction to key terms used in this report, including Traditional Knowledge (TK), Traditional Land Use (TLU), traditional territories and Aboriginal culture. This section also provides a pre-development context and a brief history of the Aboriginal groups who reside and continue to practice TLU within the region. Treaty 8 lands and traditional territories of the FMFN, MCFN, ACFN, and FM468 are illustrated in figures in this section.

Section 2.0 briefly describes the inter-connectedness of TLU, culture, lifestyle and quality of life.

Section 3.0 examines the practice of TLU and explores what is meant by the *meaningful* practice of rights (i.e., rights include TLU such as hunting, trapping, fishing and gathering). It then describes cumulative effects on TLU by providing a description of effects observed and reported by Aboriginal groups in the region. This section then summarizes the 2013 PRM Application Case (Appendix 1, Section 5.2) and 2013 Planned Development Case (PDC) (Appendix 2, Section 3.5.1) assessed effects on TLU. Finally, this section summarizes the three main responses to observed effects on TLU and traditional resources: displacement, avoidance or abandonment, and adaptation.

Section 4.0 discusses the cultural, lifestyle and quality of life effects reported by Aboriginal groups that have been directly attributed to the effects discussed in Section 3.0 (which focuses on TLU).

Section 5.0 is a brief summary of the effects discussed in Sections 2.0 to 4.0.

1.3 Overview of Findings

While effects on culture cannot be attributed to a single project, effects on Aboriginal culture, lifestyle and quality of life can be described for the region. This review begins from a pre-development context and describes current and ongoing effects on the environment, TLU, TK, culture, and way of life that have been described by Aboriginal groups in submissions to the JRP. This review is supplemented with a summary of environmental assessment estimates of potential future cumulative effects on traditional resources and use before and after reclamation.

Key points from this review are summarized below (in the order of their appearance in this report):

- Traditional Knowledge and Land Use are cornerstones of Aboriginal culture – effects on land use opportunities have implications for Aboriginal cultural practices and transmission of knowledge (Section 1.5 and Section 2.0).

- It is important to be aware of the Pre-Development Context and especially Treaty 8, to begin to understand the effects on Aboriginal culture that have been reported today by Aboriginal groups. These groups have lived in the region and on the land for thousands of years and while views may vary among individuals, there are Aboriginal representatives that have expressed frustration and anger at their lack of influence on government decisions about the use of the land and water. Industrial development, non-Aboriginal population growth and government land use policy decisions (e.g., parks, protected areas, infrastructure, and municipalities) have led to many changes in the region and a sense of growing encroachment on traditional lands (Section 1.6).
- Changes in on-reserve and off-reserve populations are dynamic and reflect a population that is growing overall but that also migrates to and from reserve communities depending on a variety of factors including personal family ties, the availability of housing, education and work opportunities. The Aboriginal population has high rates of participation and employment in the wage economy (relative to Aboriginal populations in comparable communities elsewhere in Alberta) and First Nations have businesses that serve the oil sands industry. Whether they live on or off-reserve, the Aboriginal population of the region represents about 10% of the total regional population (Section 1.8).
- Effects on traditional lands and resources have had implications for the retention and transmission of Aboriginal culture. Observed changes to traditional lands, resources, and access to lands and resources important to Aboriginal people have brought about changes in land use patterns and intensity that have resulted in effects on intangible elements of Aboriginal culture: changes in passing on knowledge, and changes in relationships and cultural knowledge and practice in communities over time (Section 2.0).
- Members of Aboriginal groups in the region have reported that cultural erosion or cultural change has had implications for quality of life in several ways including effects on community cohesion, the value system, feelings of disempowerment, marginalization and vulnerability, loss of pride in cultural identity and relationships with the land, and community health (Section 2.0).
- As defined by Aboriginal groups, the meaningful practice of TLU requires certain conditions to be met in the physical environment. Observed effects on the environment have resulted in changing patterns of land use (i.e., through avoidance, abandonment and adaptation) that have had negative implications for the transmission of Aboriginal cultural practices and values in regional communities (Section 3.1 and 3.2).
- Under the 2013 PDC, effects on TLU for the community of Fort McKay, the Fort McMurray Métis, and First Nations groups in the region are expected to be significant. Effects on TLU for Fort Chipewyan Métis Local #125 are not expected to be significant because most TLU is concentrated in areas around Fort Chipewyan (Section 3.3.1).
- While the effects of the 2013 PDC on TLU are considered significant for most Aboriginal groups in the region, these effects have occurred primarily as a result of existing and approved development (i.e., 2013 Base Case conditions). In this context, the effects of PRM on its own are not considered significant (Section 3.3.1).
- Under the 2013 PDC, oil sands and other oil and gas development is the main source of change in disturbance from the 2013 Base Case and 2013 PRM Application Case in each traditional territory (Section 3.3.2).

- Forestry disturbances and mapped linear access decrease under the 2013 PDC and the 2013 PRM Application Case as they are replaced with oil sands related disturbances. However, these linear access numbers do not include the increased numbers of low impact seismic lines which are being constructed for oil sands exploration. This increase in seismic lines may mean that TLU and non-Aboriginal recreational and harvesting activities will become more ubiquitous across the RSA as a result of oil sands exploration but may be more concentrated in undisturbed areas or areas away from oil sands facilities that remain accessible, thus potentially increasing the possibility of interactions with these growing populations within relatively smaller landscapes over time (Section 3.3.2).
- Disturbed lands may not be considered available by Aboriginal groups for the meaningful practice of rights until at least after reclamation. This is may be the case in the immediate vicinity of oil sands developments although this avoidance is not consistent among individuals. In addition, seismic lines, although considered disturbed areas are used by most hunters, Aboriginal or otherwise, to hunt. Given that TLU of areas in the vicinity of oil sands developments may be avoided, if that avoidance occurs over more than a generation into the future, TK of these areas is likely to be lost and people may continue to avoid them (Section 3.3.2).
- Members of Aboriginal groups in the region are concerned about the safety of traditional food and some people are avoiding country food as a result of fear of contamination. This particular effect illustrates the need for community-based monitoring and education (Section 3.3.2).
- While the PRM is not expected to adversely affect the quality of country food, it will result in direct loss of 11,322 ha of land, portions of which are used for hunting, trapping and plant gathering within the traditional territories of each First Nation and lands used by Métis traditional harvesters. The PRM disturbance represents 3.6% of total disturbances in the Regional Study Area (RSA) at 2013 PRM Application Case and 2.5% of total disturbances in the RSA at 2013 PDC (Section 3.3.2).
- The non-Aboriginal hunter population of the RMWB is increasing with the population (increasing demand and competition with the Aboriginal population) and represent between 2% to 3% of the total population. Based on overall harvest levels, harvests and hunters of moose and bear appear to be decreasing while white-tailed deer hunting and hunting in areas south of Fort McMurray is increasing. The data suggests the potential for increased competition for resources among Aboriginal and non-Aboriginal hunters. Harvests in the region's Wildlife Management Units (WMU) in 2011 totalled 1,167 animals and the number of hunters was 3,518 or a conservative average of 0.3 animals per hunter (Section 3.3.2).
- The density of non-Aboriginal hunters in the RMWB has increased from 2.1 hunters/100 km^2 in 2007 to 4.1 hunters/100 km^2 in 2011 or an average increase of 13.9% per year. The concentration of non-Aboriginal hunters tends to be in the southern parts of the region, especially in WMUs directly north and west of the Cold Lake Air Weapons Range (i.e., WMUs 512 with 17 hunters/100 km^2 and WMU 519 with 10 hunters/100 km^2 in 2011, see Attachment D and Section 1.6, Figure 1.6-1), suggesting that some areas are used for non-Aboriginal hunting more than others. Hunter densities north of Fort McMurray, for example, tend to be around 1.2 hunters/100 km^2 (Section 3.3.2). The potential for competition for resources is therefore not uniform within the region.
- The increasing footprint of development (i.e., under the 2013 PDC) suggests that the increased competition for resources over time may be concentrated in less developed areas thus increasing competition in two

ways, first as a result of the increased population and second, due to the increased concentration of activities on the land base (Section 3.3.2).

- The implications of the effects of noise, visual effects and odour on the potential for a remote wilderness experience (one of the conditions for meaningful practice of rights) suggest that some land users may avoid areas around oil sands development. For example, Aboriginal group representatives reported during the JME hearing that they practice TLU within areas that are close to existing development, including the JME area (Realtime 2012). At the same time, the experience of noises, odours and visual disturbances vary considerably given specific environmental conditions and may be infrequent or undetectable depending on where a person is at any given time and their individual sensitivity to these stimuli (Section 3.3.2).
- Responses to changes to the environment (i.e., changes in TLU) occur within a cumulative effects scenario (either with respect to current conditions or feelings of stress or disempowerment relating to the potential for further oil sands project expansions and population growth in the region). The effects of one project cannot be separated from the whole or from a pre-development context when assessing effects on the practice of TLU and Aboriginal culture (Section 3.0 and 4.0).

1.4 Shell's Approach to Community Engagement

Since 2003, Shell has engaged the following Aboriginal communities to discuss issues relevant to PRM and work towards minimizing PRM impacts on traditional lands and communities:

- Athabasca Chipewyan First Nation (ACFN);
- Fort McKay First Nation (FMFN);
- Fort McMurray #468 First Nation (FM468);
- Mikisew Cree First Nation (MCFN);
- Métis Local 63;
- Métis Local 125; and
- Métis Local 1935.

As a result of its community engagement efforts, and in response to Aboriginal concerns, Shell has agreed to implement several mitigations to reduce the impacts of PRM effects on TLU and culture. A summary of Shell's commitments, and policies related to the potential effects of the PRM on the traditional aspects of culture are presented in Attachment A.

First Nations in the region operate Industrial Relations Corporations (IRCs) or Government and Industry Relations (GIRs) organizations. The IRCs/GIRs facilitate and support ongoing communication with industry and government on existing and planned oil sands development. Between 2007 and 2009, the oil sands industry (including Shell) provided approximately $22 million in funding for IRCs/GIRs, including funding for project-specific reviews. The IRCs/GIRs are funded by industry. The federal government does not fund IRCs or GIRs. With the expiration of the All Parties Core Agreement, which established and maintained funding for the IRCs and GIRs, individual arrangements between proponents and Aboriginal groups are being developed or renewed through Memorandums of Understanding and mitigation agreements. Shell has agreements with

MCFN and FMFN that address each group's project-specific concerns for all existing operations and the JME and PRM projects. Shell also has an agreement with ACFN that addresses ACFN's project-specific concerns for existing operations. In addition, Shell has non-project specific Good Neighbour Agreements in place with Métis Locals 125 and 1935, which provide the foundations for Shell and the noted Métis locals to develop cooperative relationships.

Shell has provided funding for numerous Aboriginal traditional use documents including documents submitted as evidence by First Nations for the JME hearing such as:

- *Athabasca Chipewyan First Nation Supplemental Social, Economic and Cultural Effects Submission for Shell Canada's Proposed Jackpine Mine Expansion* (MacDonald 2012).
- *Integrated Knowledge and Land Use Report Assessment for Shell Canada's Jackpine Mine Expansion and Pierre River Mine* (Candler et al. 2012b).
- *Mikisew Cree First Nation Indigenous Knowledge and Use Report and Assessment for Shell Canada's Proposed Jackpine Mine Expansion, Pierre River Mine, and Redclay Compensation Lake* (Candler et al. 2012a).
- *Project-Specific Cultural Heritage Assessment*. Shell's Proposed Pierre River Mine and Jackpine Mine Expansion. Fort McKay Specific Assessment (Fort McKay IRC 2010a).
- *Fort McKay Specific Assessment: Disturbance and Access, Implications for Traditional Use*. (Fort McKay IRC 2010b).
- *Cumulative Impacts to FMFN #468 Traditional Lands and Lifeways* (Labour et al. 2012).
- *Cultural Heritage Assessment Baseline Pre-Development (1960s) to Current (2008)* (Fort McKay IRC 2009)

1.5 Shell's Support for Cultural Initiatives

Understanding the direct effects of project activities on culture is complex, due to factors such as the unique way that individuals or communities as a whole respond to change in their surroundings. Despite the complexity of such a review, Shell recognizes that it is important to support cultural retention. To minimize impacts on some aspects of Aboriginal culture, Shell supports several cultural retention initiatives, aimed at helping Aboriginal communities maintain social cohesion and unique characteristics. Examples of mitigations and cultural initiatives that Shell has undertaken in association with Shell's projects include:

- supporting the collection of TK on medicinal plants, wildlife, and spiritual and cultural sites on traditional lands in the region;
- supporting Dene gatherings, Elder/Youth programs for FMFN, MCFN and ACFN including language retention initiatives (e.g., Shell provides funding for a Chipewyan language retention program), and video documentation of TK;
- supporting historical preservation initiatives such as the Fort Chipewyan Museum and the Cree Burn Lake Education Project; and
- promoting the Quarry of Ancestors by partnering with Alberta Culture and Community Spirit to develop educational materials related to the quarry that can be distributed and used in schools in the region.

In addition to the above, Shell has supported several other initiatives related to Aboriginal programs in Fort McKay, Fort Chipewyan and Fort McMurray, including the following:

- Aboriginal Days - All Nations Coming Together (January 2006);
- Aboriginal Day Celebration (February 2006);
- Annual Treaty Day Celebrations for FMFN, MCFN and ACFN;
- Catholic School Board - First Nation Métis Inuit Program- Aboriginal Role Models (July 2007);
- Elders Pilgrimage to Lac St. Anne (July 2008);
- 2011 Treaty 8 Gathering and Youth Canoe Trip;
- 2009 Elders/Youth gathering at English River;
- Father Tucotte First Nation Métis Inuit Program (July 2007);
- First Nations, Métis & Inuit Program (September 2006, July 2007, September 2008, October 2008);
- First Nation Métis Inuit (FMNI) Education Program (October 2008);
- Oil Sands Leadership Initiative Sustainable Communities Working Group Fort Chipewyan Pilot (2011 to 2013);
- Full Circle Mentoring Program (July 2010 and April 2011);
- Lac Ste. Anne Pilgrimage (July 2007);
- Métis Festivals for Locals 1935, 63 and 125;
- Métis Youth Forum (December 2006);
- Nistawoyou Exhibition (January 2008);
- Reading on the Medicine Wheel (September 2008);
- Spirit Lake Elders Cultural Retreat (July 2009);
- Traditional Celebration of Achievement (March 2007); and
- Walking the path program – helping children and mothers develop self-esteem through arts and crafts that also supports:
  - training in TK/TLU;
  - development of traditional plant guides; and
  - a feasibility study for a cultural centre.

1.6 Key Terms

Traditional Knowledge, Traditional Land Use, traditional territories and Aboriginal culture have varied meanings to different people and groups. The definitions below are meant to provide a frame of reference for this report.

1.6.1 Traditional Knowledge

Traditional Knowledge (TK) is defined as follows under the *Canadian Environmental Assessment Act*:

Aboriginal traditional knowledge (ATK) is knowledge that is held by, and unique to Aboriginal peoples. It is a living body of knowledge that is cumulative and dynamic and adapted over time to reflect changes in the social, economic, environmental, spiritual and political spheres of the Aboriginal knowledge holders. It often includes knowledge about the land and its resources, spiritual beliefs, languages, mythology, culture, laws, customs and medicines (CEAA 2013).

This definition is consistent with discussions of TK in evidence submissions by the ACFN, MCFN and FM468:

Knowledge systems, value systems, systems of land and resource use, creations, innovations and stories and other cultural expressions which have generally been transmitted from generation to generation and which are inherent to the ACFN's culture and way of life; are generally regarded as pertaining to the ACFN or their Traditional Lands; and are constantly evolving in response to a changing environment. Categories of TK include: environmental and ecological knowledge; traditional land and resource use information; medicinal knowledge, included related medicines and remedies; biodiversity related knowledge; knowledge and oral transmission of history, literature, customary law and genealogy; expressions of legends, myths, history and other cultural knowledge and material in the form of music, dance, song, handicrafts, designs, stories and artwork; elements of languages, such as names, geographical indications and symbols; and moveable cultural properties (Shell, ACFN and ACFN IRC 2010).

A commonality in these definitions is that the knowledge is community held, inter-generationally transmitted, evolves over time and applies to a geographic area that the First Nation or Aboriginal group has been historically connected, although not necessarily continuously (Larcombe 2012).It is both cumulative and dynamic, building on experience and adapting to changes (Berkes 1999cited in McCormack 2012a).

Mikisew Elders use the term sakaw pimacihiwin – a Mikisew Cree term meaning 'bush way of life', as a translation of the English phrase 'traditional knowledge', suggesting that from a Mikisew perspective knowledge, and way of life, are not separate (Candler et al. 2012a).

The term 'traditional' can be problematic because it may be interpreted by some to refer only to past activities. In reality, 'traditional use' is as dynamic and ever-evolving as is the knowledge it is based on. Traditional knowledge and use therefore encompass a concept of 'culture as a continuum' because they refer to "social attitudes, beliefs, principles, and conventions of behaviour and practice derived from historical experience", which are also "cumulative and open to change" (Berkes 1999 cited in Labour et al. 2012) […] Traditional use information can be defined as information about how a culture used (and uses) the land and its resources […]. It refers to current use, associated with some historic time depth, of a particular geographic area, as defined by the particular Aboriginal group (Labour et al. 2012).

In their discussions Larcombe (2012) and Labour et al. (2012) underscore the importance of place-based knowledge; that TK is associated with specific geographic areas of which Aboriginal groups have knowledge of

the land and environment. McCormack (2012a) and Labour et al. (2012) emphasize that TK is not static and accumulates and adapts based on experience with the land and its resources. The MCFN term for traditional knowledge and the definition provided by the FM468 demonstrate the interconnectedness of the key terms (knowledge, culture and TLU) defined in this section. McCormack (2012a) further discusses TK as not simply a function of the social and economic forces that motivate people to use particular resources and places; it is also informed by and contributes to Chipewyan "awareness, spirituality, and religion" (page 115). Another key aspect of Traditional Knowledge is that it is considered private and confidential; the extent to which it is shared between groups, with industrial development proponents, the government and with the public is at the discretion of each Aboriginal group.

1.6.2 Traditional Land Use

The Government of *Alberta's First Nations Consultation Guidelines on Land Management and Resource Development* defines TLU as "including uses of public lands such as burial grounds, gathering sites, and historic or ceremonial locations, and existing constitutionally protected rights to hunt, trap and fish and does not refer to proprietary interests in the land" (Government of Alberta 2007).

This definition is consistent with the others provided in evidence submissions by the FM468 (above) and ACFN:

> Many terms are used to describe the collective rights, activities, values and knowledge of First Nations peoples. The nomenclature used to describe a suite of activities including harvesting, occupation (camps, overnight places, villages, cabins) and assembly locations (seasonal fishing sites, feast places, ceremonial sites), travel routes, teaching places, sacred and spiritual sites or places, and sometimes also place names and archeological places is most often referred to as traditional use, traditional land use, traditional use and occupation (Larcombe 2012, pp. 2-10).

Other definitions emphasize that TLU refers to current and historic use: "Traditional use […] incorporates both historic and current use" (Labour et al. 2012). In general, TLU has been defined by a list of activities considered to be of cultural importance to Aboriginal groups including but not limited to hunting, fishing, trapping, traditional plant harvesting, and gathering or meeting at sacred and spiritual sites. Shelters or cabins built on the land are also considered part of TLU.

1.6.3 Traditional Territories

Formal or universally accepted definitions of traditional territories do not exist in the academic literature. The two definitions below were used in evidence submissions for the JME hearing in 2012:

"Traditional Territory" is a term to describe the geographical area that individual First Nations, or groupings of First Nations affiliated as Nations, historically relied upon and continued to rely upon to exercise their Treaty and Aboriginal rights; a geographic area that First Nations have a long-term connection with and relied upon to sustain their cultural, social, spiritual and economic way of life (Larcombe 2012). In some cases the word "territory" refers to a written land description or map such as contained in the published treaty documents and the term is used to describe the areal extent of Treaty rights, even though in contemporary times a First Nation may not be exercising their rights in the entire area (Larcombe 2012).

[The Chipewyan traditional territory] comprised the lands that Chipewyans used actively, lands they had used in the past and were known to have been used by their ancestors, and lands they might wish or need to use in the future." (McCormack 2012a).

Placing a boundary around traditional lands or territories is problematic for Aboriginal groups, because it may be interpreted as limiting traditional rights and interests within the region. It is also problematic for Aboriginal groups to define traditional lands as having a specific boundary; lands that are used or considered important and lands that have historical importance may shift or change or be adapted to changes in TK over time. The traditional territories defined by the FMFN, MCFN, ACFN, and FM468 (Fort McKay First Nation 1994; MCFN 2006; ACFN 2003b; FM468 2006) are shown in Figure 1.6-1. These traditional territories are very large; however, they cannot be assumed to indicate that TLU occurs throughout these territories in the same manner or intensity. Current traditional activities may be concentrated in specific areas. For example, FMFN has provided and continues to refer to culturally significant ecosystems (see Section 3.3) as a means of describing areas of low, moderate and intense use within their traditional territory. In general, traditional territories indicate land that is of current and historic importance to each First Nation and are subject to change based on changes in use patterns and TK of the environment.

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WOODLAND CREE I.R. 228
Algar Lake - 519
Gordon Lake - 529
CLEARWATER RIVER DENE BAND I.R. 221
LITTLE BUFFALO I.R.
Thickwood Hills - 518
HOUSE RIVER INDIAN CEMETERY I.R. 178
ENGLISH RIVER FLATSTONE LAKE I.R. 192L
UTIKOOMAK LAKE I.R. 155
Muskwa Lake - 542
WABASCA I.R. 166C
CHURCHILL LAKE I.R. 193A
UTIKOOMAK LAKE I.R. 155B
BUFFALO RIVER DENE NATION I.R. 193
CLEARWATER RIVER DENE BAND I.R. 223
PEAVINE METIS SETTLEMENT
WABASCA I.R. 166B
WABASCA I.R. 166A
WAPACHEWUNAK I.R. 192D
DIPPER RAPIDS I.R. 192C
UTIKOOMAK LAKE I.R. 155A
DESMARAIS I.R.
JANVIER I.R. 194
TURNOR LAKE I.R. 194
ELAK DASE I.R. 192A
WABASCA I.R. 166D
WABASCA I.R. 166
COWPER LAKE I.R. 194A
PRIMEAU LAKE I.R. 192F
KNEE LAKE I.R. 192B
Utikuma Lake - 544
GIFT LAKE METIS SETTLEMENT
KAPAWE'NO I.R. 150D
Pelican Mountains - 511
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KAPAWE'NO I.R. 230
SUCKER CREEK I.R. 150A
Winefred Lake - 517
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ONIKAHP SAHGNIKANSIS I.R. 165E
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SAWRIDGE I.R. 150H
JEAN BAPTISTE GAMBLER I.R. 183
SAWRIDGE I.R. 150G
LA PLONGE I.R. 192
CANOE LAKE I.R. 165B
MORIN LAKE I.R. 217
SWAN RIVER I.R. 150E
Heart Lake - 515
CANOE LAKE I.R. 165A
LITTLE HILLS I.R. 158A
DRIFT PILE RIVER I.R. 150
LITTLE HILLS I.R. 158B
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CANOE LAKE I.R. 165
ROADSIDE I.R. 165F
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HEART LAKE I.R. 167
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MCKAY I.R. 209
Baptiste Lake - 510
Lac La Biche - 503
Lakeland Provincial Park - 651
BEAVER LAKE I.R. 131
COLD LAKE I.R. 149C
Marie Lake - 514
COLD LAKE I.R. 149B
BUFFALO LAKE METIS SETTLEMENT
KIKINO METIS SETTLEMENT
WATERHEN I.R. 130
Swan Hills - 349
GLADUE LAKE I.R. 105B
ALEXANDER I.R. 134B
Tawatinaw - 506
COLD LAKE I.R. 149A
Amisk - 504
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COLD LAKE I.R. 149
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ALEXIS WHITECOURT I.R. 232
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THUNDERCHILD I.R. 115X
Thunder Lake - 507
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RED PHEASANT I.R. 108
MONTREAL LAKE I.R. 106
BLUE QUILLS FIRST NATION I.R.
KEHIWIN I.R. 123
EAGLES LAKE I.R. 165C
Shiningbank - 346
FLYING DUST I.R. 105F
PUSKIAKIWENIN I.R. 122
MAKWA LAKE I.R. 129B
BITTERN LAKE I.R. 218
Lac La Nonne - 508
Redwater - 250
Saddle Lake - 260
Frog Lake - 500
MAKWA LAKE I.R. 129
PELICAN LAKE I.R. 191-C
Chip Lake - 348
STONY PLAIN I.R. 135A
THUNDERCHILD I.R. 115D
CHITEK LAKE I.R. 191
SADDLE LAKE I.R. 125
LITTLE RIVER I.R. 106C
ONION LAKE I.R. 119-1
ALEXANDER I.R. 134
Elk Point - 258
UNIPOUHEOS 121
ONION LAKE I.R. 119-2
ALEXIS I.R. 133
Whitford - 252
FISHING LAKE METIS SETTLEMENT
BIG RIVER I.R. 118
WABAMUN 133B
Edmonton
MAKAOO I.R. 120
SAULTEAUX I.R. 159EE
Carrot Creek - 338
Wabamun - 336
Edmonton - 248
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STURGEON LAKE I.R. 101
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THUNDERCHILD I.R. 115B
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AHTAHKAKOOP I.R. 104
Prince Albert
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MOOSOMIN I.R. 112B
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Wizard Lake - 246
Bittern - 244
Birch - 238
SWEETGRASS I.R. 113
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Elk River - 339
PIGEON LAKE I.R. 138A
Lloydminster - 236
POUNDMAKER I.R. 114
O'CHIESE I.R. 203
Camrose - 228
LITTLE PINE I.R. 116
LOUIS BULL I.R. 138B
Alder Flats - 332
ERMINESKIN I.R. 138
Wavy - 230
BEARDY'S I.R. 97
& OKEMASIS I.R. 96
North Battleford
SAMSON I.R. 137
O'Chiese - 330
Hobema - 226
Hardisty - 232
Schunda - 328
Rimbey - 224
West Wainwright - 728
Ribstone - 234
SUNCHILD I.R. 202
MONTANA I.R. 139
SAMSON I.R. 137A

100 0 100

SCALE 1:2,750,000 KILOMETRES

LEGEND

- SETTLEMENT
- PAVED ROAD
- UNPAVED ROAD
- RAILWAY
- WATERCOURSE
- INDIAN RESERVE
- PROVINCIAL BOUNDARY
- PIERRE RIVER MINE LOCAL STUDY AREA
- OPEN WATER
- REGIONAL MUNICIPALITY OF WOOD BUFFALO
- WILDLIFE MANAGEMENT UNIT
- ATHABASCA CHIPEWYAN FIRST NATION TRADITIONAL TERRITORY
- FORT McKAY FIRST NATION TRADITIONAL TERRITORY
- FORT McMURRAY #468 FIRST NATION TRADITIONAL TERRITORY
- MIKISEW CREE FIRST NATION TRADITIONAL TERRITORY

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 12N

PROJECT

PIERRE RIVER MINE PROJECT

TITLE

FIRST NATIONS TRADITIONAL TERRITORIES

Shell Canada Limited

PROJECT	13-1346-0001		FILE No.	
DESIGN	BB	12 May 2013	SCALE AS SHOWN	REV. 0
GIS	SB	20 Jun 2013		
CHECK	LH	13 Jun 2013		
REVIEW	WES	13 Jun 2013		

FIGURE: 1.6-1

1.6.4 Aboriginal Culture

Cultural systems and patterns develop and change in large part by interactions between production processes and habitat (or the natural environment). In other words, ecosystems and physical environments influence culture. The social system is adapted to a physical environment and what flows from that are the culture or mechanisms by which an individual acquires characteristics to fit himself or herself to that life. For example, in the boreal forest of Northern Alberta, the water, the land, plants and animals that provided resources for the survival and cultural life of the region's Aboriginal groups are held sacred in Aboriginal culture.

Aboriginal culture has been described as consisting of intangible and tangible elements (Candler et al. 2012b; MVEIRB 2006 cited in Larcombe 2012). Elements of the natural and physical environment can be described as "tangible", and elements of the social environment are often known as "intangible".

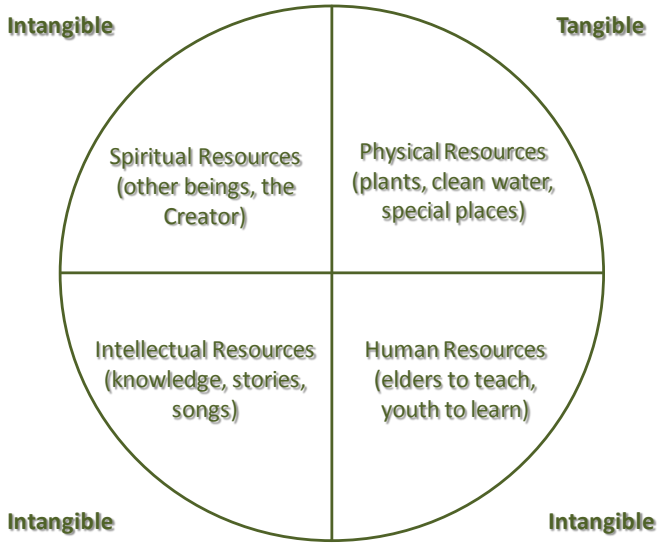
Intangible elements of culture cannot be seen or touched; these non-material elements of culture are expressions of culture, essential for cultural maintenance. For example, intangible elements of culture include spiritual beliefs, language, traditional knowledge, oral history and inter-generational relationship patterns (MVEIRB 2006 cited in Larcombe 2012).

Tangible elements of culture can be seen and touched and are the physical resources upon which cultural practices, values or beliefs rely (e.g., culturally important plant and animal species, hunting areas, landscapes and spiritual sites) (Candler et al. 2012b).

Some examples of tangible and intangible elements of Aboriginal culture are shown in Figure 1.6-2.

Aboriginal culture is firmly rooted to the land and the environment on which Aboriginal groups depend for resources to practice TLU and pass on TK.

Figure 1.6-2 Elements of Aboriginal Culture



Source: Candler 2007.

1.7 Pre-Development Context

The interaction of Aboriginal people, both First Nation and Métis, with the development of large-scale oil sands development in the region should be placed in historical context to understand current viewpoints. The spatial context is the region from Fort McMurray to the Alberta – Northwest Territories border, within the RMWB. The temporal context is referred to as "pre-development" and generally refers to the period prior to the 1960s, when oil sands development began in the region. In this report and other SIRs, the pre-development baseline is called the Pre-Industrial Case (PIC). This section describes events that have and continue to affect Aboriginal communities in the region. Additional environmental and socio-economic information pertaining to the PIC is provided in Appendix 2, SIR 8 – Cumulative Effects, Section 2.

Aboriginal peoples, mostly Chipewyans and Cree, have lived in northeastern Alberta for 10,000 years or more, and evidence of their presence can be found throughout the region. For example, the Cree Burn Lake site was a hub for trading and cultural activities dating back some 8,000 years.

Prior to contact with European settlers, the Aboriginal people of the region lived semi-nomadic lives, moving between locations depending on the season and the relative abundance of hunting, trapping and fishing opportunities. Small family groups would come together in late summer to early fall when resources were more abundant, and then disperse to winter hunting grounds.

1.7.1 Industrial Development

European settlers first came to the region as explorers and fur traders in the 18th century. The Northwest Company started trading in the area in 1778 and trading posts were established at Fort Chipewyan (1788), Fort McKay (1820) and Fort McMurray (1870). Fort Chipewyan emerged as the main trading centre in the area and was the Hudson Bay Company administrative and supply centre for the Athabasca-Mackenzie area.

The presence of the Métis in the region dates back to these early days of the fur trade; Métis are the offspring from marriages between fur traders of European heritage (e.g., English, French and Scottish) and First Nation people, and are a distinct Aboriginal group. The Métis played an important role in the fur trade of Western Canada, incorporating knowledge and traditions from both their First Nation and European ancestries.

Until the mid-1960s, most of the region's population continued to participate in the traditional economy as it adapted to the fur trade. Aboriginal persons in the region were also engaging in various wage-employment opportunities in the renewable resource sectors, such as fishing, forestry and river transportation.

The region functioned as a transportation thoroughfare to the far north. A rail connection from Fort McMurray to the rest of the province was established in the 1920s and with Fort McMurray as its southern terminus, Athabasca River barge transport was an important transport route for communities in northeastern Alberta, northwestern Saskatchewan and the Northwest Territories. This function decreased with the expansion of highway systems in the late 1950s and early 1960s. However, the Athabasca River remains an important transportation route for many northern communities, such as Fort Chipewyan, which only has road access during several winter months (usually from mid-December to mid-April) and because boat travel remains the preferred means of access for traditional use and other social and cultural activities.

The further development of the regional wage economy is tied mainly to natural resource development, including minerals, forestry and oil sands. Key points in this development include the following:

- Exploration for and production of uranium on the north shore of Lake Athabasca started in the 1950s and continued through the early 1980s.
- The exploration period for the Great Canadian Oil Sands (now Suncor Energy Inc.) began in the late 1950s and the base plant was built starting in 1964 and commenced operations in 1967.
- The construction of the Syncrude Canada Ltd. (Syncrude) facility started in the early 1970s and first production was achieved in 1978. Further expansion of the oil sands industry in the early 1980s faltered with the collapse of the Alsands project under pressure of technical challenges, rising costs and depressed product prices.
- Large-scale commercial timber harvesting began in 1991 when the Government of Alberta struck a Forest Management Agreement (FMA) with Alberta-Pacific Forest Industries Inc. and, later, smaller FMAs with Northland Forest Products and Millar Western.
- A major expansion of the oil sands industry started in the late 1990s driven by, among other factors, improved product prices, technological advances, and changes in Alberta's royalty and taxation regime. The expansion phase started with expansion of the Suncor and Syncrude plants and the commencement of the Shell Muskeg River mine. Expansion continued with many projects and companies since then, and is ongoing in mid-2013.

Development of large-scale industrial projects has driven other developments. For example:

- All-weather road access between the southern parts of the province and Fort McMurray became a reality in 1966. Prior to that time, road access was via forestry roads and mainly limited to winter travel. Road access to Fort Chipewyan is still by winter road access only.
- Aggregate production emerged as a large-scale operation in the 1990s with the opening up of the Susan Lake Quarry, now the largest gravel quarry in Canada. There are several other large-scale gravel operations in the region and one limestone quarry that produce aggregate.
- The region is serviced by several pipelines taking bitumen and synthetic oil products to market and importing diluent that is required for bitumen to meet pipeline specifications.
- The region is both a market for and a source of electrical generation capacity, and is home to extensive electrical co-generation facilities and the associated linear infrastructure.

Hydro-electrical power generation does not occur in the region; however the development in the mid-1960s of the W.A.C. Bennett Dam in British Columbia on the Peace River did affect the hydrology of the Peace-Athabasca Delta in Alberta and continues to affect water levels in the Peace-Athabasca Delta today due to temporary flow reversal during open-water season produced by ice-jams on the Peace River downstream of Lake Athabasca (AER and CEAA 2013; Realtime 2012).

1.7.2 Population Growth

Most of the economic and demographic effects for the industrial developments of the region have accrued to the community of Fort McMurray, where the newcomers to the region settle and where most of the secondary industry locates. Fort McMurray remains the key urban centre and the location for most government and private sector services.

In 1961, the population of Fort McMurray was around 1,300 with roughly another 1,300 people living in the unincorporated communities of Fort Chipewyan, Fort McKay and Anzac. There were just over 600 housing units in the region, split fairly evenly between Fort McMurray and the other smaller communities. Housing was predominantly single family dwellings (AOSERP 1979).

Population growth in the region from the 1960s to today can be divided into four distinct time periods:

- Early 1960s to 1986 was the first major growth period. Fort McMurray's population grew from 1,300 to nearly 37,000, mostly in response to oil sands industry development. Growth in the outlying areas was more modest and many communities, such as Fort McKay and Fort Chipewyan remained largely Aboriginal (AMA 1975, 1980, 1985; AOSERP 1979).
- 1986 to the late 1990s was a period of little growth. Population was essentially stable as oil sands industry employment declined marginally through productivity improvement measures. The population of Fort McMurray was approximately 36,500 in 1999 and virtually unchanged from 1986 (RMWB 1999).
- Late 1990s to 2008 was the second major growth period. Employment growth drove rapid population growth in the region, leading to high demand for regional infrastructure and services. The population of Fort McMurray increased to over 70,000. Outlying communities saw fluctuations in their population with community members leaving the community in search of employment opportunities, and then returning, in part to avoid high housing prices in the urban centre.
- From 2008 to 2012, growth in the region moderated as a result of the global economic downturn. The population of Fort McMurray in 2012 was approximately 76,000 (RMWB 2012).

Growth has also occurred in the number of people residing in work camps around the region. Work camps have been part of oil sands facility construction from the beginning. The past decade has seen the emergence of operating camps for facilities that are too far from Fort McMurray to allow for daily commute of workers. The camp population was about 2,300 in 1966, during the Great Canadian Oil Sands (GCOS) construction phase, and 6,500 in 1977, during Syncrude base plant construction. The regional camp population was estimated at approximately 39,000 in 2012 (RMWB 2012).

1.7.3 Nation Building

Canada's influence in the region dates from the early days of the fur trade, and Alberta has played an increasingly important role since its inception in 1905. The role of Canada and Alberta in the region is evidenced by the following:

- Canada signed Treaty 8 with the First Nations in the region in 1899. Treaty Commissioners conducted negotiations in Lesser Slave Lake, Fort Chipewyan, Smith Landing and Fort McMurray. A Halfbreed Scrip Commission also travelled through the region in 1899 offering money or land scrip[1] to Métis people as settlement for their title. Generally, Aboriginal persons were given the option of Treaty or Scrip (TAAR 1981). The selection of reserves, one of the rights under the Treaty, was an extended process. The last of the reserves of the ACFN were not finalized until 1935. Specific claims that included land entitlements were signed with the MCFN in 1986 and the FMFN in 2005.
- Canada and Alberta established the Wood Buffalo National Park in 1922 and expanded it in 1926, leading to, among other things, broad restrictions in the affected areas for Métis hunters and trappers, restrictions on bison hunting for First Nations people, and restrictions on Aboriginal persons not resident in the Park at its creation. Park regulations generally restricted hunting and trapping by Aboriginal people until the mid 2000s, when a Supreme Court decision helped end most hunting restrictions.[2] Areas outside the Wood Buffalo National Park became subject to a system of trapping licenses instituted by Alberta in 1937 (Larcombe 2012).
- The first school in the region in Fort Chipewyan dates back to 1874 and has been under the jurisdiction of the Department of Indian Affairs (now Aboriginal Affairs and Northern Development) since 1959. Generally, the concentration of educational opportunities and other government services contributed to a movement of Aboriginal people to Fort Chipewyan, Fort McKay and Fort McMurray. This process was largely complete by the late 1960s.
- Alberta has sold oil sands leases for large tracts of the region since the mid 1950s. The mineral leasing process is the first step in the eventual development, subject to regulatory approvals of oil sands mines, in situ facilities and bitumen upgraders.
- The Province also prepared resource plans for Northeastern Alberta (1976, 1996) to provide a framework for orderly development of Northeast Alberta (AEP 1996; NARC 1976). Other relevant and more recent planning initiatives include the Alberta Oil Sands Sustainable Development Secretariat's: *Responsible Actions, A Plan for Alberta's Oil Sands* (Government of Alberta 2009); and *Athabasca Oil Sands Comprehensive Regional Infrastructure Sustainability Plan* (Government of Alberta 2011). Another

[1] Following the Riel and Northwest Rebellions, the Government of Canada sought to extinguish Métis rights to land using a paper mechanism called 'scrip'. Generally, each Métis head of household was offered a choice between two types of scrip: one which could be used to claim 160 acres of land, or one which was worth $160 that could be used towards the purchase of land. The head of household's children were given either a land scrip (worth 240 acres) or money scrip worth $240 towards the purchase of land (AFMSA 1972). Métis people who took scrip lost any Aboriginal rights to land, and Treaty Status Indians who took scrip (by proving Métis ancestry) lost their treaty status (Fort McMurray Métis Local #1935 2012).

[2] The 2005 Mikisew Cree decision found that Parks Canada had not properly consulted with the Mikisew Cree First Nation regarding a proposed winter road in Wood Buffalo National Park. It was the implications of this decision (the need to consult) that led to most existing regulations no longer being enforced.

important plan for the region is Alberta Environment and Sustainable Resource Development's *Lower Athabasca Regional Plan* (Government of Alberta 2012).

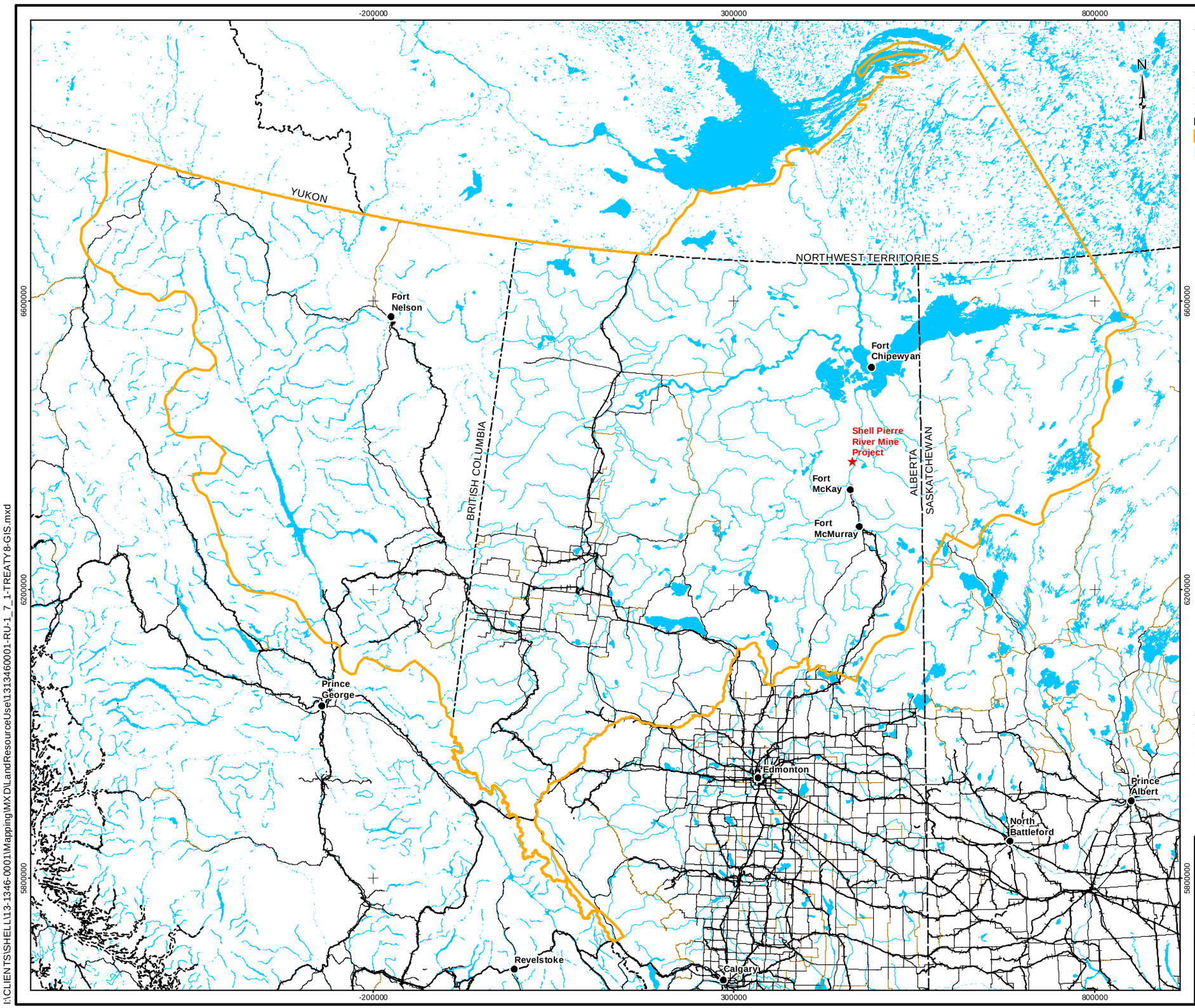
- Alberta created the RMWB in 1995, consolidating the then City of Fort McMurray with the Improvement District that covered most of the rural areas in the region.

1.7.4 Treaty 8

All First Nations in the region are signatories of Treaty No. 8 (Treaty 8). Treaty 8 consisted of a formal agreement between the Aboriginal people of northern Alberta, and the Government of Canada (representing the Crown), at the turn of the 20th Century (Figure 1.7-1). Although the agreement revolved around Aboriginal people's rights to hunt, trap, fish, harvest resources, and use the land, the Aboriginal and Euro-Canadian signatories of the Treaty may have had different interpretations of what the agreement meant, due to cultural and linguistic differences (Madill 1986; McCormack 2012b). According to a research report on Treaty 8 submitted by FMFN, the Crown entered into Treaty in order "…to acquire land and resources from Aboriginal occupants and thereby make that land available for residence and economic uses by non-Aboriginal people", in other words to "remove the Aboriginal ownership of the land, but through a legal and honorable process, today referred to as the 'honour of the Crown'" (McCormack 2012b). According to McCormack (2012), "The treaties were also part of the assimilation policy of the government since the 1830s, which was intended to assist and, at times, to force, Aboriginal people to transform their ways of life to a Euro-Canadian pattern, which was predicated on a trio of traits: agriculture, sedentary residence, and Christianity." Therefore, to be culturally sensitive, special attention is required in today's context when interpreting the Treaty (McCormack 2012b).

Treaty 8 was first negotiated in Northern Alberta in 1889, and was later renegotiated in 1899 and 1900. During each instance the Aboriginal signatories of the Treaty emphasized to the Treaty commissioners that their freedom to use land should not be jeopardized or limited (McCormack 2012b). As a result, Aboriginal groups today assert that Treaty rights to use land must include incidental rights related to environmental protection, so that the land base and natural resources which are required for the meaningful practice of TLU (harvesting, cultural and spiritual uses of the land) will be available to Aboriginal people now and in the future (ACFN 2012). This assertion is a reflection of the expressed fundamental importance of incidental activities and conditions to the meaningful practice of Treaty rights. According to the Indian Claims Commission (March 1998, cited in ACFN 2012): "In our view, no reasonable interpretation of Treaty 8 could allow either the Government of Canada or a provincial government to destroy the ability of a First Nation to exercise its treaty harvesting rights or to alter fundamentally the environment upon which those activities were based."

Incidental rights, as described by ACFN (2012), include tangible elements of the ecosystem such as sufficient water quality and quantity, and sufficient quality and quantity of traditional resources such as berry crops, medicines and timber, among other resources in preferred harvesting areas. Incidental rights also include intangible elements such as a sense of spiritual connection to the land, the experience of solitude and remoteness on the land, and social institutions connected to the land, such as sharing. Incidental rights also include access and transportation routes within traditional territories, the right to construct shelters, and safety (ACFN 2012). These rights also include future generations' ability to learn traditional knowledge. Therefore, a common interpretation of Treaty 8 is that the cumulative effects of development should not compromise the ability of future generations to be on the land and learn from their Elders (ACFN 2012). The entitlements of Treaty 8 also secure the protection of Aboriginal rights to use and occupy traditional lands *in perpetuity* (ACFN 2012, original emphasis).



LEGEND

- PROJECT LOCATION
- SETTLEMENT
- PAVED ROAD
- UNPAVED ROAD
- RAILWAY
- PROVINCIAL BOUNDARY
- TREATY 8 AREA
- OPEN WATER

REFERENCE

ALBERTA DIGITAL BASE DATA OBTAINED FROM ALTALIS LTD. © GOVERNMENT OF ALBERTA 2013. PROVINCIAL BOUNDARY OBTAINED FROM IHS ENERGY INC. TRANSPORTATION DATASETS OBTAINED FROM CANVEC © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. HYDROLOGY DATA OBTAINED FROM IHS ENERGY INC.
DATUM: NAD83 PROJECTION: UTM ZONE 12N

200 0 200
SCALE 1:5,250,000 KILOMETRES

PROJECT
PIERRE RIVER MINE PROJECT

TITLE
TREATY 8 MAP

Shell Canada Limited

PROJECT	13-1346-0001		FILE No.	
DESIGN	BB	12 May 2013	SCALE AS SHOWN	REV. 0
GIS	SB	20 Jun 2013		
CHECK	LH	13 Jun 2013		
REVIEW	WES	13 Jun 2013		

FIGURE: 1.7-1

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The Treaty system has affected Aboriginal culture in the region. For example, the MCFN formed when Cree and Chipewyan people from the Fort Chipewyan region came together to enter into Treaty under the framework of the Indian Act in 1889. There was no entity that could be called the Cree Band until after the signing of Treaty 8 in 1899 (McCormack 2010a). The legacy of this agreement is observed today. Candler et al. (2012a) reports that "in work with the MCFN members and Elders, Treaty 8 is consistently held up as a vital and foundational document that forms the basis for a relationship between Aboriginal and non-Aboriginal peoples based on reconciliation, sharing, and protection of MCFN cultural and economic livelihood in relation to all lands and waters covered by the Treaty".

However, in today's context, the problematic nature of the implementation of Treaty 8 becomes more apparent. The Treaty 8 Commissioners' report, cited in McCormack (2012b), stated that the Treaty commissioners had "assured" the northern Aboriginal people that they would not be forced to live on reserves and that "they would be as free to hunt and fish after the treaty as they would be if they never entered into it" (McCormack 2012b). At the same time that these assurances were made, the Crown also "secured the right to 'take up' lands from time to time under the Treaty[3]" (ACFN 2012), although what that would actually mean in the future was not clear at the time, as "in 1899, the Treaty Commissioners believed that the north was a wilderness that was unlikely to be settled by farmers or exploited for its mineral wealth for a very long time to come" (McCormack 2012b). While the future implications of the discovery of bitumen resources in northern Alberta would come to play a role in the interpretation of Treaty 8, the problematic nature of the Treaty was already present in the intended land use envisioned by the federal government at the time the Treaty was signed (i.e., agriculture) (Irwin 1999-2000). McCormack (2012b) writes:

> *While they promised reserves as part of the treaty, the Commissioners were very clear about the fact that Indians would not be forced to live on them if they chose not to do so and that they would be free to continue their traditional way of life, based on hunting, fishing, trapping, and gathering. The treaty also provided for land in severalty, which was a form of land holding that recognized the pattern of small group residence (the local bands) that characterized the region. Both reserves and lands in severalty were intended for personal settlement and/or agrarian activities (farming and stock rearing). They were not intended to provide the land base that was needed to support continued hunting, fishing, trapping, and gathering - the fur trade mode of production. The Commissioners believed that the lands of the north that had been ceded in the treaty would continue to provide into the future all the land base needed by the Indians for their traditional activities. The Commissioners considered the lands of the Lesser Slave Lake and Peace River areas to be the primary lands suitable for eventual agrarian activities for newcomers and for Indians who might one day choose to adopt this alternate or supplementary way of life.*

Therefore, while the rights of Aboriginal people to practice their traditional way of life on the land was assured by the Treaty, the land use planning of the Crown, and later the resource development strategies approved by the government, have been observed by Aboriginal groups to be at odds with the stated intention or "spirit" of the Treaty (Daniel 1979). Some Aboriginal people interpret their Treaty rights based on the integrity of the land and resource base and certain conditions (i.e., incidental rights) required to practice their rights. Today as part of Alberta's Environmental Assessment process, the province requires proponents to include a TLU assessment in their applications. The TLU assessments are used to determine if Aboriginal rights to hunt, fish, trap, and gather

[3] This right to take up land was, however, tempered by the Crown's duty to consult with Treaty 8 First Nations, and accommodate their interests (ACFN 2012).

could be affected by the PRM, and if so, how these effects may be mitigated. Federally, the *Canadian Environmental Assessment Act 2012* (Section 5(c)) requires that with respect to Aboriginal peoples, effects occurring in Canada of any changes that may be caused to the environment on physical and cultural heritage and the current use of lands and resources for traditional purposes must be taken into account in an Environmental Assessment.

1.8 Aboriginal Groups

The five First Nations and Métis groups within the region north of Fort McMurray that continue to practice TLU are the following:

- Fort McKay First Nation;
- Fort McMurray #468 First Nation;
- Athabasca Chipewyan First Nation;
- Mikisew Cree First Nation; and
- Métis locals 125, 63, and 1935.

The ancestors of First Nations and Métis groups resided in what is now referred to as the Oil Sands Region for over a millennia. During the 18th and early 19th centuries, the fur trade prompted many Aboriginal people to settle close to trading posts. Some wed European fur traders, thereby creating the people that would come to identify as the Métis. In 1899, various Aboriginal groups, including the precursor bands to the Fort McKay First Nation, Mikisew Cree First Nation, Athabasca Chipewyan First Nation and Fort McMurray #468 First Nation signed Treaty 8. Today (2013), many First Nations, non-status Aboriginal and Métis people still reside in the Oil Sands Region, whether on reserve lands, or in other communities such as Fort McMurray, Fort McKay and Fort Chipewyan. In the RMWB, the Aboriginal population represents approximately 10% of the total population (Statistics Canada 2013a). In Alberta, the Aboriginal population is approximately 6% of the total population (Statistics Canada 2013b)[4].

The Aboriginal population has high rates of participation and employment in the wage economy (relative to Aboriginal populations in comparable communities in the province) (Statistics Canada 2013b), and First Nations have businesses that serve the oil sands industry (Northern Alberta Aboriginal Business Association n.d.). Many oil sands companies, including Shell, have local and Aboriginal procurement policies that influence hiring and contracting decisions. A discussion of the socio-economic effects of the oil sands on Aboriginal groups is provided in Appendix 8.0 of this submission. Participation in the wage economy can provide disposable income that may be used in the pursuit of traditional activities (e.g., to purchase transportation and equipment) but has also been cited as constraining the time available to be out on the land (Fort McKay IRC 2009). The total Aboriginal population of the RMWB (off-reserve) currently at 6,315 has increased by about 23% (1,185 people) between 2001 and 2011 (Statistics Canada 2002; 2013a)[5].

[4] It should be noted that the estimates of the RMWB Aboriginal population may be conservative, as, during the 2011 census, 36 Indian Reserves were not completely enumerated. The provincial Aboriginal population estimate is similarly conservative due to incomplete enumeration of Indian Reserve Populations.

[5] As noted in footnote 4, the 2011 census Aboriginal population for the RMWB includes a portion of the on-reserve Aboriginal population. Thus, the Aboriginal population increase of 23% is approximate.

1.8.1 Fort McKay First Nation and Fort McMurray #468 First Nation

Fort McKay First Nation (FMFN) and Fort McMurray #468 First Nation (FM468) as they are known today were originally one band, the Cree-Chipewyan Band. In 1820, the Hudson Bay Company established Fort McKay as a trading post near the present town site. Cree and Chipewyan (Dene) people began to settle in the area around the fort and around Fort McMurray, and to trade with European traders. In 1899, 106 Cree and Dene people were brought together by Treaty 8 to form the Cree-Chipewyan Band of Fort McMurray, which included the Fort McKay, Fort McMurray, Janvier and Portage La Loche groups (Indian Claims Commission 1995). Despite the formation of one Cree-Chipewyan Band, the Chipewyans of Fort McKay and the Cree of Fort McMurray were distinct in terms of language, ancestry, residence, traditional hunting lands and contacts with other centres.

In 1899, Band composition was unclear. Some people were not known to the Treaty 8 Commissioners, and so were not assigned to any Band. Between 1915 and 1963 an additional 54 people were transferred into the Band by the Canadian government in recognition that the Band affiliation of these individuals had been incorrectly recorded by the Indian agent at the turn of the century (Indian Claims Commission 1995). The Portage La Loche and Janvier groups were removed from the Cree-Chipewyan Band of Fort McMurray in 1925 and 1941, respectively, leaving, in 1941, 96 people from Fort McMurray and Fort McKay. In 1942, these two groups functionally split to form the Fort McMurray #468 and Fort McKay Bands (Athabasca Tribal Council 2009). This split was formally recognized by the Government of Canada in 1954 (Indian Claims Commission 1995). These two Bands would eventually form the FMFN and the FM468 in 1942 (Labour et al. 2012).

The FMFN had 778 members of Cree and Dene heritage in 2013 (AANDC 2013c). Over half of the population (392 people) resides on reserve (Fort McKay 174, 174c and 174d, and Namur Lake 174a and b), or on other Crown land. The remaining population (386 people) resides off reserve (AANDC 2013c). Recently, the FMFN have invested in housing improvements and new housing developments on-reserve, which prompted many off-reserve members to relocate to FMFN reserves, thereby increasing the on-reserve population. The FMFN membership has increased 57% (283) in 13 years. Unlike MCFN, ACFN, and FM468 (below), growth rates for the on-reserve and off-reserve population of the FMFN are similar but still higher in the off-reserve population. In the past 13 years the off-reserve population has increased by 155 people (67%) and the on-reserve population has increased by 128 people (48%). Off-reserve population growth also tends to outpace on-reserve population growth in many rural parts of the country and is a general indicator of the urbanization trend (i.e., Aboriginal people leaving rural areas to live in towns or urban areas). Recent population trends for the FMFN are shown in Attachment B.

In 2013, the registered population of the FM468 was 688 (AANDC 2013d). Of this number, 39% (270 people) reside on reserves (Clearwater 175, Gregoire Lake 176, 176a and 176b) or other Crown land, while the remaining population (418 people) lives off reserve, primarily in Fort McMurray (AANDC 2013d; McCormack 2010). The FM468 membership has increased by 29% (156) in 13 years. As is the case regarding membership in other First Nations in the region, the FM468 on-reserve population has grown more slowly (16% or 38 people) than the off-reserve population (39% or 118 people). Recent population trends for the FM468 are shown in Attachment B.

1.8.2 Mikisew Cree First Nation

The Mikisew Cree First Nation (MCFN) population is of the Western Woods Cree cultural group. By the late 19th century, many Cree were living in the vicinity of Fort Chipewyan (MCFN 2012a). In 1899, Treaty 8 brought these people together into two bands (the Chipewyan and the Cree) with a combined population of 186. The

Chipewyan Band was subsumed into the Cree Band in 1946, forming the Cree Band of Fort McKay. The unified band experienced population growth in 1985 when an 'inclusive' membership code was adopted that allowed band members who had been involuntarily disenfranchised under the *Indian Act* (i.e., women who married outside of their bands or others who were classified as part of a different band while maintaining Cree identity), and their descendants, to rejoin the Band (McCormack 2010a). In 1992, the Band adopted the formal name Mikisew Cree First Nation.

As of 2013, the MCFN had a population of 2,865 members (AANDC 2013b). The majority (73% or 2,081 people) of this population lives off reserve. The remaining (27% or 784) population lives on reserves north of Fort Chipewyan (Allison Bay 219, Charles Lake 225, Collin Lake 223, Cornwall Lake 224, Devil's Gate 220, Dog Head 218, Old Fort 217, Peace Point 222 and Sandy Point 221) or on other Crown lands (AANDC 2013b). The MCFN's membership has increased by 31% (686) in 13 years. As is the case regarding ACFN's membership, the MCFN on reserve population has grown very little (8% or 56 people) compared to the off-reserve population (43% or 630 people). Recent population trends for the MCFN are shown in Attachment B.

1.8.3 Athabasca Chipewyan First Nation

The Athabasca Chipewyan First Nation (ACFN) population is of the *Dene Suliné* cultural group, and identifies as the *K'ái Tailé Dene* (meaning "Flat Willow" or "Delta Dene") (ACFN 2003a, pp. 27 and 45). During the 18th and 19th centuries, fur trading out of Fort Chipewyan resulted in many Chipewyan people relocating and establishing permanent settlements near the Fort (Indian Claims Commission 1998). In 1899, Treaty 8 brought together Chipewyan peoples in the region to form the Athabasca Chipewyan Band (ACFN 2003b).

The ACFN population lived, largely, off the land in the early 20th century. Following the establishment of Alberta as a province in 1905, provincial game legislations were introduced (Larcombe 2012). Trapper permitting and licensing was implemented in the 1920s and the Registered Fur Management Area (RFMAs) system was introduced in the 1940s (Indian Claims Commission 1998; MacDonald 2012). While informal agreements delineating trapping boundaries were in place prior to the early 20th century, the formalization of trapping in the province changed access to land used by Aboriginal peoples. Wood Buffalo Park was created in 1922, and the hunting of bison within the park's boundary became restricted (Larcombe 2012). Competition from non-Aboriginal hunters and trappers grew in this period with population growth in the region, and the continued activities of the Hudson Bay Company (Larcombe 2012). During the same period, wage-labour positions in growing towns became more prevalent (MacDonald 2012). The regulation of trapping and hunting, increased competition for resources and the availability of wage employment were some of the push and pull factors that lead people to places like Fort McKay, Fort Chipewyan and Fort McMurray (MacDonald 2012).

Effects on land accessibility and wildlife populations associated with the construction of the W.A.C. Bennett Dam (i.e., lowered water levels, subsequent changes in vegetation and wildlife abundance, and high-level flood flows at the Peace-Athabasca Delta) in 1968 further dislocated many Band members from reserve lands to Fort Chipewyan (Indian Claims Commission 1998; MacDonald 2012). Because of its severe economic and cultural impacts on the ACFN (MacDonald 2012), the Bennett Dam is an important historical event that gives context to ACFN views on development almost fifty years later.

The Athabasca Chipewyan Band would ultimately become the Athabasca Chipewyan First Nation, which, as of 2013, has a registered population of 1,082 (AANDC 2013a). Of the total 2013 population, 22% (240 people) live on reserves or other Crown lands, while the remaining 78% (842 people) live off reserve in Fort Chipewyan and

other communities (AANDC 2013a). The ACFN's membership has increased by 55% (385) in 13 years. Over that 13-year period, the on-reserve population has had little growth (9% or 19 people); growth is largely seen in the off-reserve population (77% or 366 people), many of whom may live in Fort McMurray. This suggests a similar off-reserve migration trend to MCFN. The modest on-reserve growth suggests out migration from the reserves; while the growth in the off-reserve population suggest in-migration to other communities such as Fort McMurray; however, there is no information available on where people move. It is likely that some young adults move to nearby towns for education and/or work. This suggests that people that move off-reserve may in large part still be living in urban centres in the region, Crown lands and on other reserves. Recent population trends for the ACFN are shown in Attachment B.

The ACFN reserve lands (Chipewyan IRs 201, 201a-g) are located along the shore of Lake Athabasca (201 and 201A), south of Fort Chipewyan (201b), around Richardson Lake (201c-e) and 30 to 40 km south of Embarras Portage, along the Athabasca River (201f and g) (Figure 1.6-1).

1.8.4 Métis Locals #125 (Fort Chipewyan), #63 (Fort McKay), #1935 (Fort McMurray)

The Métis people of Northern Alberta are the descendants of the Cree and Chipewyan (Dene) peoples, and European (primarily French and Scottish) traders. The Métis people were originally designated as "Treaty Status Indians" (Department of Northern Affairs and Natural Resources n.d.). From 1870 to 1925, the Government of Canada initiated a mechanism to award grants to Manitoba and Northwest Territories Métis in exchange for their Treaty status (Department of Northern Affairs and Natural Resources n.d.). This mechanism, known as Scrip, extended to the region of the Northwest Territories that would become Alberta in 1905 (Department of Northern Affairs and Natural Resources n.d.). Through the Scrip, the Métis were formally distinguished from First Nations. The Métis Association of Alberta was formed in 1932 to represent the interests and concerns of the Province's Métis population (Métis Nation of Alberta 2007). In 1936, following the recommendations of the Ewing Commission Report[6], the Province enacted the *Métis Betterment Act*, which mandated the establishment of Métis Settlements in Alberta (Métis Nation of Alberta 2007). Since 1936, the Métis of northeastern Alberta have come together into Métis Locals, which are governing organizations that promote and support the Métis community.

2.0 CONNECTING TRADITIONAL LAND USE, CULTURE, LIFESTYLE AND QUALITY OF LIFE

Effects on traditional lands and resources have implications for the retention and transmission of Aboriginal culture. Traditional use of the land for hunting, trapping, fishing, and plant gathering is arguably the cornerstone or foundation of Aboriginal culture (Fort McKay IRC 2010b; Larcombe 2012; Oostdam et. al. 2005 cited in Larcombe 2012). Observed changes to traditional lands, resources and access to lands and resources important to Aboriginal people (i.e., tangible cultural elements) can bring about changes in land use patterns and intensity. These changes can result in effects on intangible elements of Aboriginal culture, changes in passing on knowledge, changes in relationships (e.g., the role of Elders in the community), and may erode cultural knowledge and practice in communities over time. For example, avoidance of areas due to development may result in permanent loss of knowledge of this area that may not be replaced by shifting activities into "new" areas for which there may not be previous knowledge.

[6] The Ewing Commission was established to investigate the health, education and general welfare of the Métis population of Alberta (Government of Alberta n.d.).

Another way in which TLU practices and culture may be affected is through changes in economic norms and practice. For example, among the concerns expressed by Fort McKay are that the loss of land limits the opportunity for TLU and increases reliance on the wage economy (Fort McKay IRC 2009). Community members that participated in the Fort McKay Specific Assessment noted that reliance on the wage economy has changed the way they spend their time and who they spend their time with (i.e., less time on the land, and less time with Elders and the large community/more time with peers or immediate family members). At the root of this concern is that the choice to live off the land to any extent is diminishing and may no longer be an option in the future (Fort McKay IRC 2010a). The pace and extent of continued industry development near the community and on traditional lands is viewed as limiting people's ability to control how they will live and make a living. It is in this way (and others) that effects on TLU and culture can have implications for quality of life in a community.

Cultural erosion or cultural change can have implications for quality of life in several ways, including effects on community cohesion (e.g., via in and out migration for employment and education, and changing relationships and roles among Elders, youth, men and women), the value system (e.g., sharing of resources and land stewardship, self-reliance through living off the land), feelings of disempowerment, marginalization and vulnerability, loss of pride in cultural identity and relationships with the land, and community health (avoidance of country food and fear of contamination) (Fort McKay IRC 2010a; Larcombe 2012).

The sections that follow describe the connections between effects on TLU and effects on culture, lifestyle and quality of life.

3.0 EFFECTS ON TRADITIONAL LAND USE

3.1 Meaningful Practice of Rights

Several "conditions" or incidental rights underlie how Aboriginal groups define the meaningful practice of rights (i.e., rights include traditional land uses such as hunting, trapping, fishing and gathering), including (but not limited to) the following:

a) access by preferred land and water routes (traditional trails) and modes of transportation;

b) access to preferred harvest locations;

c) access to spiritual sites to conduct associated practices;

d) availability of sufficient quality and quantity of preferred animals, fish, berries, plants, medicines and water in preferred harvest locations;

e) confidence that resources are safe for human consumption;

f) use and enjoyment of traditional lands free from noxious odours, pollution, noise and other nuisances;

g) lands and resources available and accessible within constraints of cost and time;

h) experience of remoteness and solitude on the land;

i) feeling safe and secure on the land;

j) instructing younger generations on the land (intergenerational transmission of language and knowledge);

k) construction of shelters on the land (including use of timber);

l) cultural and spiritual relationships with the land; and

m) socio-cultural institutions for sharing and reciprocity.

These above conditions have been paraphrased from evidence submissions, primarily ACFN (2012) but also Fort McKay (2012); Labour et al. (2012); MCFN (2012a); and MCFN (2012b). Taken together, these conditions define "meaningful" TLU and the quality of experience that is desirable for many Aboriginal groups and to which many ascribe specific rights, based on the interpreted intent of Treaty 8.

The sections below summarize effects observed by Aboriginal groups (i.e., effects that have been reported to affect traditional land use). Section 3.3 summarizes assessed effects that were predicted during the environmental assessment process on traditional land use.

3.2 Observed Effects Reported by Aboriginal Groups

Aboriginal groups have expressed concerns regarding the effects of industry on their ability to access traditional land use opportunities, on their ability to exercise Treaty and Aboriginal rights, and on their culture, quality of life, health and wellness. The impacts projected through the A Landscape Cumulative Effects Simulator (ALCES) modelling work commissioned by the government of Alberta and Fort McKay, and the wildlife surveys that Fort McKay has sponsored, as well as other data, predict that as a result of planned oil sands production, the land and resources within Fort McKay's traditional territory will likely not support traditional land use activity in the future (Fort McKay 2012). Similar assertions have been highlighted by the ACFN, MCFN and FM468 (ACFN 2012; MCFN 2012b). Observed effects have been grouped under the following headings: land base; water quantity; access; air, soil and water quality; noise, odour and visual effects; and preferred species quality, abundance and behavior. All of these effects are interconnected.

3.2.1 Land Base

Disturbance of land base has been identified as one of the 'three layers' to encroachment and alienation from traditional lands by the FM468 (Labour et al. 2012). The FMFN has described the central role which loss of land has in affecting availability of and access to traditional resources, and in adversely impacting the transmission of Aboriginal culture and knowledge:

> *The amount and location of land mined or otherwise … disturbed …. directly removes the wildlife and fish habitat, and trees and plants required to support Fort McKay's rights and culture. It also has indirect effects such as blocking access, displacing traditional land use activities to remote and less desirable locations. Indirect effects on wildlife include population reduction from habitat fragmentation, noise and increased harvesting by recreational hunters and fishers* (Fort McKay 2012).

The FMFN has also provided information which describes the extent to which existing land disturbance has affected traditional use berry sites, reported at 46% in 2007 (Fort McKay 2012). Similarly, the removal of lands intersecting traditional trails resulted in a reported 24% direct loss of trails, and FMFN suggests that this number falls far below the actual loss due to loss of access to remaining sections of the trails (Fort McKay 2012).

The impact of removal or alteration of traditional lands on TLU reaches into the Far Future with regard to Aboriginal cultural heritage (Fort McKay 2012). This stated effect is due to the time required for successful reclamation (i.e., 25 to 50 years or two to three generations of Aboriginal members). Over time the knowledge of these lands is lost and cannot be reclaimed with the landscape. The current practice of proposing reclamation

as a form of mitigation for disturbance creates additional concerns regarding the technological capability in reclaiming certain landscapes, such as peatlands, the often dramatically altered nature of reclaimed landscapes, and because reclamation does not account for irreplaceable intangible aspects of the land (i.e., spirit of the land) (Fort McKay 2010). Members of FM468 have expressed the importance of being able to show their descendants a traditional way of life and expressed concerns that this is becoming more difficult (Labour et al. 2012). This intergenerational transmission of language and knowledge is intimately connected with traditional lands, and the loss of access to or alteration of lands or waters will likely interrupt this transmission. Due to concerns regarding the outcomes of reclamation, increasingly, Aboriginal groups have asked to be involved in reclamation planning. Shell is willing to discuss with potentially affected Aboriginal groups how they can participate in reclamation programs with Shell.

The alteration of landscapes associated with reclamation is viewed by Aboriginal groups to affect their cultural and spiritual relationship with the land. The ACFN and MCFN have described how such concerns relate to the proposed South Redclay Lake:

> *While the [South Redclay Lake] may be able to create a physical fish habitat in the Redclay area, the project will not create a cultural landscape consistent with ACFN traditions of knowledge use…. Evidence from MCFN [and ACFN] Elders and land users suggests that this will permanently alter the cultural, historical, and sacred relationships that make the current landscape of Redclay Creek a living thing within the MCFN [and ACFN] oral tradition.* (Candler et al. 2011; Candler et al. 2012b).

3.2.2 Water Quantity

The Peace Athabasca Delta, the Athabasca River and its tributaries are integral to the undertaking of TLU by Aboriginal groups in the region. The Athabasca River provides both a major transportation corridor to access Reserve Lands and TLU areas, and provides habitat for the traditional resources harvested within the region (ACFN 2012; MCFN 2012b). The River and other tributaries are identified by the ACFN as Critical Waterway Zones and are described as being of importance to ACFN for hunting, transportation, as access zones and/or drinking water sources (Larcombe 2012, pp. 2-7). The ACFN and MCFN have described how essential water quantity is to the meaningful practice of Aboriginal Rights. Rivers provide preferred access to hunting grounds, where moose and other animals congregate near the water, and while moose are reported to avoid the heavily travelled Athabasca River, they are still accessible through side channels (Candler et al. 2010). Boats also provide an efficient way to transport harvested meat back to a community (Candler et al. 2010).

Aboriginal groups have observed that travel on the Athabasca River is vulnerable to low water conditions. Low water levels affect the navigability of the river, and increase time, costs and risks associated with travel along the river. Low water levels also impede access to TLU areas (Candler et. al. 2012b). The observed reduction in water levels has been attributed to a multitude of factors including the withdrawal of water for oil sands operations (Candler et al. 2010). Other factors that continue to contribute to low water levels in the Athabasca River (and noted during the JME Hearing) include the W.A.C. Bennett Dam in northeastern BC (Realtime 2012 [Volume 9, pp. 1976 (master document); Volume 12, pp. 2918 and 2956]), changes in precipitation (Realtime 2012 [Volume 10, pp. 2313]), and that the dredging of the Lower Athabasca River was halted in the 1990s, which has allowed sand bars to form (AER and CEAA 2013, pp. 298; Realtime 2012 [Volume 14, pp. 3681-3682]).

3.2.3 Access

Development can limit access through the implementation of gates, barriers, exclusions and restrictions, and also expand accessible areas through increased ease of travel along linear disturbance routes. Access and availability has been identified as one of the 'three layers' to encroachment and alienation from traditional lands by the FM468 (Labour et al. 2012). Access effects on TLU have also been complicated due to the increasing non-Aboriginal population within the region. These factors have resulted in concerns regarding increased competition for harvested species, increased presence of motorized vehicles in the backcountry, and increased disturbance of resources (Candler et al. 2012b, Labour et al. 2012). Members of the FM468 have expressed how these concerns have greatly impacted their harvesting success within the region (Labour et al. 2012).

"The sense that the oil industry is the only employment option in the community has led some ACFN members to feel mental stress; experience social and cultural conflicts in the workplace; feel limitation in their options for meaningful work; feel powerless to control their futures; and experience a dissociation from traditional culture" (MacDonald 2012, Extended Summary, Cultural Effects of Changes on the Land).

The increased presence of other land users and vehicle traffic has increased safety and security concerns while undertaking TLU activities. There have been reports of altercations between recreational and traditional hunters, and damage to traditionally used cabins and traplines (Fort McKay IRC 2010b). MacDonald (2012) has described how increased vehicle traffic on the winter road between Fort Chipewyan and Fort McMurray and on Highway 63 is considered to increase the risk to personal health and safety.

3.2.4 Air, Soil and Water Quality

Contamination has been identified as another one of the 'three layers' to encroachment and alienation from traditional lands by the FM468 (Labour et al. 2012). Concerns regarding industry pollution affecting air, soil and water quality, and aquatic and terrestrial resources have been expressed by Aboriginal groups. Particular areas within the region, generally considered the area south of the Firebag River and along the Athabasca River, are considered by some individuals to be contaminated at a level beyond the usable threshold for traditional harvesting. Any additional development north of this area is viewed as likely to expand this area of avoidance (Candler et. al. 2012b). Quality and contamination concerns, especially in combination with other impact pathways, are changing the patterns of country food harvest and consumption, particularly with respect to certain resources (MacDonald 2012). For example, in some instances, this can adversely affect ACFN members' ability to depend upon and enjoy country foods for their subsistence (MacDonald 2012). Candler et al. (2012b) reported instances of moose being shot, but left on the land due to observed abnormalities by the harvester and of the impacts reported by ACFN land users of contamination concerns adversely affecting the ability for meaningful practice of Aboriginal and Treaty rights within the Athabasca River corridor.

Air, soil and water quality are also connected to the abundance, behavior and quality of traditionally harvested resources discussed in Section 3.2.6. Abnormalities in fish, changes in the meat of game, and reduction in the quality of berries have all been attributed to industrial pollution (Labour et al. 2012). Many members of the ACFN have reported that they avoid drinking the water or consuming the fish from the Athabasca River due to pollution concerns (Candler et. al. 2012b).

3.2.5 Noise, Odour and Visual Effects

Concerns about air, soil and water contamination are related to noise, odour and visual effects. An FMFN Elder spoke of her concern about odour and the resulting fear regarding health effects: "*I don't like that smell. I know*

it's in the air" (Labour et al. 2012, pp. 17). Although odour has often been considered a nuisance rather than a health effect, chronic odours may become a burden on community well-being which may lead to stress with the potential for associated health effects (Fort McKay 2012; Royal Society of Canada Expert Panel 2010). FMFN members have also asserted that their common law rights include the use and enjoyment of traditional lands free from noxious odours, pollution, noise and other nuisances.

Avoidance of traplines due to noise, dust, odours and traffic has been reported by FMFN trappers, and noise has also been reported to indirectly affect wildlife distribution in the region (Fort McKay 2012). ACFN and MCFN members have also reported that moose tend to avoid the banks facing the main channel of the Athabasca River because of regular boat traffic and noise along the main channel (Candler et al. 2010, pp. 40). Candler et al. 2010, also note that access to moose is difficult due to frequent low water level conditions. This combination of factors increases difficulty in harvesting moose along the river and lower reaches of tributaries.

The presence of industrial projects and the increased populations now accessing traditional lands contribute to feelings of loss of remoteness or of a wilderness experience. A FM468 Elder explained their feelings regarding development within the region: "*These plants that are coming in? Me – I feel crowded. Got nothing, crowded here. …Squashed in. Nowhere to hunt, nothing…. That's how I feel, me anyway*" (Labour et al. 2012, pp. 14).

3.2.6 Preferred Species Quality, Abundance and Behaviour

The availability of sufficient quality and quantity preferred animals, fish, plants, medicines and water in preferred harvest locations are of concern. The ACFN has described how disturbed areas cease to have utility for traditional land users because the animals and plants are not in the locations they were formerly known to be found or they are not in sufficient numbers to support efficient and successful harvesting activity (Larcombe 2012). "ALCES modelling conducted for the government of Alberta … and for Fort McKay indicates that at the current rate of oil sands development, severe declines in wildlife populations will occur" (Fort McKay 2012, pp. 14).

This concern reflects not only the existing cumulative impacts of development within the region but was also specifically emphasized for the PRM. The ACFN noted that the PRM will adversely impact bison and moose populations who currently use areas of the Local Study Area (LSA) as a movement corridor between the Birch Mountains and the Athabasca River (Candler et al. 2012b). Traditional plants, berries and medicines are impacted through direct removal, or through reduced yields felt to be a result of water quantity issues or other industrial effects (Fort McKay 2012). Game, fish and furbearers are affected through habitat loss, movement barriers and disruption. Existing population declines in lynx, beaver, fish and marten have been observed by FMFN members and are attributed to habitat loss (Fort McKay 2012). Changes in wildlife populations, behavior or quality as a resource all impact the harvesting patterns of traditional land users.

Several FM468 members noted that they now travel long distances to harvest traditional foods which they believe to be safe to eat and free from contamination (Labour et al. 2012). Additional observed pressures resulting in the avoidance of areas and possible repositioning of traditional land users include access limitations, safety concerns, cost and time constraints, and lack of knowledge of more remote or undisturbed areas in which to practice traditional land uses (Candler et al. 2010; Fort McKay 2010; Labour et al. 2012; Larcombe 2012).

While ACFN members might agree that animals may disperse to less disturbed areas of the region, many of the less disturbed areas are reported in Candler (et. al. 2010) as not accessible to ACFN members by boat, and the cost of air charters and additional time involved to get to more remote locales can be prohibitive for some

families (Larcombe 2012). Cost and time constraints for traditional land use are a broader concern of other Aboriginal groups as well. As a way of acknowledging and responding to this broader concern, Fort McKay community members that want to access traditional lands west of the community (i.e., Moose Lake reserves) can arrange chartered flights sponsored by Suncor. Increased costs and time associated with greater travel to access traditional areas limits who will undertake traditional harvesting and may impede the transmission of traditional knowledge and use to younger generations. Similarly, reduced harvesting yields, either from unsuccessful harvesting trips, or through fewer number of harvesting trips being undertaken, can affect traditional land users' ability to share their yields within their communities.

The ACFN highlighted how the lack of closely accessible and high-quality harvesting locations can affect social-cultural institutions within the community: "The psycho-social impacts of cultural losses suffered through changes to the land include a general sense of alienation from traditional land, a loss of hope for the sustenance of traditional culture over time, and the disruption of traditional family and community structures" (MacDonald 2012, Extended Summary, Cultural Effects of Changes on the Land).

3.2.7 Responses to Observed Effects

Larcombe (2012) described specific direct impacts under three themes (displacement, avoidance or abandonment, and adaptation) and then discussed secondary impacts in terms of economic, socio-cultural and physical and psychological health implications. Responses to observed effects on traditional land use and resources may be categorized into these three themes:

- Displacement: circumstances where Aboriginal people have been alienated by access prohibitions or restrictions on harvesting particular resources. It also includes circumstances where the productivity for traditional harvesting has been diminished to the extent that the area no longer holds utility.
- Avoidance and abandonment: cessation of use of a particular resource or geographic area due to concerns about the quantity or quality of available resources.
- Adaptation: changes in actions or behaviours as a means of mitigating encroachment impacts.

Effects associated with displacement, avoidance or abandonment, and adaptation are described in terms of cultural effects and quality of life effects (Section 4.0).

3.3 Assessed Effects on Traditional Land Use

The sections that follow summarize effects on TLU that have been assessed as part of the responses to JRP SIR 5 and SIR 8 provided in Appendix 1, Section 5.1 and Appendix 2, Section 2.5.1 and 3.5.1 of this submission. The results compare the pre-development baseline (i.e., PIC) to the 2013 Base Case, 2013 PRM Application Case and 2013 PDC before and after reclamation. Additional effects relating to noise, odour and visual effects were described specifically for this SIR based on the results of the most recent JME and PRM assessments and SIR responses.

3.3.1 Summary of Traditional Land Use Assessment Results

For the purpose of the TLU Assessment (Appendix 2: SIR 8), effects to TLU include effects to traditional hunting, trapping, fishing, and plant and berry gathering. These elements of TLU were addressed separately for each of the directly affected Aboriginal groups.

The 2013 PDC considers changes in disturbance areas compared to the 2013 PRM Application Case. Assessment methods for the 2013 PDC are described in Appendix 2: SIR 8, Section 3.5.1.1. Effects on TLU consider the effects on opportunities to conduct TLU plus possible added effects resulting from odour, noise and visual impacts, effects to human health, and individual or community responses to socio-economic factors. Effects on opportunities to conduct TLU are defined as a combination of the effects on resource base (i.e., plants and animals), disturbance to preferred harvesting areas, and effects to access of preferred harvesting areas. Detailed assessment methods for effects classifications are available in Appendix 2.

Effects of PRM on access for Traditional Land Users would be limited to access management through and within the PRM development area itself prior to site reclamation. The effect of PRM alone on traditional activities such as fishing, hunting, trapping and traditional plant gathering is not considered a likely significant adverse effect. Further details on effects to each Aboriginal group are described in the sections that follow.

3.3.1.1 The Community of Fort McKay

As a result of the high magnitude impact to traditional land use opportunities, and the additional effects of odours, noise, visual impacts and other socio-economic effects, the effects to hunting, trapping, fishing and plant and berry harvesting at 2013 PDC are assessed as negative in direction, high in magnitude, regional in extent, and long term in duration because they are expected to occur for longer than one Aboriginal generation. The effects are considered irreversible, because the length of duration is likely to interfere with the ability for associated traditional knowledge to be passed inter-generationally.

The effects to traditional hunting, trapping, fishing, and traditional plant and berry harvesting were each assessed as high magnitude under the 2013 PDC. Due to the location of PDC land and access disturbances in relation to the community of Fort McKay, the resulting impacts are likely to be experienced by the community as a whole and have resulted in fundamental effects to the community of Fort McKay's ability to undertake TLU activities. The effects of the 2013 PDC on Fort McKay's traditional land use is therefore considered significant.

Although the effects of the 2013 PDC on the traditional hunting, trapping, fishing and plant and berry harvesting activities are considered significant, the disturbances to Fort McKay's preferred harvesting areas have mostly occurred as a result of existing and approved development (i.e., 2013 Base Case). The PRM will develop about 3% of the land area of each of Fort McKay's preferred harvesting areas and the LSA does not overlap any RFMAs registered to Fort McKay community members. Given the location of the PRM, the footprint is expected to have a small effect on traditional trails used to access preferred harvesting areas. Therefore, on its own, the PRM's effects on the traditional harvesting activities are considered not significant.

3.3.1.2 Mikisew Cree First Nation

The 2013 PDC assessment determined that the effects to MCFN traditional hunting, and plant and berry harvesting within the RSA are adverse and high in magnitude. The effects to MCFN traditional fishing within the RSA were assessed as adverse and high in magnitude for MCFN members living in Fort McMurray or communities further south, and moderate in magnitude for MCFN members living in Fort Chipewyan. The effects on MCFN traditional trapping in the RSA were assessed as adverse and moderate in magnitude for the individual(s) trapping on RFMA #2892. As a result of the high magnitude impacts on traditional hunting, and plant harvesting, and on traditional fishing for MCFN members living in Fort McMurray, the effects of the 2013 PDC are considered significant for MCFN harvesting within the RSA.

While the effects of the 2013 PDC on MCFN traditional hunting, plant harvesting and fishing within the RSA were considered significant, the effects of the PRM on its own are considered not significant. The PRM footprint, when compared to the portion of the MCFN traditional territory that overlaps the RSA, represents 1%. The MCFN trapping areas within the RSA, represented by RFMA #2892, are located close to the northern boundary of the RSA and will not be affected by the PRM. On its own, the PRM is not expected to substantially effect access to other MCFN preferred harvesting areas in the RSA.

3.3.1.3 Athabasca Chipewyan First Nation

Effects on ACFN TLU are considered negative in direction, high in magnitude, regional in extent, long-term in duration and are considered irreversible. Due to effects assessed to the resource bases for TLU activities, preferred harvesting areas, access to preferred harvesting areas, effects to the air, noise and visual considerations and other social factors including responses to observed effects by the ACFN, the 2013 PDC is considered to have high magnitude effects for ACFN harvesting within the RSA. As a result of the high magnitude impacts to traditional harvesting the effects of the 2013 PDC are considered to have a fundamental effect on ACFN harvesting in the RSA, and are considered significant.

While the effects of the 2013 PDC on ACFN traditional harvesting activities within the RSA have been assessed as significant, the effects of the PRM, on its own, are considered not significant. Most of the PDC disturbances have been caused by existing and approved developments. On its own, the PRM represents 1% of the area of the RSA portion of the homeland Zone and 1% of the RSA portion of the Fort McKay and Fort McMurray proximate zones. Both the homeland zone and the proximate zones are defined in the TLU Assessment (Appendix 2: SIR 8). The PRM is not expected to have a substantial effect on ACFN access to preferred areas for harvesting within the RSA.

3.3.1.4 Fort McMurray #468 First Nation

The assessment determined that the 2013 PDC effects to FM468 traditional hunting, fishing, and plant and berry harvesting within the RSA are adverse and high in magnitude. The 2013 PDC effects to FM468 trapping in the RSA are assessed as adverse and moderate to high in magnitude. All effects were considered regional, long-term and irreversible. As a result of the high magnitude effects to FM468 traditional harvesting within the RSA, the effects are considered significant. While the effects of the 2013 PDC on traditional harvesting within the RSA are considered significant, most of the disturbances occur as a result of existing and approved developments (i.e., 2013 Base Case). The PRM is close to the northern boundary of FM468's traditional territories, and most of the traditional harvesting activities are located south of Fort McMurray and on the east side of the Athabasca River. As a result, the effects of the PRM, on its own, are considered not significant.

3.3.1.5 Fort Chipewyan Métis Local #125

The effects classification determined that the effects to traditional hunting, trapping and plant harvesting by members of Fort Chipewyan Métis Local #125 within the RSA were adverse and high in magnitude. The effects to traditional fishing were assessed as low. The high impacts are mostly the result of impacts to the use of RFMA #1275 by the Métis RFMA holders. The available information further indicated that the large majority of traditional land use by members of Fort Chipewyan Métis Local #125 occurs north of the RSA in the larger area around Fort Chipewyan. Because the impacts within the RSA are limited to a few individuals and the large majority of traditional land use occurs north of the RSA, the impacts of the 2013 PDC are not expected to fundamentally alter the ability of Fort Chipewyan Métis Local #125 members to practice traditional activities. As

a result, the effects of the 2013 PDC on harvesting by Fort Chipewyan Métis within the RSA are considered not significant. The effects of PRM on its own are also not considered significant.

3.3.1.6 Fort McMurray Métis

Regarding the components of TLU, the 2013 PDC is considered to have high magnitude effects on Fort McMurray Métis hunting, fishing and plant harvesting within the RSA. There is not enough information to assess the effects of the 2013 PDC on trapping by Fort McMurray Métis. As a result of the high magnitude and long duration effects to traditional hunting, fishing, and plant and berry harvesting, the effects of the 2013 PDC on Fort McMurray Métis harvesting in the RSA are considered significant.

Because of the small size of the PRM footprint in relation to the RSA and that most of the disturbance to traditional access within the RSA has been caused by existing and approved developments (i.e., the 2013 Base Case), the effects of the PRM on its own are not considered significant to Fort McMurray Métis TLU.

3.3.2 Additional Assessed Effects on Traditional Land Use

Direct Disturbance of Traditional Territories

The 2013 Base Case, 2013 PRM Application Case and 2013 PDC disturbance area and proportion of disturbance by footprint category within First Nation traditional territories are compared in Table 3.3-1. Placing a boundary around traditional lands or territories is problematic for Aboriginal groups, because it may be interpreted as limiting traditional rights and interests within the region. It is also problematic for Aboriginal groups to define traditional lands as having a specific boundary; lands that are used or considered important and lands that have historical importance may shift or change or be adapted to changes in TK over time. These traditional territories are very large; however, they cannot be assumed to indicate that TLU occurs throughout these territories in the same manner or intensity. Current traditional activities may be concentrated in specific areas. It is for these reasons that the total disturbance areas presented in Table 3.3-1 are not compared to the total area of each traditional territory. Detailed tables are available in Attachment C. The projects included in the 2013 Base Case and 2013 PDC are listed in Appendix 3.1.

Pre-Industrial Case disturbances include primarily the community of Fort McMurray which falls within each traditional territory except for that of the ACFN. These PIC disturbances total 1,557 ha. For the ACFN, PIC disturbance is considered to be zero.

Table 3.3-1 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Disturbance Area by Type in First Nation Traditional Territories

First Nation Traditional Territory[a] and Disturbance Type	2013 Base Case Disturbance		2013 PRM Application Case Disturbance		2013 Planned Development Case Disturbance		Change From 2013 Base Case to 2013 PDC		Change From 2013 PRM Application Case to 2013 PDC	
	[ha]	[%]	[ha]	[%]	[ha]	[%]	[ha]	[%]	[ha]	[%]
Fort McKay First Nation (3,520,397 ha)										
Oil sands and other oil and gas[b]	187,588.8	62.3	199,149.7	63.8	307,702.3	72.0	120,113.5	64.0	108,552.6	54.5
Forestry[c]	86,524.1	28.7	86,524.1	27.7	85,654.1	20.0	-870.0	-1.0	-870.0	-1.0
Linear access[d]	21,196.6	7.0	20,962.0	6.7	19,337.9	4.5	-1,858.7	-8.7	-1,624.1	-7.7
Other disturbances[e]	5,672.2	1.9	5,667.8	1.8	14,525.2	3.4	8,853.0	156.1	8,857.4	156.3
Total Disturbance	**300,981.6**	**100**	**312,303.5**	**100**	**427,219.4**	**100**	**126,237.8**	**41.9**	**114,915.9**	**36.8**
Mikisew Cree First Nation (8,634,755 ha)										
Oil sands and other oil and gas	196,997.6	49.9	208,558.5	51.3	306,238.4	59.2	109,240.8	55.5	97,679.9	46.8
Forestry	149,265.6	37.8	149,265.6	36.7	148,218.0	28.7	-1,047.6	-0.7	-1,047.6	-0.7
Linear access	36,722.3	9.3	36,487.7	9.0	34,825.8	6.7	-1,896.5	-5.2	-1,661.9	-4.6
Other disturbances	12,038.5	3.0	12,034.1	3.0	27,895.8	5.4	15,857.3	131.7	15,861.7	131.8
Total Disturbance	**395,024.0**	**100**	**406,345.9**	**100**	**517,178.0**	**100**	**122,154.0**	**30.9**	**110,832.1**	**27.3**
Athabasca Chipewyan First Nation (4,373,928 ha)										
Oil sands and other oil and gas	170,176.3	70.2	181,737.2	71.6	253,385.8	78.0	83,209.5	48.9	71,648.6	39.4
Forestry	55,742.7	23.0	55,742.7	22.0	55,496.4	17.1	-246.3	-0.4	-246.3	-0.4
Linear access	13,728.5	5.7	13,493.9	5.3	12,377.6	3.8	-1,350.9	-9.8	-1,116.3	-8.3
Other disturbances	2,855.3	1.2	2,850.9	1.1	3,571.3	1.1	716.0	25.1	720.4	25.3
Total Disturbance	**242,502.8**	**100**	**253,824.7**	**100**	**324,831.0**	**100**	**82,328.2**	**34.0**	**71,006.3**	**28.0**
Fort McMurray #468 First Nation (9,965,443 ha)										
Oil sands and other oil and gas	273,451.8	14.8	279,971.7	15.1	357,108.3	18.3	83,656.5	30.6	77,136.5	27.6
Forestry	363,600.3	19.6	363,600.3	19.6	362,759.0	18.6	-841.3	-0.2	-841.3	-0.2
Linear access	148,745.3	8.0	148,574.0	8.0	147,050.6	7.5	-1,694.7	-1.1	-1,523.4	1.0
Other disturbances	1,066,197.2	57.6	1,066,193.4	57.4	1,081,773.4	55.5	15,576.2	1.5%	15,580.1	1.5
Total Disturbance	**1,851,994.7**	**100**	**1,858,339.4**	**100**	**1,948,691.3**	**100**	**96,696.6**	**5.2**	**90,351.9**	**4.9**

[a] Does not include lands outside provincial boundaries.

[b] Includes mine developments, pipelines, well sites (active and inactive) and in situ development.

[c] Includes cutblocks.

[d] Includes cutlines, trails, seismic lines, roads, truck trail and railways.

[e] May include the following types of disturbances to varying degrees: municipalities, quarry, power and transmission lines, borrow pits, dugouts, sumps, rural residential/industrial, rural industrial site, clearings, disturbed vegetation, canals, cultivation, livestock operations, peat mine and man-made lakes.

Note: Some numbers are rounded for presentation purposes. Therefore, it may appear that the totals do not equal the sum of the individual values.

The disturbance results in Table 3.3-1 emphasize the relative importance of different types of disturbances in each of the First Nation traditional territories. Under the 2013 PRM Application Case, more than half of the disturbance in the FMFN (63.8%), MCFN (51.3%) and ACFN (71.6%) traditional territories is due to oil sands and other oil and gas development including pipelines. The 2013 PRM Application Case adds 11,322 ha of disturbance to the FMFN, MCFN and ACFN traditional territories, and 6,345 ha to the FM468 traditional territory, representing changes from the 2013 Base Case in overall disturbance of 3.8%, 2.9%, 4.7% and 0.3% in each respective territory. In the FM468 traditional territory, cultivation (included in the "other disturbances" category – 57.4% of disturbance) makes up more than half of the disturbances due to the more southerly orientation of this territory. Forestry disturbances are about one-fifth to one-third of disturbances within each territory, and linear access is generally less than 10% of the disturbances. Mapped linear access and other disturbances also decrease under the 2013 PRM Application Case scenario in all traditional territories, generally because they are replaced with oil sands developments. However, these linear access numbers do not include the increased numbers of low impact seismic lines which are being constructed for oil sands exploration.

Under the 2013 PDC, oil sands and other oil and gas development are the main source of changes in disturbance from the 2013 Base Case and 2013 PRM Application Case in each traditional territory. From the 2013 Base Case, this type of disturbance increases the most in the FMFN traditional territory (64.0% or 120,114 ha), followed by MCFN (55.5% or 109,241 ha), FM468 (30.6% or 83,657 ha) and ACFN (48.9% or 83,210 ha). Forestry disturbances and mapped linear access decrease under the 2013 PDC as well as the 2013 PRM Application Case. This is usually because these disturbances are replaced by oil sands facility disturbances. Although this result suggests that access does not improve in the traditional territories under either the 2013 PRM Application Case or 2013 PDC scenarios, these linear access numbers do not include low impact seismic lines created for oil sands exploration which are increasingly common across the RSA. This may mean that TLU and non-Aboriginal recreational and harvesting activities may become more ubiquitous across the RSA and more concentrated in undisturbed areas or areas away from oil sands facilities that remain accessible. This potentially increases the possibility of interactions of these growing populations within relatively smaller landscapes over time. While lands disturbed by linear access and forestry may remain partially or mostly available for TLU, oil sands and oil and gas disturbances may be considered less available for TLU by some Aboriginal harvesters. This may be because it is physically unavailable or because access is managed for safety reasons, or because Aboriginal groups may avoid these disturbed areas. It can be difficult to predict the locations of and degree of avoidance in particular areas based solely on the level or type of disturbance. For example, Aboriginal individuals reported during the JME hearing that there is continued use of the JME area despite it being surrounded by oil sands development. In addition, many Aboriginal hunters use seismic lines specifically to hunt. For whatever reason, these lands may not be considered available by some members of Aboriginal groups for the meaningful practice of rights until at least after reclamation. If members of Aboriginal groups avoid particular TLU areas for more than a generation into the future, then TK of these areas is likely to be lost to those that avoided them and those people that may continue to avoid them in the future.

There are no data available regarding the number of people who avoid or who use certain areas, only that effects on resources that support TLU (e.g., changes in access, factors affecting the wilderness experience and fear of contamination) can and has led to avoidance, displacement or adaptation to observed changes in the environment. Individuals will make their own decisions based on the information they have and their own assessment of personal risks and benefits.

Health Effects of the Avoidance of Country Food

A survey examining Aboriginal concerns regarding the safety of traditional foods conducted in the communities of Fort McKay, Conklin, Fort McMurray and Fort Chipewyan in 2007 indicated that most respondents (72%) were not concerned or a little concerned about their ability to get traditional foods, and 28% were extremely concerned about their ability to get traditional foods. More than half (57%) were extremely concerned about the safety of traditional food (Treefrog Research Corporation and Dialogos Educational Consultants 2007 cited in Orenstein et al. 2013).

The response to JRP SIR 60 describes the potential health implications of avoidance of country food due to concern of contamination. There is limited data available that speak to the health impacts of reduced wild meat consumption specific to Northern Alberta Aboriginal communities. Studies conducted in other jurisdictions indicate how a move away from traditional country foods towards a market diet that is high in energy, saturated fats and simple sugars, coupled with reduced physical activity (e.g., time spent on the land), can be linked to a rise in the prevalence of obesity and subsequently diabetes (Gittelson et al. 1998; Receveur et al. 1998; Thouez et al. 1989; Wein 1986; Young 1988).

These studies suggests that changes in community-specific patterns of traditional food consumption, namely through reduced reliance on wild foods, such as moose and fish, could affect the health of members of Aboriginal communities in the Oil Sands Region. Changes in diet may result from: (i) reduced access to traditional areas used for harvesting wild game, plants and fish; (ii) a decline in wildlife abundance in the region; and (iii) measured and/or perceived changes in the quality (or safety) of the country foods due to environmental contamination. While the PRM is not expected to adversely affect the quality of country food, it will result in direct loss of land that is available for hunting, trapping and plant gathering within the traditional territories of each First Nation. This loss of land (11,332 ha) is relatively small compared to 2013 Base Case disturbances.

A potential solution to the avoidance of country food may be community-based monitoring of the safety of traditional resources such as moose and fish. A recent report of the Alberta Environmental Monitoring Panel (2011) noted that Aboriginal groups in the Oil Sands Region expressed a keen desire to participate in a credible and transparent regional monitoring process – one that would involve Aboriginal groups in data collection, interpretation and evaluation, identification of knowledge gaps, governance and planning. However, the panel also noted a high level of cynicism and deep frustration about government and industry-led monitoring and regulatory processes because representatives felt that past processes had not given credence to their concerns regarding cumulative impacts of oil sands development, were adversarial, and did not engage them as equals in the management of Treaty Lands. Aboriginal representatives stressed the need for an open and transparent process that provided employment opportunities for youth centred on environmental stewardship and that the newly developed Canada-First Nation Joint Action Plan should examine the potential of community-based monitoring programs in Aboriginal communities in the oil sands.

Competition for Resources

A key concern among Aboriginal groups in the RMWB is that as the population of the region increases, the population of non-Aboriginal recreationists, hunters and anglers also increases. While reliable and recent data on the number of non-Aboriginal recreationists (e.g., snowmobiler and all-terrain vehicle riders), anglers or berry pickers active in the region is not available, there are data available regarding the number of hunters that have been active in the region in recent years. The observed effect of this population increase has been increased

competition for culturally important resources on a land-base because of increased access associated with ongoing industrial development.

The text below briefly summarizes recent resident (i.e., Albertan, non-Aboriginal) hunter and harvest trends for WMUs within the RMWB for large game: moose, white-tailed deer and black bear (Figure 1.6-1). Bison and wolf harvest data are not available, and resident hunters are not permitted to hunt caribou in this region. Non-Aboriginal hunting in Alberta is regulated by Alberta Sustainable Resource Development through hunting regulations which include harvest limits. Aboriginal harvest levels are not tracked by the provincial government or Aboriginal organizations. Detailed charts illustrating the trends described above are provided in Attachment D.

Moose

After a decline in moose harvests from 324 to 234 animals between 2007 and 2008, moose harvests in the RMWB have slowly increased from 234 to 285 animals, or an average of 5.1% per year. This trend was driven largely by harvest patterns in WMU 519, southwest of Fort McMurray, and WMU 530, northeast of Fort McMurray. Wildlife Management Units that have shown overall decline in moose harvests between 2007 and 2012 include WMU 512 (111 moose to 71 moose); WMU 517 (6 moose to 1 moose); WMU 529 (26 moose to 5 moose); and WMU 531 (40 moose to 13 moose). Hunter success and harvests in these areas may be declining as a result of possible declines in moose abundance in the region (Appendix 2: SIR 8, Section 3.4.3.1.1). Based on the predictions in the terrestrial assessment, moose populations will continue to be viable in the Terrestrial RSA. Harvests in WMU 518, west of Fort McMurray, increased from 21 to 61 moose and in WMU 532, by Fort Chipewyan, harvests varied from no moose in 2007 and 2009, 7 in 2008, and increased from 3 moose to 8 moose between 2010 and 2012. While trends for harvests and hunters tend to follow the same trend in each WMU, overall there has been a decline in the number of moose hunters in the RMWB, averaging 951 hunters between 2007 and 2009, and 733 hunters between 2010 and 2012.

Overall, in the RMWB, there were 0.9 moose hunters/100 km^2 in 2012[7]. The average hunter density between 2007 and 2012 was 1.0 moose hunters/100 km^2. In 2012, the WMUs with the highest concentration of moose hunters[8] were south of Fort McMurray, and included WMUs 512 and 519 (2.1 hunters/100 km^2 and 1.7 hunters/100 km^2 respectively) and WMU 518 (1.4 hunters/100 km^2). These WMUs are within the traditional territory of the FM468 and WMU 519 is also within the traditional territory of the MCFN.

White-Tailed Deer

Between 2007 and 2012, white-tailed deer harvests increased substantially from 184 animals to 796 animals (peaking in 2010 with 815 animals), or an average of 34.0% per year. The number of hunters also increased in the same manner from 621 hunters to 2,277 hunters or 29.7% per year. This trend was driven almost exclusively by hunting in WMUs 512 and 519 south of Fort McMurray, and to a lesser extent by WMUs 518 west of Fort McMurray. The number of harvests in the WMUs north of Fort McMurray has remained relatively stable averaging about 12 deer per year. The same trend applies for the number of hunters.

[7] Hunter density was calculated based on the total number of hunters recorded in each WMU over the total area of land within each WMU in the RMWB.

[8] These hunter densities are calculated based on the total area of each WMU in the RMWB and do not account for areas that are not available or accessible for hunting.

Overall, in the RMWB, there were 2.7 deer hunters/100 km^2 in 2012. This density of hunters has increased steadily since 2007 from less than 0.7 deer hunters/1,00 km^2.

Black Bear

Black bear harvest and hunters have been increasing in the RMWB but especially in WMUs 512 and 519. Other WMUs that have experienced increases include WMUs 518, 529 and 530. Other, more northerly WMUs have experienced stable harvests (531 and 532). WMU 517 has experienced a steeper decline in harvests from 15, 17 and 16 bears in 2007, 2009 and 2010, to only 3 bears harvested in 2011. The wildlife and wildlife habitat assessment (Appendix 2, Section 4.2.3.5.1) indicates that there may be a decline in black bears in the Terrestrial RSA. With the exception of WMUs 512 and 519, which have had bear hunter density increases to above 1 hunter/100 km^2, all other WMUs have hunter densities below 1 hunters/100 km^2. Overall, black bear hunter density in 2011 was 0.61 hunters/1,00 km^2 up from 0.36 hunters/1,00 km^2 in 2007 or 18.4% per year.

Overall Trends

The total number of harvests and hunters of large game have increased in recent years (with the exception of moose). Activity tends to be concentrated in more southerly WMUs, including 512 and 519 within the traditional territories of the FM468 and MCFN (WMU 519). Harvests in the region's WMUs in 2011 totalled 1,167 animals and the number of hunters was 3,518 or an average of 1 animal per 3 hunters. These data does not account for the possibility that one hunter may have hunted all three types of animals or in multiple WMUs in a given year and therefore, the total number of hunters may be an over-representation of the resident hunter population that was present in the RMWB in 2011. The density of hunters in the RMWB has also increased from 2.1 hunters/100 km^2 to 4.1 hunters/100 km^2 or an average of 13.9% per year. Again, the concentration of hunters tends to be in the southern parts of the region, especially in WMUs directly north and west of the Cold Lake Air Weapons Range (i.e., WMUs 512 with 17 hunters/100 km^2 and WMU 519 with 10 hunters/100 km^2 in 2011, see Attachment D and Figure 1), suggesting that some areas are used for non-Aboriginal hunting more than others. Hunter densities north of Fort McMurray (i.e., within WMUs 530, 531 and 532), for example, tend to be around 1.2 hunters/100 km^2. The potential for competition for resources is therefore not uniform within the region.

The increase in the number of resident hunters in the RMWB between 2007 and 2011 can be compared generally to regional population growth, while noting that population estimates for the RMWB include the First Nation population that does not require a hunting licence, that the term resident hunter applies to a resident of Alberta, and that a hunter active in the RMWB may not live there (Table 3.3-2). The non-Aboriginal hunter population of the RMWB is increasing with the population (increasing demand and competition with the Aboriginal population). Based on a comparison of the number of resident hunters in the RMWB and the total RMWB population, the percentage of the non-Aboriginal population that hunts is between 2% to 3% (Table 3.3-2). Overall harvests and hunters numbers in the region are increasing due to increasing activity in the south and increasing harvests of white-tailed deer. These data suggest the potential for increased competition for resources among Aboriginal and non-Aboriginal hunters, especially south of Fort McMurray.

Table 3.3-2 Comparison of Resident Hunter and Regional Municipality of Wood Buffalo Populations

Year	Resident Hunters	RMWB Population	Hunters % of RMWB Population
2007	1,836	88,131	2.1%
2009	3,268	103,334 (2008)	3.2%
2010	3,181	104,338	3.0%
2011	3,518	116,407 (2012)	3.0%
Average Annual Growth (%)			
2007 to 2011	17.7%	5.7%	9.3%

Sources: Government of Alberta 2013; RMWB 2007, 2008, 2010, 2012.

According to historical survey data of WMU 531 (surveyed 1994, 2001 and 2009) estimated moose populations have declined from a density as high as 0.10 moose/km^2 to 0.04 moose/km^2 in this 15-year period (ASRD 2009). In nearby WMUs, similar declines have been noted (i.e., WMU 529), but westerly units have been relatively stable (i.e., WMUs 519 and 512) (ASRD 2009). Wildlife modelling for the PRM suggests a slowly declining moose population in the terrestrial RSA (Wildlife Modelling, Appendix 3.7, Section 3.3.2).

Participants of the Cumulative Environment Management Association (CEMA)-sponsored Wildlife Movement Traditional Environmental Knowledge Workshop (FMA 2005) reported a decline in bear numbers over the previous 15 to 20 years, as a result of non-Aboriginal hunting, using bait and a decrease in food resources (EIA, Volume 5, Section 5.3.4). Trappers in the Terrestrial LSA hunted between 2 and 9 black bears per year between 2001 and 2006 and reported that black bears are heavily targeted by outfitters (EIA, Volume 5, Section 5.3.4). Wildlife modelling for the PRM suggests a slowly declining black bear population (Wildlife Modelling, Appendix 3.7, Section 3.3.1). Based on the predictions in the terrestrial assessment, black bear populations will continue to be viable in the Terrestrial RSA.

At one time, white-tailed deer were not found in the region (EIA, Volume 5, Section 5.3.1.2). However, recent changes to access, creation of open habitat from human settlement, milder winter weather, the absence of ungulate competition and scarcity of predators have been hypothesized to have resulted in increased white-tailed deer observations within the region (Dawe 2011; Latham et. al. 2011; Veitch 2001). This trend corresponds to an increase in hunting of white-tailed deer.

Noise, Odours and Visual Effects

While noise from industrial facilities in Alberta is required to be in compliance with Directive 038 (EUB 2007), this does not guarantee that someone engaged in traditional land use will not hear noises from a facility. Noise from oil sands developments has been cited by Aboriginal groups as a concern in that it affects the wilderness experience or sense of remoteness that is among the conditions used to define the meaningful practice of rights.

With this concern in mind, a noise assessment was completed to assess the audibility of oil sands development using Shell's 2013 PDC. A change in noise level of 3 decibels (dB) is generally accepted as the smallest that can be perceived by human beings (Cowan 1994); therefore, the exercise assumed that noise from oil sands facilities will be audible if it causes an increase of 3 dB or more in background noise levels. Background noise level was defined as noise from natural sources including wind, birds, insects and flowing water. There is no single background noise level that can be applied to the whole region or even a single location. Factors such as time of day and wind and weather conditions can cause large variations in background noise level affecting the

distance at which an oil sands facility may be audible. In other words, on quiet days, an oil sands facility may be heard for longer distances from the source than on windy, cloudy, or rainy days.

To complete the exercise a daytime background noise level of 45 dBA and a nighttime background noise level of 35 dBA were used in accordance with noise levels suggested by the Alberta Energy Regulator for remote areas (EUB 2007). Assuming that all industrial facilities in the Athabasca Oil Sands Region are compliant with Directive 038, an operating oil sands facility may be heard 0.9 km from its boundary during the day and 1.9 km from its boundary at night. Additional analysis was done to account for intermittent noise that would result from bird scare cannons, pile drivers and back-up alarms on large mining trucks. The results indicated that bird scare cannons and pile drivers may be heard about 4.0 km away and back-up alarms 1.0 km away from the source during the day under constant background noise level conditions. At night these distances increase to 6.7 km for bird cannons, 6.5 km for pile drivers and 2.1 km for back-up alarms.

Therefore, under certain background noise level conditions, industrial activity associated with oil sands developments may be heard up to 4.0 km away from the source during the day or 6.7 km away from the source at night. On quieter days or nights these distances could increase, and on days or nights when background noise levels are higher these distances may decrease.

Odour is another observed effect of oil sands developments that can affect the experience of remoteness or solitude while engaged in TLU activities. An odour assessment was conducted as part of the air quality assessment in the EIA, as amended. As part of this SIR response, a high level review of the predicted peak odour concentrations and frequencies was conducted for the communities of Fort McKay, Fort McMurray, Clearwater, Namur River and Poplar Point reserves and several cabins. In general, the results indicate that the frequency of detectable odours is typically less than 10% (876 hours per year) near emission sources and decreases with distance, and that odour is detectable within about 15 km of the sources.

In terms of visual disturbances, there is currently a significant amount of existing and approved development disturbance in the landscape related to a network of cutlines, well sites, pipelines, and oil sands operations. The key visual disturbances associated with the PRM are related to infrastructure (plant site facilities, stacks, water intake and bridge), mine landforms, and visible plumes and their combined effects with other planned projects in the area. In the EIA, these effects were determined to be concentrated along frequented corridors and important viewing locations for Aboriginal groups, (EIA, Volume 5 Section 8.5; RDI Resources Design Inc. 2002).

Current levels of planned development suggest the potential for visual disturbance, particularly along the Athabasca River north of Fort McKay and areas south of Namur Lake. Under the 2013 PDC, it may be possible to view multiple developments from single viewing locations. Visual impacts of mining landforms are anticipated to be minimal for cabins, communities, and trapping and hunting activities due to flat terrain and vegetative screening effects on visibility. Visual impacts of processing areas are anticipated to be more pronounced at certain sites along the Athabasca River due to closer proximity and an increased amount of vegetation clearing resulting in more viewing opportunities. The water intake is likely to be visible at sites along the water's edge. Plumes are expected to be the most visible element as they are widely dispersed and visible at any location with a view of the horizon, although forest cover limits views of the horizon from many locations. Plumes are most distinct in the winter. As distance from the Athabasca River and other localized development settings increases beyond 20 km, the likelihood of encountering visible development decreases appreciably. However, evident features such as active well sites and high-pressure pipelines are present in these more remote areas.

Taken together, noise, odour and visual effects could affect an experience of remoteness or wilderness at certain locales, which many individuals deem necessary for meaningful TLU practice. However, large areas will remain outside of these areas that are affected by noise, odour and visual effects. The practice of meaningful TLU is highly individual, area-specific and may or may not require some or all of the conditions discussed earlier in Section 3.1. These factors were taken into consideration in the assessment of effects on TLU (Section 3.3.1 and Appendix 2: SIR 8).

4.0 CULTURE, LIFESTYLE AND QUALITY OF LIFE EFFECTS

When describing regional cultural effects, it is not feasible to assess the relative contribution of one project in isolation. It is also not practical or realistic to consider the effects of one project separately from the cumulative effects experienced by each Aboriginal group. Culture, lifestyle and quality of life are not affected by one factor or one action but by the cumulative (current and historical) results of all projects, developments, practices and policies. This report focuses on the effects of oil sands development as a major driver of change in the region due to its direct and indirect observed and assessed effects on tangible elements of culture (i.e., the physical environment).

Aboriginal cultural heritage is inextricably linked to the land (the environment), and the values expressed and preserved through traditional land use (Fort McKay 2012). Traditional environmental knowledge, history and identity are linked to specific landscapes and locations. For example, as noted by Fort McKay (2012), even if reclamation was successful at restoring the pre-disturbance landscape and ecology, this would not occur for several generations thus affecting intergenerational knowledge transfer.

The cumulative effects of development on TLU in the Athabasca Oil Sands Region can affect the culture, lifestyle and quality of life in Aboriginal communities in many different ways. For example, taking up training and new economic opportunities has implications for traditional culture and quality of life. Income and rotational work (i.e., x days on/x days off) can provide resources and opportunities for harvesting; however a cultural shift can result in less practice of traditional activity, more use of English, and less commitment to the application of traditional values and knowledge. A reduction of harvesting, or sharing of harvest, has the potential for effects on food security (particularly of the more vulnerable), nutrition and health.

Socio-economic and environmental factors can influence food security. Employment, rising costs of travel and real or perceived contaminants may bring about changes in food consumption patterns. MacDonald (2012) has described how traditional diets have been displaced by mixed diets which include store bought foods, often of poor quality and high cost. Poor quality foods may adversely affect human health and in the absence of harvesting, food security is challenged by high food costs. Food costs in the RMWB were estimated to be 42% higher than the provincial average (Orenstein et al. 2013).

While hunting, trapping, fishing and gathering is integral to identity and self-sufficiency, harvesting also serves as a means to provide good-quality food for harvesters and their families and the people they share with. A FM468 Elder and active harvester, noted for sharing traditional food he harvests within the community, expressed concerns that he can no longer access his preferred moose hunting lake (Labour et al. 2012). Increased costs and travel time associated with the need to travel farther distances to access abundant or healthy resources may reduce the extent of harvested goods available to share within the community.

Similarly, reduced confidence in the quality of harvested foods may also lead to reduced consumption. Country foods have been demonstrated to contain high nutritional value compared to alternatively available store bought

foods (Van Oostdam et al. 2005). Reduction in harvesting motivation or consumption can result in "negative outcomes for human health, all of which contribute to a loss of access and enjoyment of traditional activities on the land" (MacDonald 2012).

Employment, increased incomes and cultural change have implications for well-being at the individual, family and community levels. Many people thrive with expanded economic opportunity, having the incomes to increase their standards of living and household economic security. But some people do not. Increased incomes have sometimes been associated with increased alcohol and substance abuse (MacDonald 2012). As well, erosion of traditional culture can have negative effects on some individuals' sense of well-being and also sets up potential for discord within families, including between genders and between generations. Values of sharing and equity can give way to a more individualistic ethic, with consequent effects on social cohesion. ACFN members have reported "an increasing level of adverse socio-economic effects and effects on culture associated with rapid oil sands development. For example, members report difficulties passing down their culture, accessing spiritual sites, and a loss of tranquility and relationship with the land. Members have also reported "disruptions in family and community dynamics because of long shift rotations, increased income inequity, and isolation from social support networks" (ACFN 2012, pp. 11).

Social and cultural practices and values confirm the identity of people and are increasingly understood as essential for social and emotional well-being at individual, family and village levels. Aboriginal culture encompasses not only knowledge of the land and its resources, and the passing of this knowledge down through generations, but also strategies, technologies and skills in applying that knowledge to many of life's situations. Maintaining Aboriginal culture confirms values. The ACFN have described how "the magnitude and pace of development in the region, and throughout ACFN's Traditional Lands, increasingly threaten the very survival of ACFN's distinctive culture and the continuity of the traditional activities that support its identity and way of life" (ACFN 2012, pp. 8). Aboriginal groups have observed increasing difficulties in the transmission of culture to younger generations (ACFN 2012; Fort McKay 2012; Candler et al. 2012a; Candler et al. 2012b).

Orenstein et al. (2013) described how large influxes of non-Aboriginal newcomers "into a rural and relatively homogenous community can lead to 'social disruption' – the loss of traditional values attitudes and routines" (Orenstein et al. 2013, 18). Concerns have been raised regarding differing perceptions in land stewardship between Aboriginal and non-Aboriginal land users, and conflicts have arisen resulting in damage to Aboriginal land user's property and increased security concerns (Fort McKay 2011). The sense of disempowerment, stress, and concerns about health effects are likely all factors in the desire of many Aboriginal individuals to move or be relocated away from areas of high development or to reduce their participation in traditional activities on the land.

The extent to which Aboriginal cultural values have been and can continue to be maintained over time depends on many variables, few of which can be attributable to any specific project; however, preserving Aboriginal culture and values can be challenging in the context of rapid development. Aboriginal groups have expressed the overwhelming nature of the cumulative industrial development within their traditional lands and feelings of powerlessness in addressing these changes on their rights, culture and way of life (ACFN 2012; Fort McKay 2012; Labour et al. 2012; MCFN 2012b).

5.0 SUMMARY OF FINDINGS

This SIR response answers the following question posed by the Joint Review Panel:

> *Provide a cumulative assessment of the Project's effects on Aboriginal culture, lifestyle and quality of life of Aboriginal persons for each First Nation or Aboriginal group potentially affected before and after reclamation using a pre-development baseline.*

While effects on culture cannot be attributed to a single project, effects on Aboriginal culture, lifestyle and quality of life can be described for the region. This review begins from the pre-development context and describes current and ongoing effects on the environment, traditional land use, knowledge, culture and way of life from the perspective of Aboriginal groups. This is supplemented with a summary of environmental assessment estimates of potential future cumulative effects on traditional resources and use before and after reclamation.

Members of Aboriginal groups in the region have reported that they are experiencing cultural erosion or cultural change. These changes can have implications for quality of life in several ways, including effects on community cohesion, the value system, feelings of disempowerment, marginalisation and vulnerability, loss of pride in cultural identity and relationships with the land, and community health. Traditional Knowledge and Land Use is integral to maintaining Aboriginal culture and reducing these adverse quality of life effects; therefore, effects on land use opportunities have been used as the basis for describing potential implications for Aboriginal cultural practices and transmission.

As defined by Aboriginal groups, the meaningful practice of TLU rights requires certain conditions to be met in the physical environment. Disturbed lands may not be considered available by some members of Aboriginal groups for the meaningful practice of rights until at least after reclamation. If areas are avoided while disturbed, Traditional Knowledge of and connection to these specific areas, a generation or more in the future, is likely to be lost (Section 3.3.2). Observed effects on the environment have resulted in changing patterns and intensity of land use (i.e., through avoidance, abandonment and adaptation), which in turn have resulted in effects on intangible elements of Aboriginal culture: changes in passing on knowledge, and changes in relationships and cultural knowledge and practice in communities over time.

The 2013 PDC considers changes in disturbance areas compared to the 2013 PRM Application Case. The 2013 PDC also considers the results of wildlife, vegetation and fish and fish habitat assessments to determine effects on the abundance of traditional resources. With respect to wildlife KIRs of interest to Aboriginal groups (i.e., moose and black bear), populations are predicted to continue to be viable. In addition, the 2013 PDC considers preferred harvesting areas, changes in access to preferred harvesting areas, air, noise, visual and odour effects, water quality effects, and individual and/or community responses to observed environmental effects. Changes in access and the distribution of wildlife resources may mean that TLU and non-Aboriginal recreational and harvesting activities will become more concentrated in undisturbed areas/areas away from oil sands facilities, thus potentially increasing the possibility of interactions between these growing populations within relatively smaller landscapes over time. Current hunting data suggest low densities of non-Aboriginal hunters in the region and that non-Aboriginal hunting success (based on overall harvesting levels) is increasing at a regional scale. The concentration of non-Aboriginal hunters tends to be in the southern parts of the region, especially in WMUs directly north and west of the Cold Lake Air Weapons Range suggesting that some areas (i.e., southern areas of the region) are used for non-Aboriginal hunting more than others (i.e., northern areas of

the region). The potential for competition for resources is therefore not uniform within the region. Hunting success for the Aboriginal population is not available for comparison.

In addition to effects on access to and abundance of traditional resources, psycho-social factors, such as confidence in the quality of harvested foods, and feelings of safety and remoteness or other personal factors (e.g., personal sensitively to noise, odour or visual stimuli) contribute to the motivation to undertake traditional activities. Lack of confidence in country food is an example of an effect that illustrates the need for community-based monitoring in the region. While the PRM is not expected to adversely affect the quality of country food, it will result in a direct loss of land within the traditional territories of the FMFN, ACFN, MCFN, and FM468 available for continuing traditional activities. The contribution of the PRM (or any single oil sands project) to the 2013 PDC in terms of disturbance is small; therefore the focus of this report has been the cumulative effects of development since the 1960s. In other words, with respect to effects on the practice of TLU and Aboriginal culture, the effects of one project cannot be separated from the whole or from a pre-development context.

As described by Larcombe (2012), there is insufficient information and data to reliably comment on the state or vulnerability of the First Nations way of life or if their ability to pursue and enjoy the rights and benefits of traditional use and knowledge is at, or near, or beyond sustainability thresholds. Notwithstanding this uncertainty, effects on traditional lands and resources (whether observed by Aboriginal groups or assessed in an EIA process) since pre-development have induced or caused responses (i.e., displacement, avoidance and abandonment, and adaptation) that have affected the how, where, when, what and whys of the practice of TLU and passing on TK in the region. Aboriginal groups have in turn, consistently reported negative implications for the sustainability of their land-based culture and the related lifestyle and quality of life in their communities.

Cultural change as a result of development has led to a number of stressors and concerns; however, Aboriginal rates of participation and employment in in the wage economy is high relative to Aboriginal populations in comparative communities (see Appendix 8.0, SIR 69B). First Nations have businesses and business groups that serve oil sands projects and oil sands operators fund economic development in small communities. Members of Aboriginal groups have expressed specific concerns regarding effects on traditional land use (as an element of traditional culture) due to PRM and have overarching concerns regarding the overall scale and pace of development in the region (i.e., cumulative effects) and their frustration regarding their lack of influence in land use decisions.

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ATTACHMENT A

Shell's Commitment and Policies Regarding Culture

Table A-1 Oil Sands Development Effects on the Local Aboriginal Population

Project Effect Pathways	What Aboriginal Communities Say	What Shell's Regulatory Application Says	Shell Principle	Shell Actions and Mitigations
Reduced access to and loss of Traditional lands.	• The PRM will make portions of land unavailable for traditional pursuits for a sizeable period of time, if not permanently. This will result in reduced opportunities to carry out hunting, trapping and plant gathering activities, and to enjoy cabin sites, spiritual and cultural sites within the PRM development area and its vicinity.	• Consideration of additional Traditional Land Use information gathered after filing has concluded that: - The PRM effect on traditional activities such as fishing, hunting, trapping and traditional plant gathering is not considered a likely significant adverse effect. - The PRM Project will generally not prevent Traditional Land Users from accessing any areas in the region, except within the PRM development area itself prior to site reclamation.	• Shell acknowledges that the Pierre River Mine project will result in the temporary loss of specific traditional resources within the PRM development area until such time as reclamation is carried out. Shell will aim to minimize its terrestrial disturbance over the PRM life.	• Shell will facilitate access across the PRM area for trappers and Aboriginal traditional users and provide compensation to trappers directly affected by the PRM. • Shell will minimize as far as is practicable the land disturbance and practice progressive reclamation • Shell actively participates in the Cumulative Environmental Management Association (CEMA), the Reclamation Working Group (RWG) and Sustainable Ecosystems Working Group (SEWG), which address issues of relevance to Traditional Land Uses. • Shell continues to support ongoing capacity funding for Aboriginal communities (industry Relations Corporations [IRCs], Government and Industry Relations [GIRs]). • Shell, through the Oil Sands Developers Group (OSDG) and other agencies supports the Land Use Secretariat of Alberta. Sustainable Resource Development (ASRD) and its work on developing a Lower Athabasca Regional Plan (LARP), which will set out economic, environmental and social outcomes and objectives for the region over the next 10 years. • Shell currently works through the OSDG Aboriginal Affairs committee and with the IRCs to determine how best to accommodate and mitigate the adverse social and cultural effects of development. • Shell actively participates in regional multi-stakeholder planning and research initiatives that consider the long-term sustainability of effective Traditional Land Use.
	• The loss of lands on which traditional pursuits can be carried out affects several intangible elements of culture including the transmission of culture and oral history (e.g., place names, stories) that are related to these lands. The inability to transmit culture on the land has implications for wider inter-generational relationships (e.g., a potential weakening of bonds between elders and youth). The loss of lands also affects the long-term knowledge and relationship with that place, i.e., knowledge of place best transmitted on the land. Loss of land means loss of learning opportunities.	• The application acknowledges that Traditional Land Use is intimately related to the culture, spirituality and identity of Aboriginal peoples. • The application notes that traditional cultural and environmental knowledge is changing, moving from a mostly oral and activity-based tradition of preservation to a greater emphasis on systematic documentation.	• Shell acknowledges the value of the culture of its Aboriginal neighbours. Shell aims to carry out ongoing consultation with Aboriginal communities to understand the potential impacts of its projects and activities on Aboriginal land use and culture, and to work with communities to identify appropriate ways to enhance positive effects and minimize adverse effects.	• Shell supports several cultural retention and other initiatives, which aim at helping Aboriginal communities maintain their social cohesion and unique characteristics. Initiatives include: - Supporting the collection of traditional ecological knowledge on medicinal plants, wildlife, and spiritual and cultural sites on traditional lands in the region. - Supporting cultural retention programs, including Dene gatherings, Elder/Youth programs through the Fort McKay Elders Centre, language retention initiatives and video documentation of Traditional Knowledge. - Supporting historical preservation initiatives such as the Fort Chipewyan Museum and the Cree Burn Lake Education Project. - Promoting the Quarry of Ancestors.
	• Disturbance of the land resulting from development impacts the spiritual meaning or value even after reclamation has taken place (e.g., the spirit of the land is gone).	• The application acknowledges but does not address the spiritual value of land directly. This review discusses effects on Aboriginal culture, lifestyle and quality of life.	• Shell acknowledges the concerns of Traditional Land Users in the region with respect to current reclamation practices. Shell aims to work with Aboriginal stakeholders on reclamation and land use issues.	• Shell is committed to undertaking progressive reclamation whenever practical. • By means of the Shell/Fort McKay Reclamation Focus Group, Elders advisory groups and other similar groups, Shell expects to be continuously using and expanding on how it uses Traditional Knowledge information in reclamation planning. • Shell supports and executes research activities for furthering understanding on reclamation practices, including as part of the Reclamation Working Group and through the Canada's Oil Sands Innovation Alliance. (COSIA).
Concerns over pollution.	• The perception of contamination to traditional lands, water, plants and animals from development has a direct effect on how and where traditional practices are carried out, thereby affecting cultural values associated with these traditional practices.	• Shell has carried out a comprehensive assessment of the PRM environmental effects. Based on this assessment, the predicted residual effects for the PRM are not likely significant adverse environmental effects.	• Shell supports the use of science and Traditional Knowledge to understand and measure biophysical changes in the environment, including water quality. • Shell recognizes local resident perceptions regarding the environmental effects of oil sands development. Shell aims to address these concerns by: - communicating with Aboriginal communities and other local stakeholders the results of its comprehensive environmental impact assessment; - communicating its ongoing plans to manage and monitor the environmental effects of its Oil Sands activities; and - working with local communities in developing appropriate mitigations.	• Shell has incorporated a suite of environmental initiatives into its current project design to effectively monitor and mitigate the environmental effects of its project. • Shell supports CEMA and other agencies in their conduct of investigations and communication of results. • Shell attempts to address local Aboriginal concerns by communicating and working with Aboriginal communities on an ongoing basis through open houses, regular meetings with consultation offices (e.g., Industry Relations Corporations), Advisory Committee meetings, technical review meetings and reports.
Concerns with industrial water use.	• Aboriginal persons in the area have observed changes in water quantity attributed to oil sands development (e.g., concerns with low levels during low flow periods of the Athabasca River) based on their knowledge and use of the river over time. Lower water levels has led to lower use of these waterways in relation to traditional activities (e.g., fishing, accessing other traditional lands) due to safety risks.	• Water quantity impacts are described in EIA, Volume 4A and SIR 28 and 29.		

Table A-1 Oil Sands Development Effects on the Local Aboriginal Population (continued)

Project Effect Pathways	What Aboriginal Communities Say	What Shell's Regulatory Application Says	Shell Principle	Shell Actions and Mitigations
Participation in the wage economy.	• Time pressures related to work can limit opportunities for carrying out traditional pursuits and transferring Traditional Knowledge to Aboriginal youth. • Working conditions are not always sensitive to the particular cultural needs of Aboriginal peoples (e.g., flexible work arrangements that would allow Aboriginal workers to take part in traditional activities). • Wage economy opportunities can increase pressure on Aboriginal persons to act according to outside cultural values that might run contrary to traditional values. • The requirements of wage-economy jobs have increased the importance of non-traditional education which may lead to a decreased value placed on traditional education. • Requirements of wage-economy jobs may also decrease the time available for taking part in activities and community relationships that are part of the traditional education. • Wage economy opportunities can increase an individual's sense of self-worth and sense of control. • Wage economy opportunities can also, however, have negative effects: increasing absences from the home community for employment purposes, which can lead to feelings of lack of self-control, mental stress and pressure where few social support networks are in place, change of values away from sharing and socialization in large extended family groups, and decreased ability to practice and transmit culture and traditions and associated loss of cultural continuity.	• The Socio-Economic Impact Assessment (SEIA) acknowledges that increased participation in the wage economy impacts participation in traditional pursuits. • The SEIA quantifies the number of construction and operations jobs created by the PRM. • The SEIA discusses Shell's local hiring, contracting and business development practices.	• Shell acknowledges that participation in the wage economy can impact participation in traditional pursuits. However, participation in the wage economy has also provided Aboriginal persons, companies and communities with benefits including resources with which to manage social and cultural change. Shell aims to carry out ongoing consultation with Aboriginal communities to understand the potential impacts of its projects and activities on culture, and to work with communities to identify appropriate ways to enhance positive effects and minimize adverse effects.	• Shell is active in local communities nearest its operations, employing local people, including Aboriginals, and providing training. Shell provides employment opportunities to Aboriginal persons and has supported several initiatives and programs to assist Aboriginal businesses and workers in tackling barriers to employment, including: - Working with the Northeastern Alberta Aboriginal Business Association - Supporting Aboriginal scholarships through contributions to the National Aboriginal Achievement Foundation and supporting environmental education of Aboriginal students in the region. - Initiating the Aboriginal Talent Pipeline project. - Delivering drilling rig and driver training in Fort Chipewyan. - Providing ongoing support for E-learning in Fort McKay. - Supporting a Diverse Recruiter in Calgary, an Aboriginal Recruiter at Albian Sands, and an Aboriginal Business consultant. - Sponsoring delivery of the Building Environmental Aboriginal Human Resources (BEAHR) program in Fort Chipewyan. • Shell is committed to providing a system for cultural diversity awareness training for its employees and contractors regarding respect for traditional users, traplines, cabins, trails and equipment. Currently, Shell offers Aboriginal Awareness Training to a number of its employees, and Abnet, an Aboriginal network that supports Aboriginal employees and the awareness of Aboriginal culture to all Calgary based Shell Canada employees. As well, Shell Canada annually hosts Aboriginal Awareness Week in Calgary. Aboriginal Awareness Activities are also hosted each year at the Albian and Scotford Upgrader sites. • Shell is focused on fostering and supporting Aboriginal business opportunities. Since 2005, the Athabasca Oil Sands Project has contracted $1 billion of business to Aboriginal companies. • Shell has set the goal of increasing Aboriginal participation in its workforce. • Shell is committed to working with the IRCs and employment coordinators to identify and remove barriers to education and employment opportunities for Aboriginal persons in the region. • Shell is committed to diversity and inclusion within its workforce. Shell's diversity and inclusion aspirations focus on three areas that are key to a successful business model – Talent, Leadership and Competitiveness. Shell's efforts are underpinned by targeted metrics that monitor progress and ensure that action takes place.

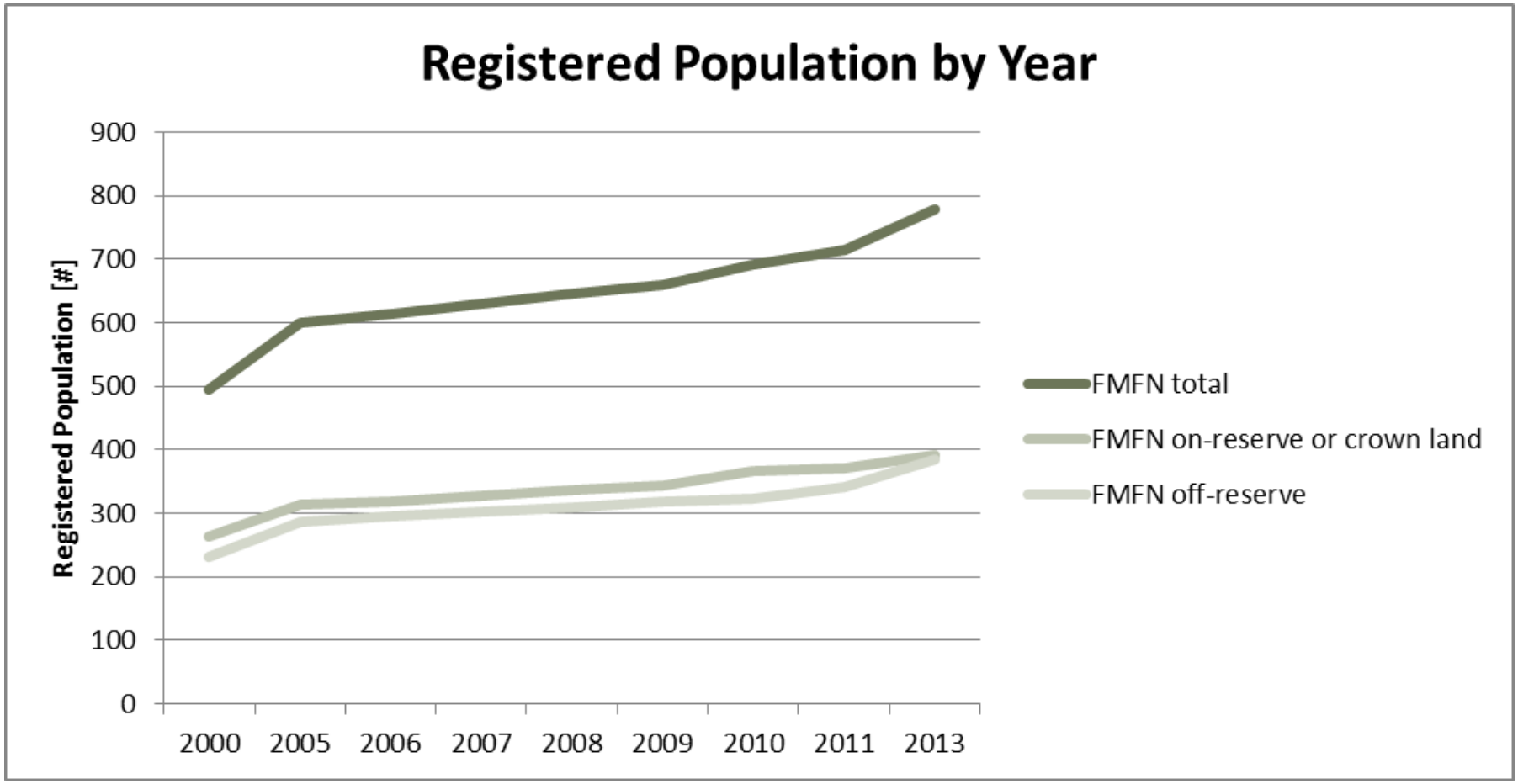
Table A-1 Oil Sands Development Effects on the Local Aboriginal Population (continued)

Project Effect Pathways	What Aboriginal Communities Say	What Shell's Regulatory Application Says	Shell Principle	Shell Actions and Mitigations
Increased non-Aboriginal population.	• Concern that increasing the local non-Aboriginal population in the region and their access to traditional lands will increase competition for traditional resources. • Decreased feelings of security among some Aboriginal persons when carrying out traditional activities (e.g., berry-picking, fishing) as a result of increased numbers of non-Aboriginal persons pursuing recreational activities on the land (i.e., as a result of confrontations, challenges and issues related to unsafe use of firearms) • Increased non-Aboriginal persons on the landscape also affects feelings of security (i.e., as a result of past conflict with non-Aboriginals and racial discrimination and/or prejudice) and impacts the experience of remoteness/wilderness. • Concern that an increased non-Aboriginal population could increase the exposure of Aboriginal persons to outside cultural values that might run contrary to the values of co-operation and sharing associated with Aboriginal use and stewardship of traditional lands.	• The application acknowledges that Oil Sands industry development is increasing the regional population and access to previously hard-to-get places, thus increasing competition for traditional resources. • The SEIA quantifies the PRM effect on the regional population with the use of a fly in/fly out camp-based approach to construction. With the PRM, the urban population is expected to be about 4.5% higher in the long term than under 2013 Base Case conditions.	• Shell acknowledges the value of the culture of its Aboriginal neighbours. Shell aims to carry out ongoing consultation with Aboriginal communities to understand the potential impacts of its projects and activities on Aboriginal land use and culture, and to work with communities to identify appropriate ways to enhance positive effects and minimize adverse effects.	• Shell's fly in/fly out camp-based approach to project construction, along with adopting extended work schedules so that workers stay busy while living in camp, will reduce the PRM effect on population compared to housing people in Fort McMurray. It will also serve to limit opportunities for workers to access traditional lands and visit mainly Aboriginal communities near the development area. • Shell is committed to providing a system for cultural diversity awareness training for their employees and contractors regarding respect for traditional users, traplines, cabins, trails and equipment. • Shell will restrict access across the PRM area to trappers and Traditional Land Users. • As an active member of the OSDG, Shell is committed to supporting ongoing long-term planning by the Regional Municipality of Wood Buffalo and other regional service providers to address growth-related issues in the region.

ATTACHMENT B

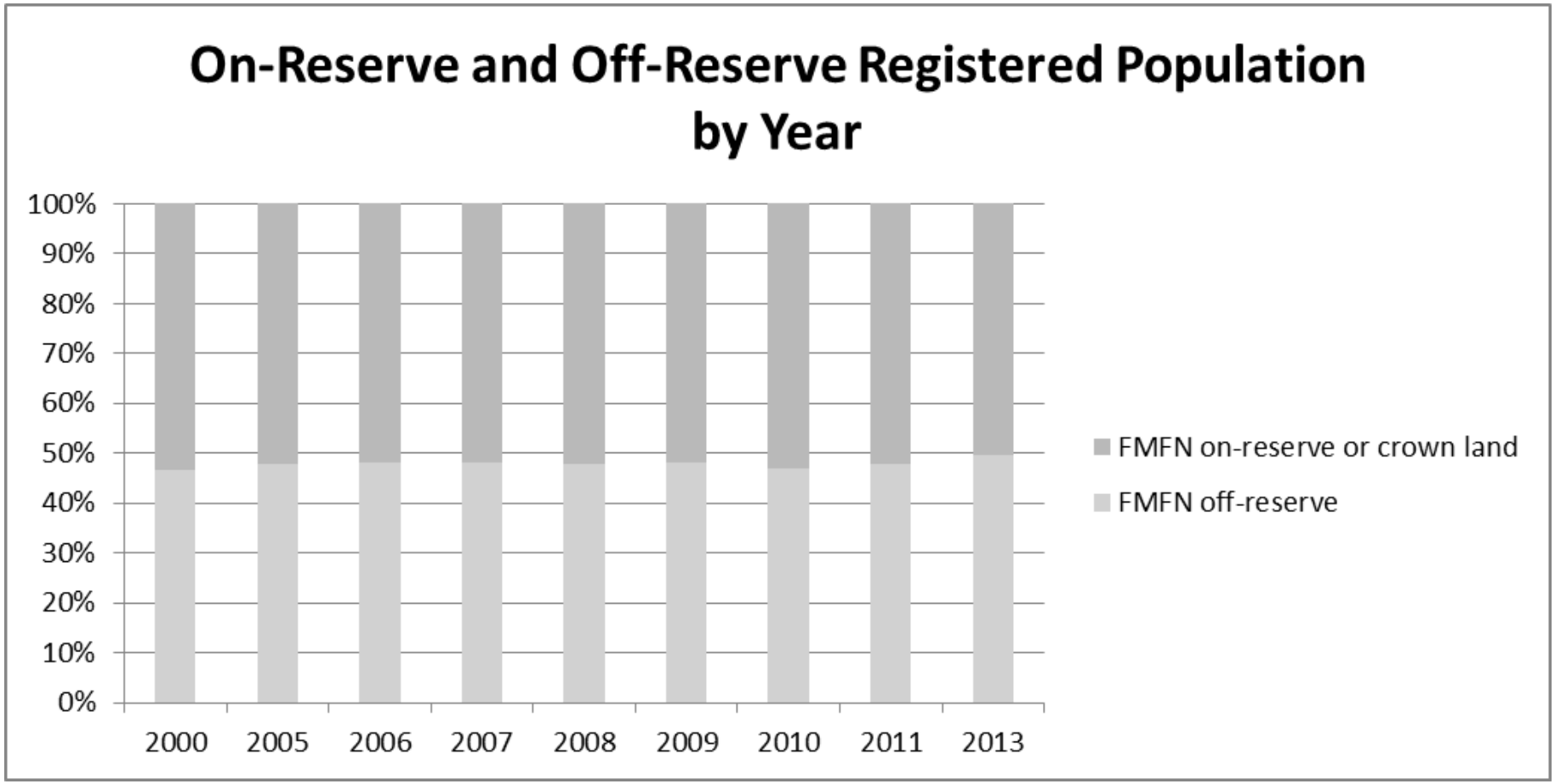
On-Reserve and Off-Reserve Population Trends

Figure B-1 Fort McKay First Nation Registered Population Trends 2000 to 2013



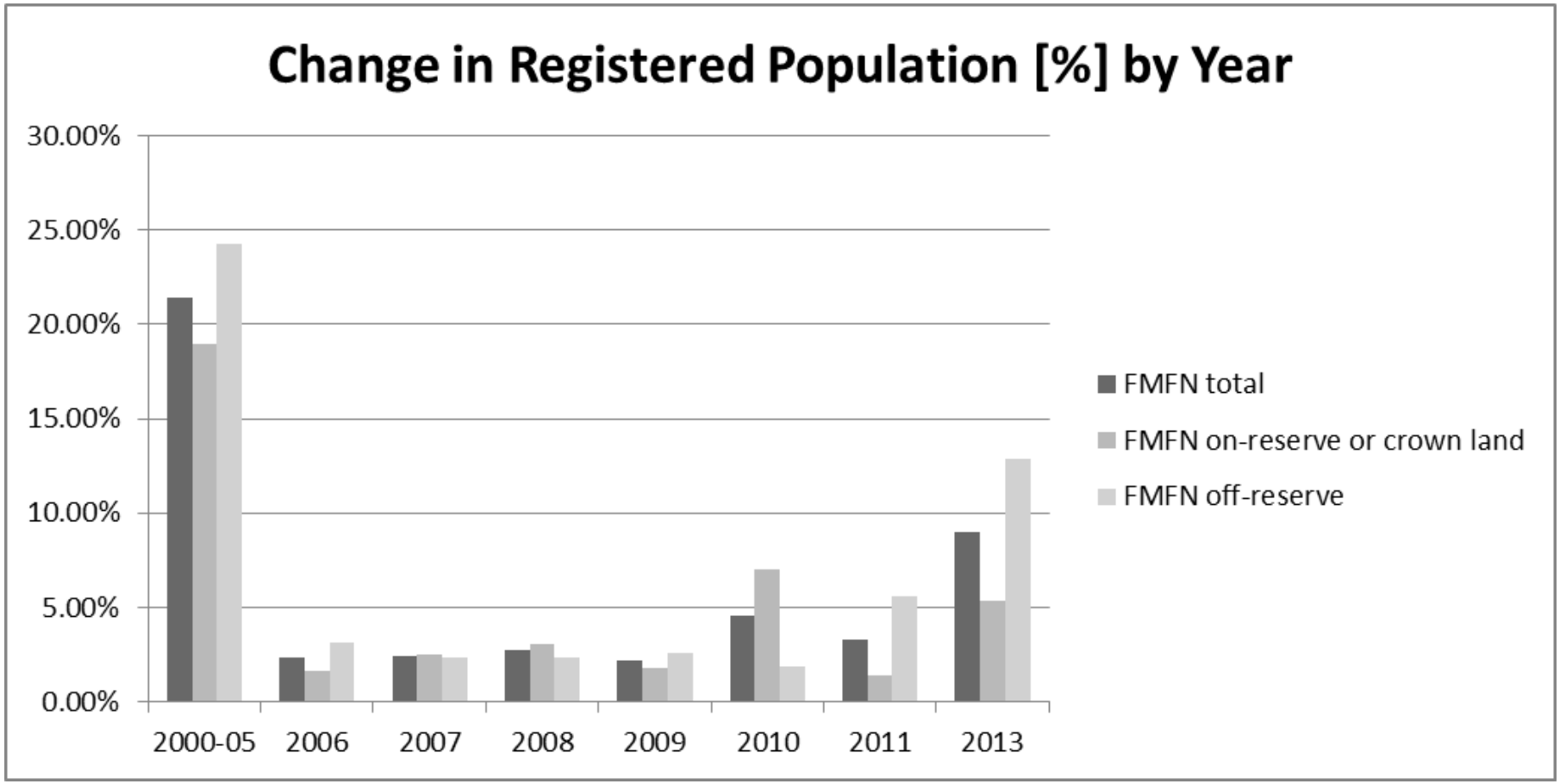
Sources: AANDC 2002; 2013a-d; Aboriginal Relations 2010; 2011; 2012; Government of Alberta 2013. FMFN = Fort McKay First Nation.

Figure B-1 Fort McKay First Nation Registered Population Trends 2000 to 2013 (continued)



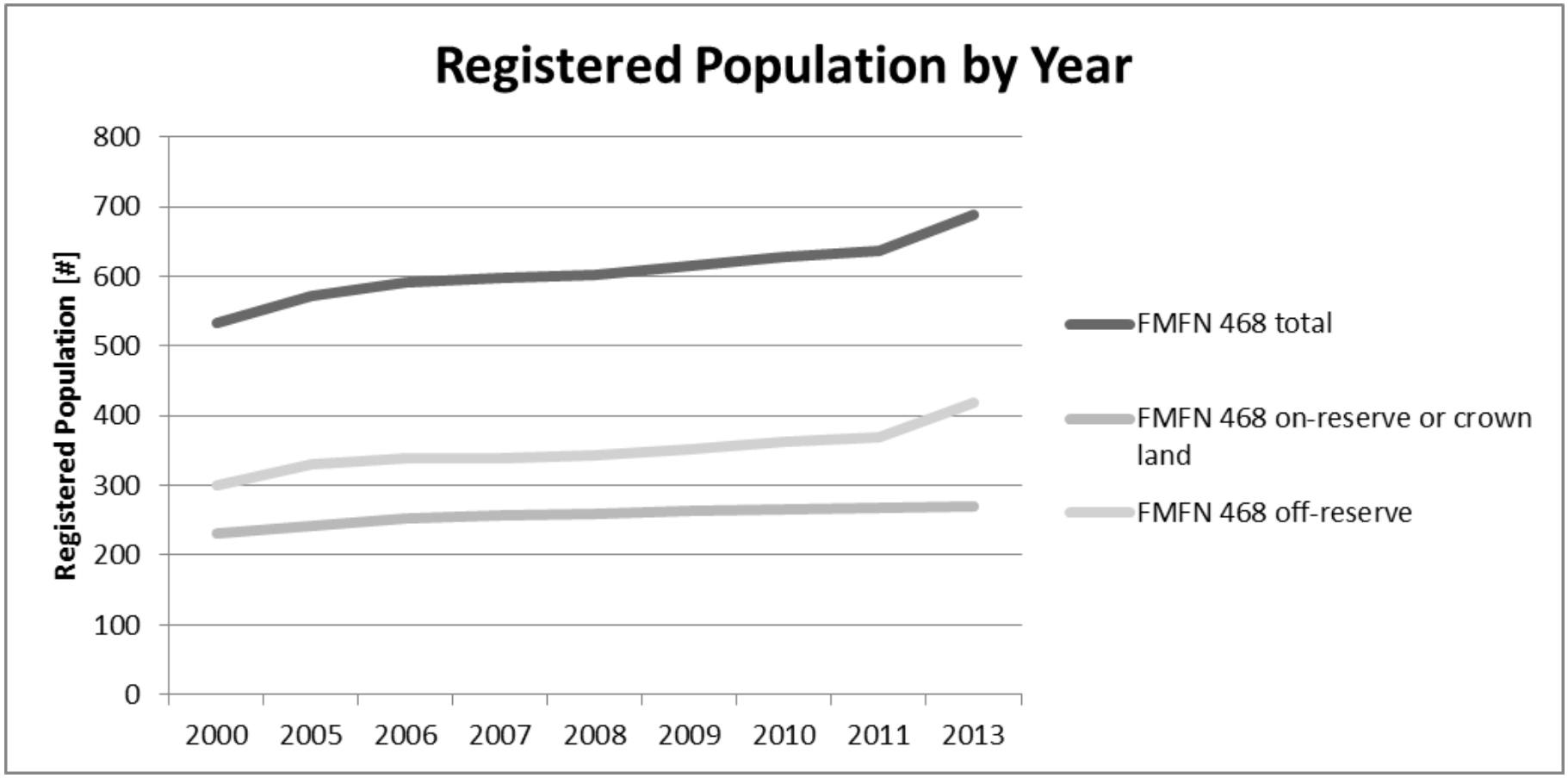
Sources: AANDC 2002; 2013a-d; Aboriginal Relations 2010; 2011; 2012; GOA 2013. FMFN = Fort McKay First Nation.

Figure B-1 Fort McKay First Nation Registered Population Trends 2000 to 2013 (continued)



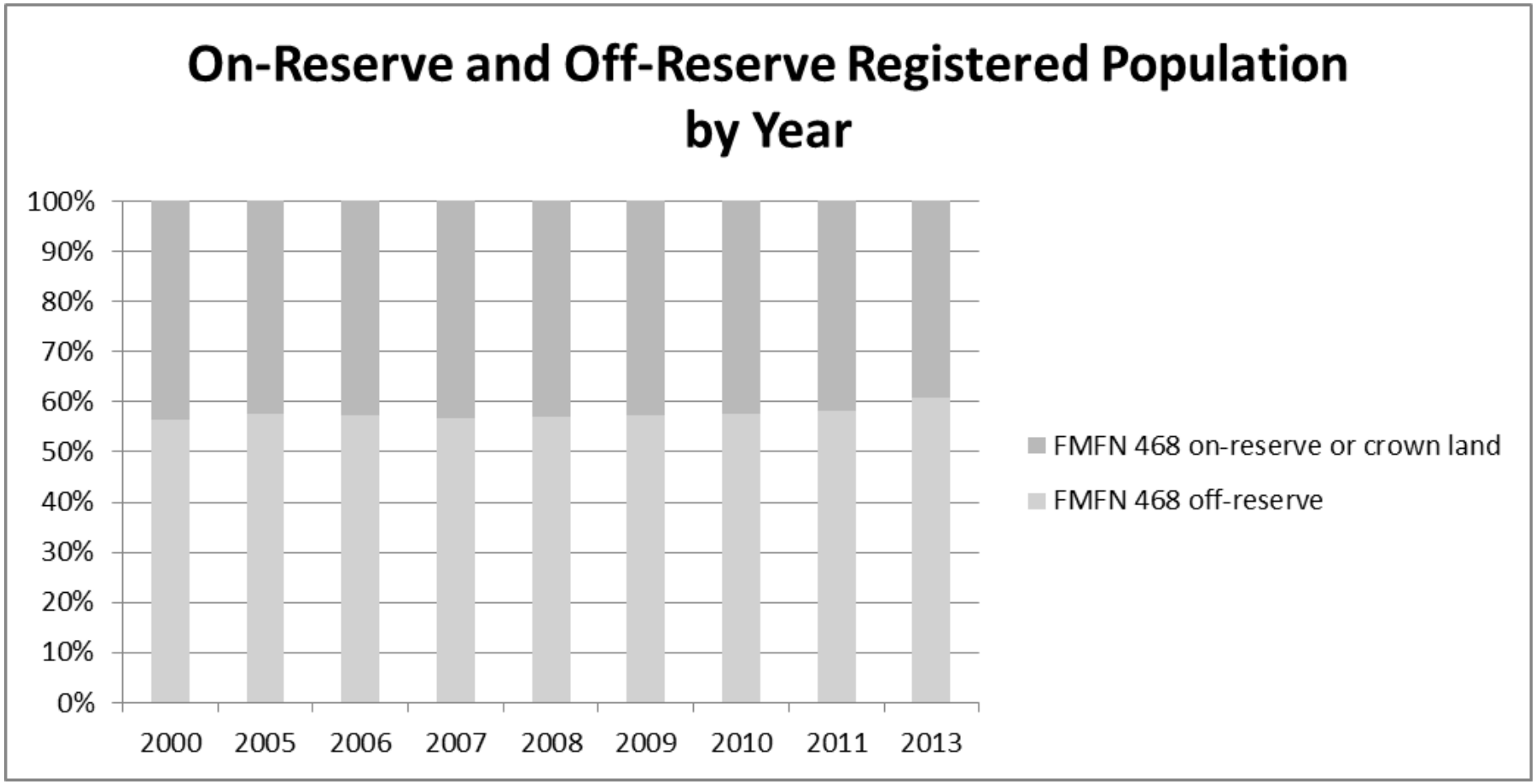
Sources: AANDC 2002; 2013a-d; Aboriginal Relations 2010; 2011; 2012; Government of Alberta 2013. FMFN = Fort McKay First Nation.

Figure B-2 Fort McMurray #468 First Nation Registered Population Trends 2000 to 2013



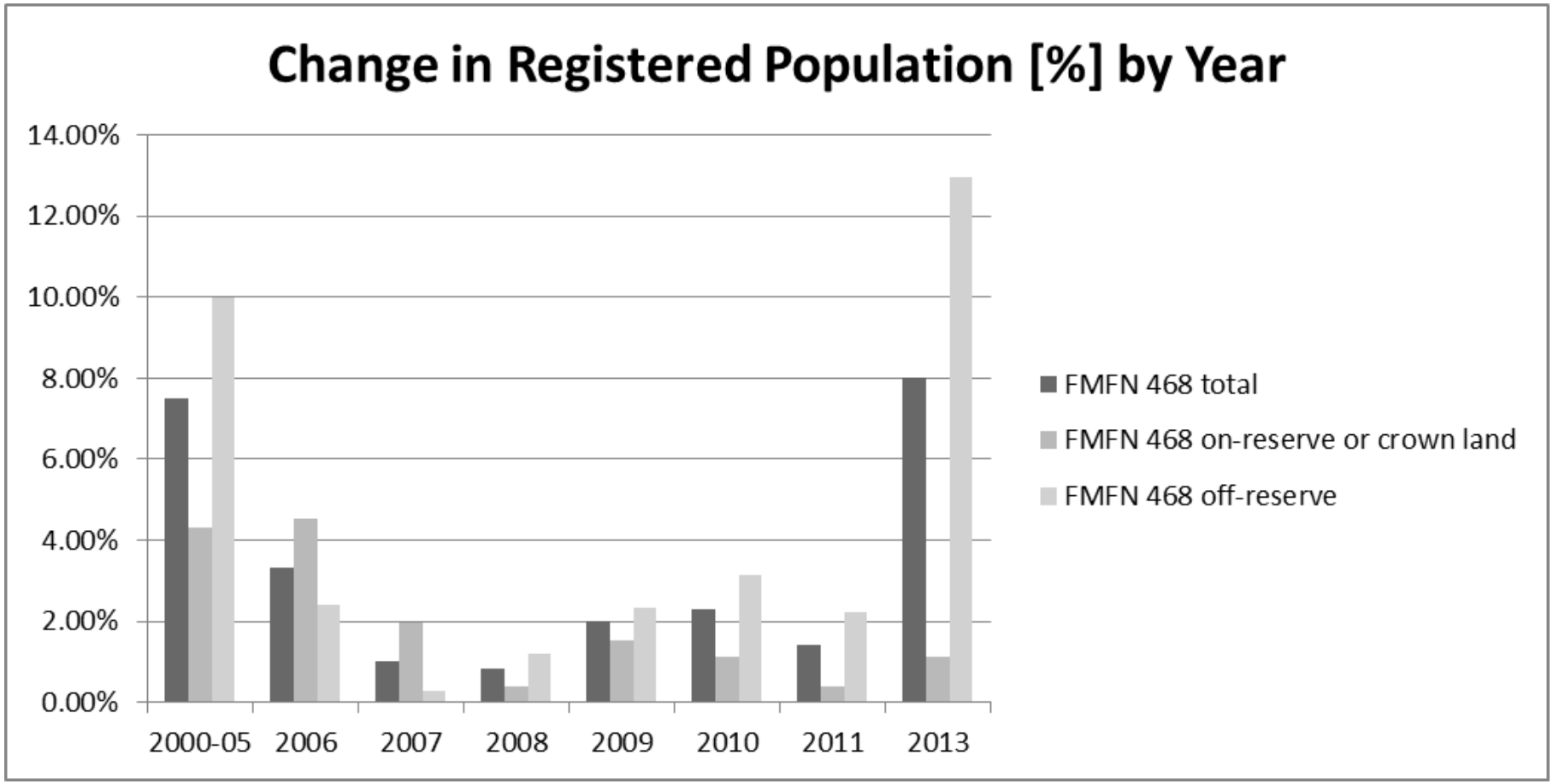
Sources: AANDC 2002; 2013a-d; Aboriginal Relations 2010; 2011; 2012; Government of Alberta 2013. FMFN 468 = Fort McMurray #468 First Nation.

Figure B-2 Fort McMurray #468 First Nation Registered Population Trends 2000 to 2013 (continued)



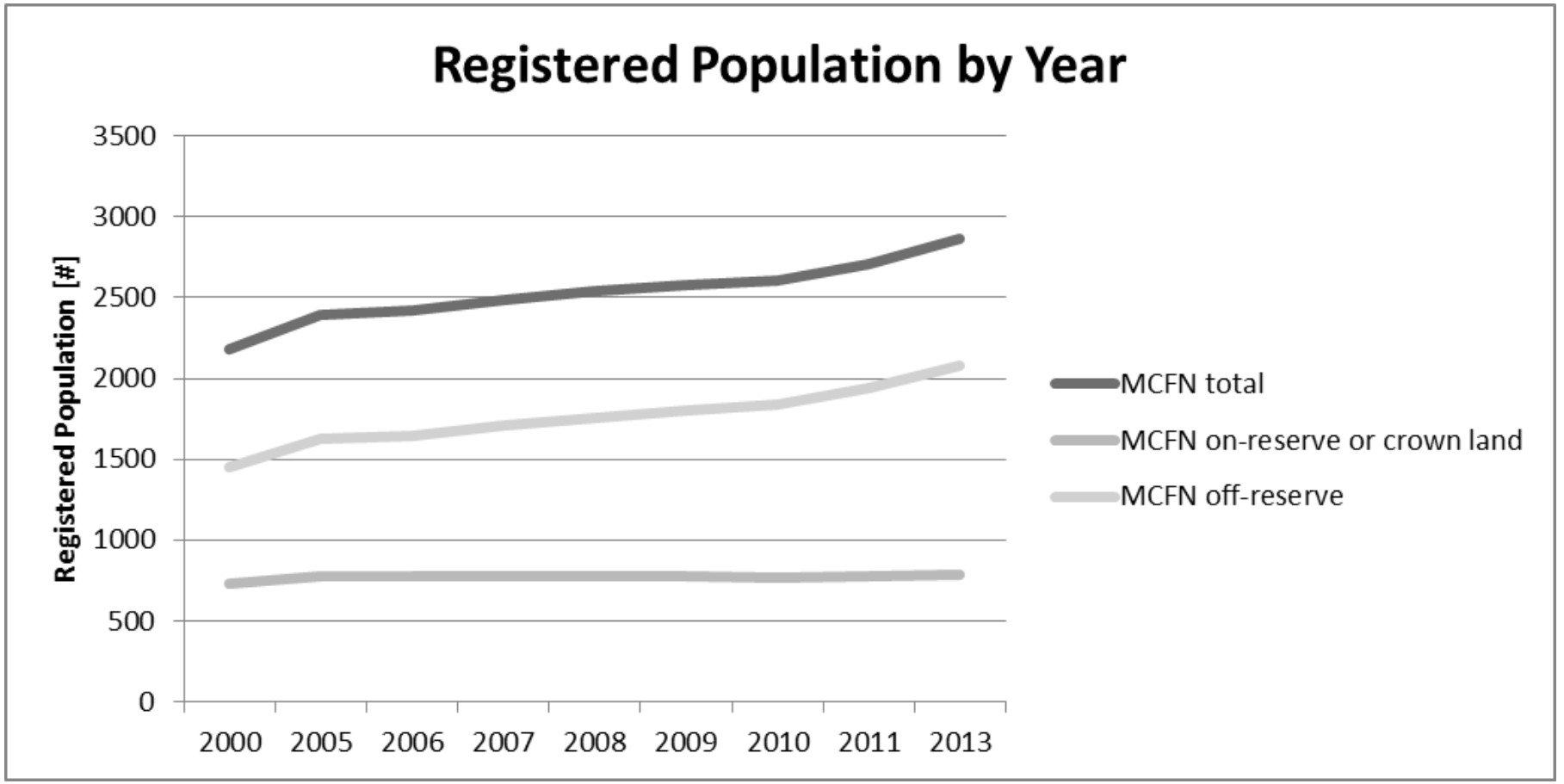
Sources: AANDC 2002; 2013a-d; Aboriginal Relations 2010; 2011; 2012; Government of Alberta 2013. FMFN 468 = Fort McMurray #468 First Nation.

Figure B-2 Fort McMurray #468 First Nation Registered Population Trends 2000 to 2013 (continued)



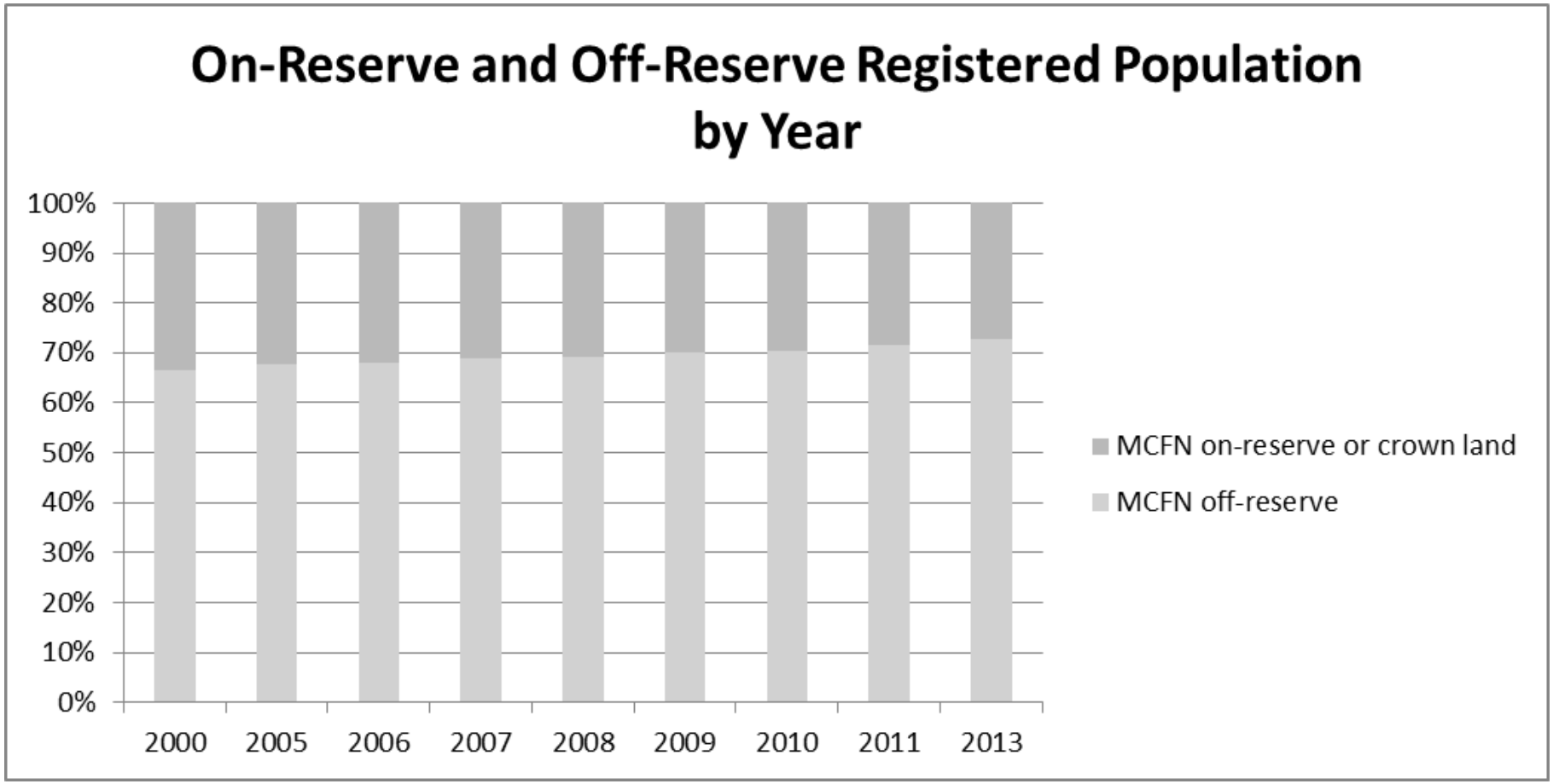
Sources: AANDC 2002; 2013a-d; Aboriginal Relations 2010; 2011; 2012; Government of Alberta 2013. FMFN 468 = Fort McMurray #468 First Nation

Figure B-3 Mikisew Creek First Nation Registered Population Trends 2000 to 2013



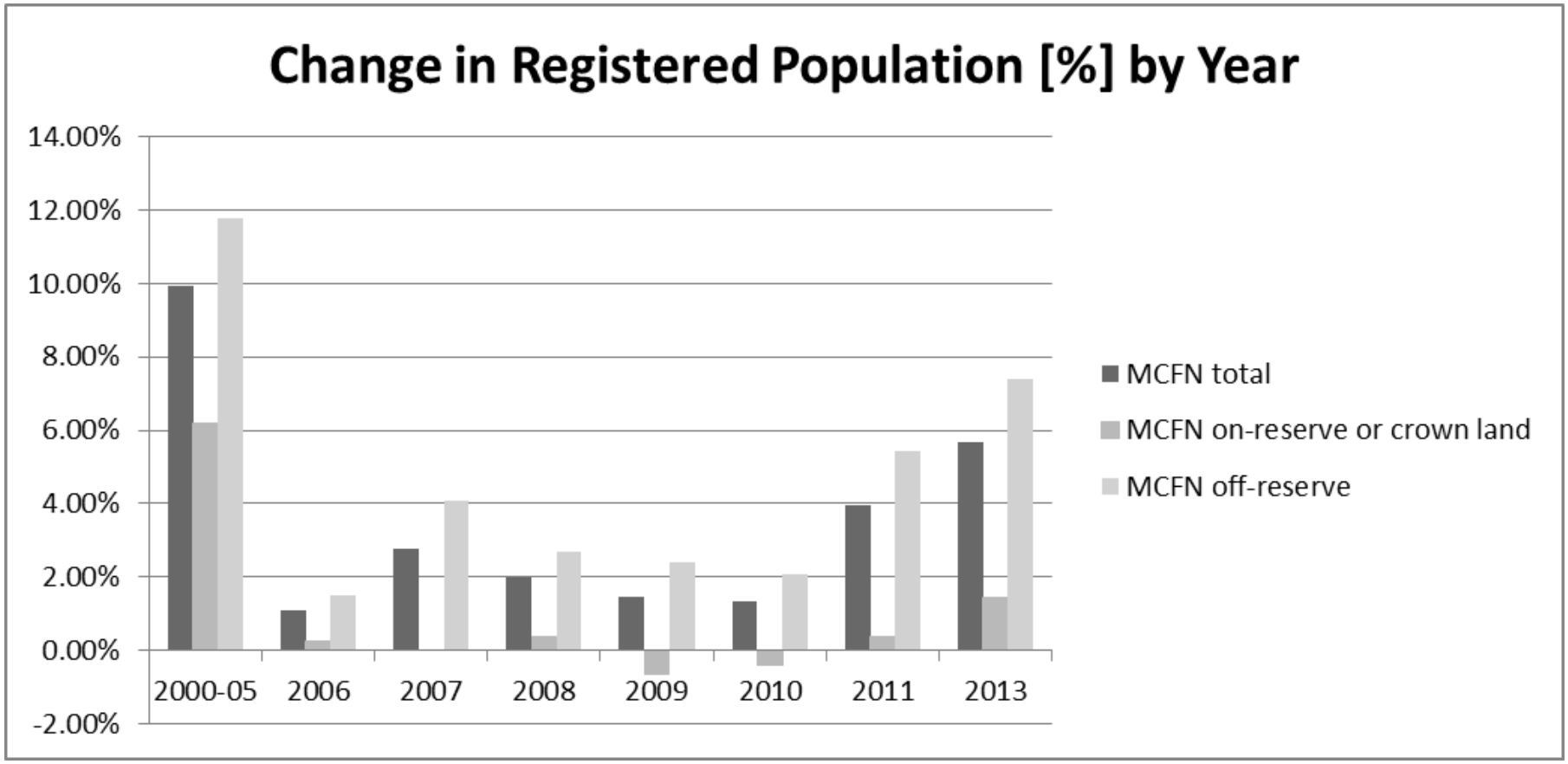
Sources: AANDC 2002; 2013a-d; Aboriginal Relations 2010; 2011; 2012; Government of Alberta 2013. MCFN = Mikisew Cree First Nation.

Figure B-3 Mikisew Creek First Nation Registered Population Trends 2000 to 2013 (continued)



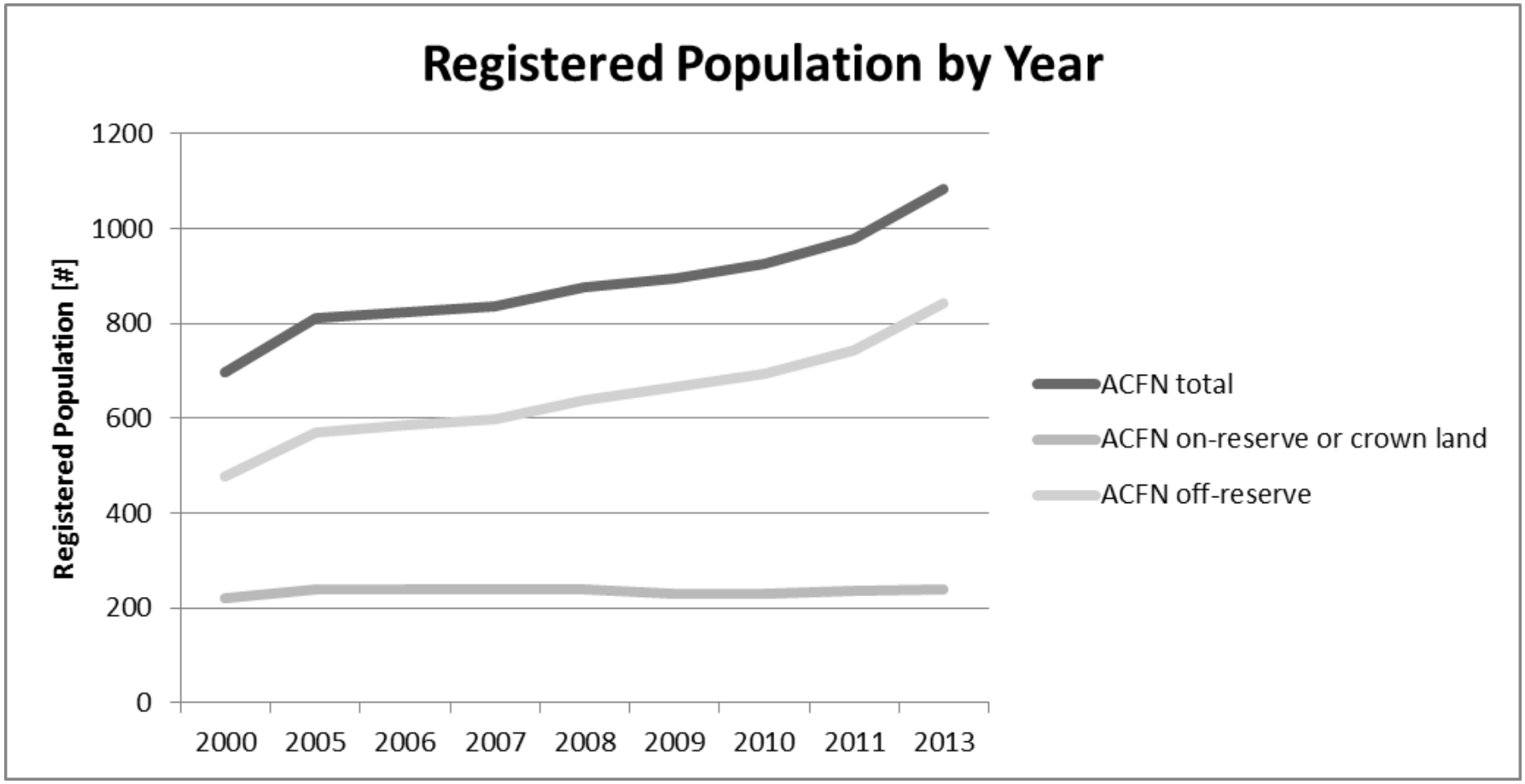
Sources: AANDC 2002; 2013a-d; Aboriginal Relations 2010; 2011; 2012; Government of Alberta 2013. MCFN = Mikisew Cree First Nation.

Figure B-3 Mikisew Creek First Nation Registered Population Trends 2000 to 2013 (continued)



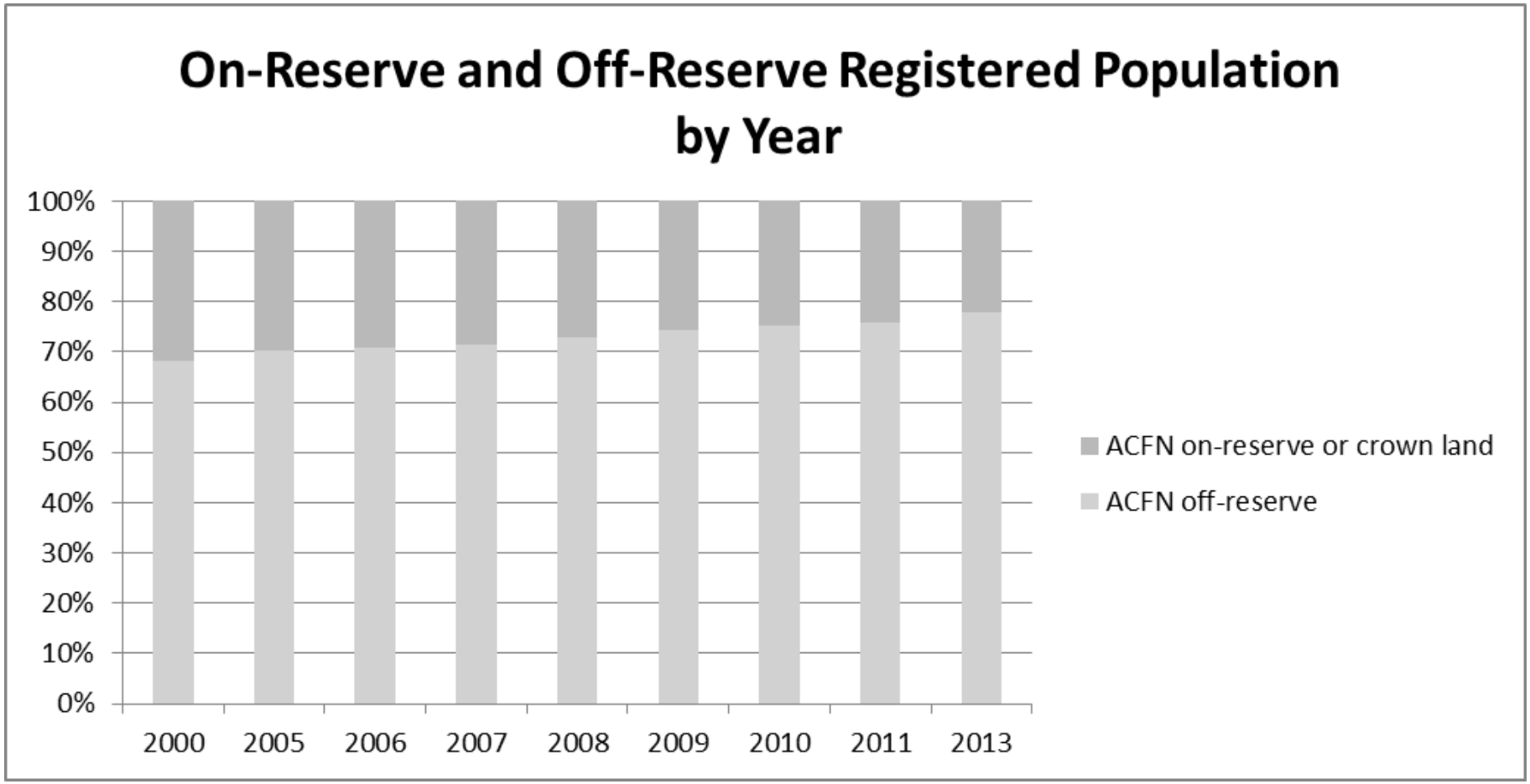
Sources: AANDC 2002; 2013a-d; Aboriginal Relations 2010; 2011; 2012; Government of Alberta 2013. MCFN = Mikisew Cree First Nation.

Figure B-4 Athabasca Chipewyan First Nation Registered Population Trends 2000 to 2013



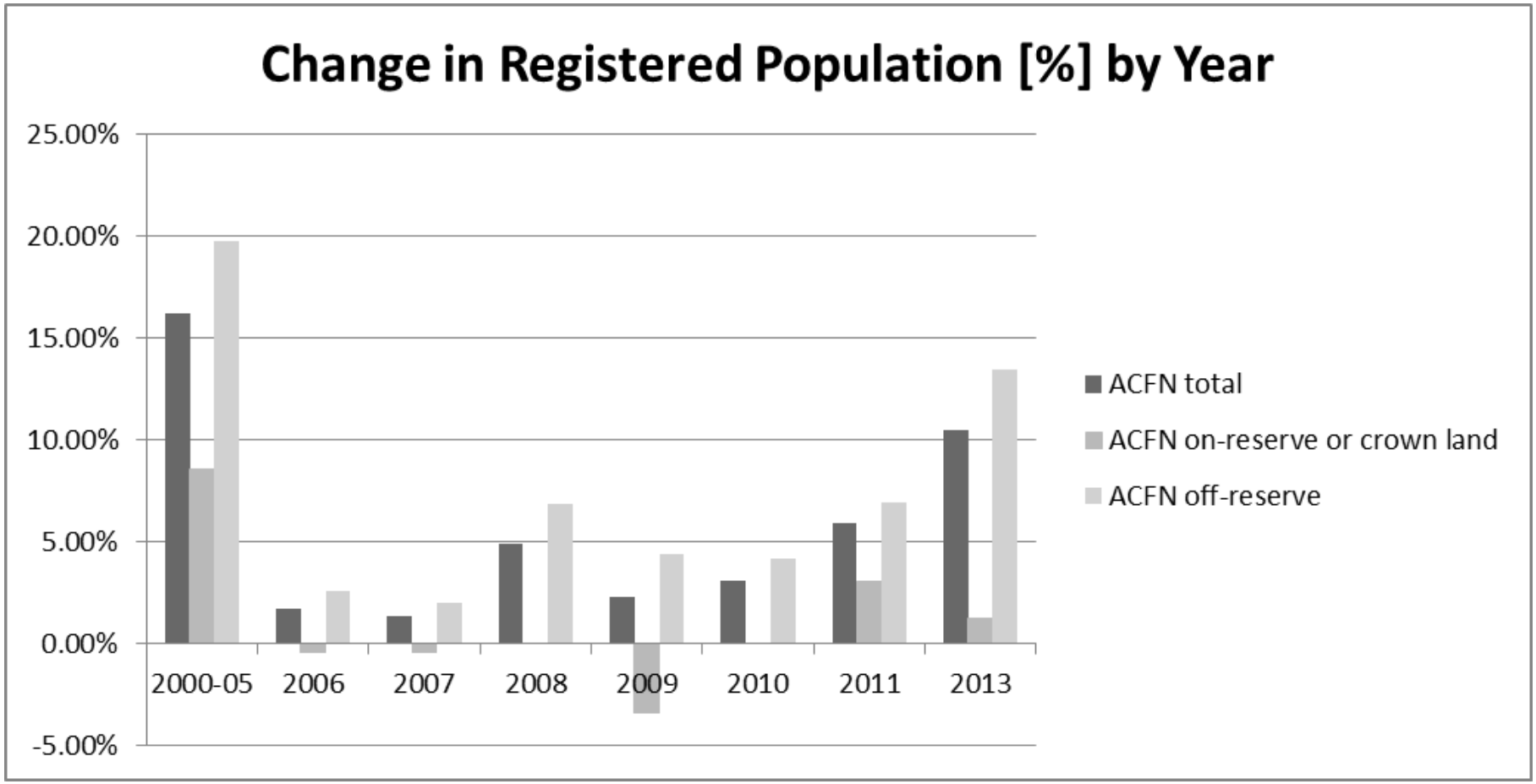
Sources: AANDC 2002; 2013a-d; Aboriginal Relations 2010; 2011; 2012; GOA 2013.
ACFN = Athabasca Chipewyan First Nation

Figure B-4 Athabasca Chipewyan First Nation Registered Population Trends 2000 to 2013 (continued)



Sources: AANDC 2002; 2013a-d; Aboriginal Relations 2010; 2011; 2012; GOA 2013.
ACFN = Athabasca Chipewyan First Nation

Figure B-4 Athabasca Chipewyan First Nation Registered Population Trends 2000 to 2013 (continued)



Sources: AANDC 2002; 2013a-d; Aboriginal Relations 2010; 2011; 2012; GOA 2013.
ACFN = Athabasca Chipewyan First Nation

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AANDC. 2013d. *Fort McMurray #468 First Nation Community Profile*. Available at: http://pse5-esd5.ainc-inac.gc.ca/fnp/Main/Search/FNMain.aspx?BAND_NUMBER=468&lang=eng. Accessed April 19, 2013.

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ATTACHMENT C

Baseline Application and Planned Development Case Disturbances in Traditional Territories

October 2013
Project No. 13-1346-0001

Golder Associates

Table C-1 2013 Base Case and 2013 PRM Application Case Disturbances in Fort McKay First Nation Traditional Territory

Disturbance Type	2013 Base Case Disturbance		2013 PRM Application Case Disturbance		Change	
	[ha]	[% of total]	[ha]	[% of total]	[ha]	[% increase/ decrease]
Oil Sands and other Oil and Gas						
mine development	143,568.1	47.6	155,176.1	49.7	11,608.0	8.1
pipeline	17,593.0	5.8	17,593.0	5.6	0.0	0
well site (active and inactive)	15,557.0	5.2	15,509.9	5.0	-47.1	-0.3
in situ development	10,870.7	3.6	10,870.7	3.5	0.0	0
subtotal	*187,588.8*	*62.3*	*199,149.7*	*63.8*	*11,560.9*	*6.2*
Forestry						
cutblock	86,524.1	28.7	86,524.1	27.7	0.0	0
Linear Access						
cutline/trail	14,078.7	4.7	13,895.2	4.4	-183.5	-1.3
seismic line	4,647.1	1.5	4,647.1	1.5	0.0	0
road	2,209.1	0.7	2,158.0	0.7	-51.1	-2.4
truck trail	261.7	0.1	261.7	0.1	0.0	0
subtotal	*21,196.6*	*7.0*	*20,962.0*	*6.7*	-234.6	-1.1
Other Disturbances						
municipalities	2,989.7	1.0	2,989.7	1.0	0.0	0
quarry	1,699.4	0.6	1,699.4	0.5	0.0	0
power line	517.2	0.2	517.2	0.2	0.0	0
urban/industrial/other	198.2	0.1	198.2	0.1	0.0	0
other[(a)]	144.6	<0.1	144.6	<0.1	0.0	0
borrow pits, dugouts, sumps	51.8	<0.1	51.8	<0.1	0.0	0
rural residential/industrial	48.1	<0.1	48.1	<0.1	0.0	0
rural industrial site	13.8	<0.0	13.8	<0.0	0.0	0
clearings	9.4	<0.0	5.0	<0.0	-4.4	-46.8
subtotal	*5,672.2*	*1.9*	*5,667.8*	*1.8*	*-4.4*	*0.1*
Total	**300,981.6**	**100**	**312,303.5**		**11,321.9**	**3.8**

[(a)] Includes other disturbed vegetation and development.

Note: Some numbers are rounded for presentation purposes. Therefore, it may appear that the totals do not equal the sum of the individual values.

The FMFN Traditional Territory used for this table (3,520,397 ha) does not include the area of the FMFN Traditional Territory that is outside Alberta provincial boundaries (4,704 ha).

Table C-2 2013 Base Case and 2013 PRM Application Case Disturbances in Mikisew Cree First Nation Traditional Territory

Disturbance Type	2013 Base Case Disturbance		2013 PRM Application Case Disturbance		Change	
	[ha]	[% of total]	[ha]	[% of total]	[ha]	[% increase/ decrease]
Oil Sands and other Oil and Gas						
mine development	143,692.5	36.4	155,300.6	38.2	11,608.1	8.1
pipeline	24,113.1	6.1	24,113.1	5.9	0.0	0
well site (active and inactive)	19,853.7	5.0	19,806.6	4.9	-47.1	-0.2
in situ development	9,338.2	2.4	9,338.2	2.3	0.0	0
subtotal	*196,997.6*	*49.9*	*208,558.5*	*51.3*	*11,561.0*	*5.9*
Forestry						
cutblock	149,265.6	37.8	149,265.6	36.7	0.0	0%
Linear Access						
cutline/trail	11,161.6	2.8	10,978.1	2.7	-183.5	-1.6
seismic line	17,591.4	4.5	17,591.4	4.3	0.0	0
road	7,403.5	1.9	7,352.4	1.8	-51.1	-0.7
truck trail	270.7	0.1	270.7	0.1	0.0	0
rail	295.1	0.1	295.1	0.1	0.0	0
subtotal	*36,722.3*	*9.3*	*36,487.7*	*9.0*	*-234.6*	*-0.6*
Other Disturbances						
municipalities	5,207.7	1.3	5,207.7	1.3	0.0	0
quarry	1,699.4	0.4	1,699.4	0.4	0.0	0
power and transmission lines	1,735.2	0.4	1,735.2	0.4	0.0	0
urban/industrial/other	356.4	0.1	356.4	0.1	0.0	0
other[(a)]	735.1	0.2	735.1	0.2	0.0	0
borrow pits, dugouts, sumps	101.1	<0.1	101.1	<0.1	0.0	0
rural residential/industrial	886.5	0.2	886.5	0.2	0.0	0
rural industrial site	1,307.6	0.3	1,307.6	0.3	0.0	0
clearings	9.4	<0.1	5.0	<0.1	-4.4	-46.8
subtotal	*12,038.5*	*3.0*	*12,034.1*	*3.0*	*-4.4*	*~0*
Total Disturbance	**395,024.0**	**100**	**406,345.9**	**100**	**11,351.9**	**2.9**

(a) Includes other disturbed vegetation, other development, cultivation and man-made lakes.

Note: Some numbers are rounded for presentation purposes. Therefore, it may appear that the totals do not equal the sum of the individual values.

The MCFN Traditional Territory used for this table (8,634,755 ha) does not include the area of the MCFN Traditional Territory that is outside Alberta provincial boundaries (2,123,869 ha).

Table C-3 2013 Base Case and 2013 PRM Application Case Disturbances in Athabasca Chipewyan First Nation Traditional Territory

Disturbance Type	2013 Base Case Disturbance		2013 PRM Application Case Disturbance		Change	
	[ha]	[% of total]	[ha]	[% of total]	[ha]	[% increase/ decrease]
Oil Sands and other Oil and Gas						
mine development	143,149.0	59.0	154,757.0	61.0	11,608	8.1
pipeline	8,888.3	3.7	8,888.3	3.5	0.0	0
well site (active and inactive)	12,290.8	5.1	12,243.7	4.8	-47.1	-0.4
in situ development	5,848.2	2.4	5,848.2	2.3	0.0	0
subtotal	*170,176.3*	*70.2*	*181,737.2*	*71.6*	*11,560.9*	*6.8*
Forestry						
cutblock	55,742.7	23.0	55,742.7	22.0	0.0	0
Linear Access						
cutline/trail	9,671.8	4.0	9,488.3	3.7	-183.5	-1.9
seismic line	644.3	0.3	644.3	0.3	0.0	0
road	3,324.4	1.4	3,273.3	1.3	-51.1	-1.5
truck trail	88.0	<0.1	88.0	<0.1	0.0	0
subtotal	*13,728.5*	*5.7*	*13,493.9*	*5.3*	*-234.6*	*-1.7*
Other Disturbances						
municipalities	242.1	0.1	242.1	0.1	0.0	0
quarry	1,699.4	0.7	1,699.4	0.7	0.0	0
power line	418.7	0.2	418.7	0.2	0.0	0
urban/industrial/other	222.8	0.1	222.8	0.1	0.0	0
other[(a)]	146.4	0.1	146.4	0.1	0.0	0
borrow pits, dugouts, sumps	5.1	<0.1	5.1	<0.1	0.0	0
rural residential/industrial	55.4	<0.1	55.4	<0.1	0.0	0
rural industrial site	56.0	<0.1	56.0	<0.1	0.0	0
clearings	9.4	<0.1	5.0	<0.1	-4.4	-46.8
subtotal	*2,855.3*	*1.2*	*2,850.9*	*1.1*	*-4.4*	*-0.2*
Total Disturbance	**242,502.8**	**100**	**253,824.7**	**100**	**11,321.9**	**4.7**

(a) Includes other disturbed vegetation, other development, cultivation and man-made lakes.

Note: Some numbers are rounded for presentation purposes. Therefore, it may appear that the totals do not equal the sum of the individual values.

The ACFN Traditional Territory used for this table (4,373,928 ha) does not include the area of the ACFN Traditional Territory that is outside Alberta provincial boundaries (1,738,862 ha).

Table C-4 2013 Base Case and 2013 PRM Application Case Disturbances in Fort McMurray #468 First Nation Traditional Territory

Disturbance Type	2013 Base Case Disturbance		2013 PRM Application Case Disturbance		Change	
	[ha]	[% of total]	[ha]	[% of total]	[ha]	[% increase/ decrease]
Oil Sands and other Oil and Gas						
mine development	147,311.6	8.0	153,864.8	8.3	6,553.2	4.5
pipeline	61,959.1	3.3	61,959.1	3.3	0.0	0
well site (active and inactive)	53,117.6	2.9	53,084.3	2.9	-33.3	-0.1
in situ development	11,063.6	0.6	11,063.6	0.6	0.0	0
subtotal	*273,451.8*	*14.8*	*279,971.7*	*15.1*	*6,519.9*	*2.4*
Forestry						
cutblock	363,600.3	19.6	363,600.3	19.6	0.0	0
Linear Access						
cutline/trail	11,348.7	0.6	11,209.6	0.6	-139.1	-1.2
seismic line	67,388.7	3.6	67,388.7	3.6	0.0	0
road	67,985.1	3.7	67,952.8	3.7	-32.3	-0.1
truck trail	272.9	<0.1	272.9	<0.1	0.0	0
rail	1,749.9	0.1	1,749.9	0.1	0.0	0
subtotal	*148,745.3*	*8.0*	*148,574.0*	*8.0*	*-171.3*	*-0.1*
Other Disturbances						
municipalities	5,454.2	0.3	5,454.2	0.3	0.0	0
quarry	1,699.4	0.1	1,699.4	0.1	0.0	0
power and transmission lines	6,369.2	0.3	6,369.2	0.3	0.0	0
urban/industrial/other	3,048.0	0.2	3,048.0	0.2	0.0	0
other[(a)]	1,010,362.1	54.6	1,010,362.1	54.6	0.0	0
borrow pits, dugouts, sumps	1,441.2	0.1	1,441.2	0.1	0.0	0
rural residential/industrial	34,045.1	1.8	34,045.1	1.8	0.0	0
rural industrial site	3,770.0	.2	3,770.0	.2	0.0	0
clearings	8.2	<0.1	4.3	<0.1	-3.9	47.6
subtotal	*1,066,197.2*	*57.6*	*1,066,193.4*	*57.4*	*-3.9*	*<0.1*
Total Disturbance	**1,851,994.7**	**100**	**1,858,339.4**	**100**	**6,344.7**	**0.3**

(a) Includes other development and disturbed vegetation, canals, cultivation, livestock operations, peat mine and man-made lakes.

Note: Some numbers are rounded for presentation purposes. Therefore, it may appear that the totals do not equal the sum of the individual values.

The FM468 Traditional Territory used for this table (9,965,443 ha) does not include the area of the FM468 Traditional Territory that is outside Alberta provincial boundaries (1,001,428 ha).

Table C-5 2013 Base Case and 2013 PRM Application Case Disturbances in First Nation Traditional Territories

First Nation Traditional Territory and Disturbance Type	2013 Base Case Disturbance		2013 PRM Application Case Disturbance		Change	
	[ha]	[% of total]	[ha]	[% of total]	[ha]	[% increase/ decrease]
Fort McKay First Nation						
oil sands and other oil and gas	187,588.8	62.3	199,149.7	63.8	11,560.9	6.2
forestry	86,524.1	28.7	86,524.1	27.7	0.0	0
linear access	21,196.6	7.0	20,962.0	6.7	-234.6	-1.1
other disturbances	5,672.2	1.9	5,667.8	1.8	-4.4	-0.1
total disturbance	**300,981.6**	**100**	**312,303.5**	**100**	**11,321.9**	**3.8**
Mikisew Cree First Nation						
oil sands and other oil and gas	196,997.6	49.9	208,558.5	51.3	11,590.9	5.9
forestry	149,265.6	37.8	149,265.6	36.7	0.0	0
linear access	36,722.3	9.3	36,487.7	9.0	-234.6	-0.6
other disturbances	12,038.5	3.0	12,034.1	3.0	-4.4	<0.1
total disturbance	**395,024.0**	**100**	**406,345.9**	**100**	**11,351.9**	**2.9**
Athabasca Chipewyan First Nation						
oil sands and other oil and gas	170,176.3	70.2	181,737.2	71.6	11,560.9	6.8
forestry	55,742.7	23.0	55,742.7	22.0	0.0	0.0
linear access	13,728.5	5.7	13,493.9	5.3	-234.6	-1.7
other disturbances	2,855.3	1.2	2,850.9	1.1	-4.4	-0.2
total disturbance	**242,502.8**	**100**	**253,824.7**	**100**	**11,321.9**	**4.7**
Fort McMurray #468 First Nation						
oil sands and other oil and gas	273,451.8	14.8	279,971.7	15.1	6,519.9	2.4
forestry	363,600.3	19.6	363,600.3	19.6	0.0	0
linear access	148,745.3	8.0	148,574.0	8.0	-171.3	-.1
other disturbances	1,066,197.2	57.6	1,066,193.4	57.4	-3.9	~0
total disturbance	**1,851,994.7**	**100**	**1,858,339.4**	**100**	**6,344.7**	**0.3**

Note: Some numbers are rounded for presentation purposes. Therefore, it may appear that the totals do not equal the sum of the individual values.

The Traditional Territories used for this table does not include the area of the Traditional Territories that is outside Alberta provincial boundaries.

Table C-6 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Disturbances in Fort McKay First Nation Traditional Territory

Disturbance Type	2013 Base Case Disturbance		2013 PRM Application Case Disturbance		2013 Planned Development Case Disturbance		Change from 2013 Base Case to PDC		Change from 2013 PRM Application Case to PDC	
	[ha]	[% of total]	[ha]	[% of total]	[ha]	[% of total]	[ha]	[%]	[ha]	[%]
Oil Sands and other Oil and Gas										
mine development	143,568.1	47.6	155,176.1	49.7	218,310.8	51.1	74,742.7	52.1	63,134.7	40.7
pipeline	17,593.0	5.8	17,593.0	5.6	16,459.4	3.9	-1,133.6	-6.4	-1,133.6	-6.4
well site (active and inactive)	15,557.0	5.2	15,509.9	5.0	12,580.0	2.9	-2,977.0	-19.1	-2,929.9	-18.9
in situ development	10,870.7	3.6	10,870.7	3.5	60,352.1	14.1	49,481.4	455.2	49,481.4	455.2
subtotal	*187,588.8*	*62.3*	*199,149.7*	*63.8*	*307,702.3*	*72.0*	*120,113.5*	*64.0*	*108,552.6*	*54.5*
Forestry										
cutblock	86,524.1	28.7	86,524.1	27.7	85,654.1	20.0	-870.0	-1.0	-870.0	-1.0
Linear Access										
cutline/trail	14,078.7	4.7	13,895.2	4.4	12,472.8	2.9	-1,605.9	-11.4	-1,422.4	-10.2
seismic line	4,647.1	1.5	4,647.1	1.5	4,647.1	1.1	0.0	0	0.0	0
road	2,209.1	0.7	2,158.0	0.7	1,966.2	0.5	-242.9	-11.0	-191.8	-8.9
truck trail	261.7	0.1	261.7	0.1	251.8	0.1	-9.9	-3.8	-9.9	-3.8
subtotal	*21,196.6*	*7.0*	*20,962.0*	*6.7*	*19,337.9*	*4.5*	*-1,858.7*	*-8.7*	*-1,624.1*	*-7.7*
Other Disturbances										
municipalities	2,989.7	1.0	2,989.7	1.0	11,146.4	2.6	8,156.7	272.8	8,156.7	272.8
quarry	1,699.4	0.6	1,699.4	0.5	2,223.1	0.5	523.7	30.8	523.7	30.8
power lines	517.2	0.2	517.2	0.2	424.4	0.1	-92.8	-17.9	-92.8	-17.9
urban/industrial/other	198.2	0.1	198.2	0.1	193.1	<0.1	-5.1	-2.6	-5.1	-2.6
other[(a)]	144.6	<0.1	144.6	<0.1	422.7	0.1	278.1	192.3	278.1	192.3
borrow pits, dugouts, sumps	51.8	<0.1	51.8	<0.1	51.8	<0.1	0.0	0	0.0	0
rural residential/industrial	48.1	<0.1	48.1	<0.1	48.1	<0.1	0.0	0	0.0	0
rural industrial site	13.8	<0.0	13.8	<0.0	13.8	<0.0	0.0	0	0.0	0
clearings	9.4	<0.0	5.0	<0.0	1.8	<0.0	-7.6	-80.9	-3.2	-64.0
subtotal	*5,672.2*	*1.9*	*5,667.8*	*1.8*	*14,525.2*	*3.4*	*8,853.0*	*156.1*	*8,857.4*	*156.3*
Total Disturbance	**300,981.6**	**100**	**312,303.5**	**100**	**427,219.4**	**100**	**126,237.8**	**41.9**	**114,915.9**	**36.8**

(a) Includes other disturbed vegetation and development.

Note: Some numbers are rounded for presentation purposes. Therefore, it may appear that the totals do not equal the sum of the individual values.

The FMFN Traditional Territory used for this table (3,520,397 ha) does not include the area of the FMFN Traditional Territory that is outside Alberta provincial boundaries (4,703.9 ha).

Table C-7 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Disturbances in Mikisew Cree First Nation Traditional Territory

Disturbance Type	2013 Base Case Disturbance		2013 PRM Application Case Disturbance		2013 Planned Development Case Disturbance		Change from 2013 Base Case to PDC		Change from 2013 PRM Application Case to PDC	
	[ha]	[% of total]	[ha]	[% of total]	[ha]	[% of total]	[ha]	[% increase]	[ha]	[% increase]
Oil Sands and other Oil and Gas										
mine development	143,692.5	36.4	155,300.6	38.2	218,435.3	42.2	74,742.8	52.0	63,134.7	40.7
pipeline	24,113.1	6.1	24,113.1	5.9	22,725.0	4.4	-1,388.1	-5.8	-1,388.1	-5.8
well site (active and inactive)	19,853.7	5.0	19,806.6	4.9	17,103.3	3.3	-2,750.4	-13.9	-2,703.3	-13.7
in situ development	9,338.2	2.4	9,338.2	2.3	47,974.8	9.3	38,636.6	413.8	38,636.6	413.8
subtotal	*196,997.6*	*49.9*	*208,558.5*	*51.3*	306,238.4	59.2	*109,240.8*	*55.5*	*97,679.9*	*46.8*
Forestry										
Cutblock	149,265.6	37.8	149,265.6	36.7	148,218.0	28.7	-1,047.6	-0.7	-1,047.6	-0.7
Linear Access										
cutline/trail	11,161.6	2.8	10,978.1	2.7	9,607.3	1.9	-1,554.3	-13.9	-1,370.8	-12.5
seismic line	17,591.4	4.5	17,591.4	4.3	17,591.4	3.4	0.0	0	0.0	0
road	7,403.5	1.9	7,352.4	1.8	7,072.2	1.4	-331.3	-4.5	-280.2	-3.8
truck trail	270.7	0.1	270.7	0.1	259.8	0.1	-10.9	-4.0	-10.9	-4.0
rail	295.1	0.1	295.1	0.1	295.1	0.1	0.0	0	0.0	0
subtotal	*36,722.3*	*9.3*	*36,487.7*	*9.0*	34,825.8	6.7	*-1,896.5*	*-5.2*	*-1,661.9*	*-4.6*
Other Disturbances										
municipalities	5,207.7	1.3	5,207.7	1.3	20,469.9	4.0	15,262.2	293.1	15,262.2	293.1
quarry	1,699.4	0.4	1,699.4	0.4	2,223.1	0.4	523.7	30.8	523.7	30.8
power and transmission lines	1,735.2	0.4	1735.2	0.4	1,633.1	0.3	-102.1	-5.9	-102.1	-5.9
urban/industrial/other	356.4	0.1	356.4	0.1	259.5	0.1	-96.9	-27.2	-96.9	-27.2
other[(a)]	735.1	0.2	735.1	0.2	1,013.11	0.2	278.0	37.8	278.0	37.8
borrow pits, dugouts, sumps	101.1	<0.1	101.1	<0.1	101.1	<0.1	0.0	0	0.0	0
rural residential/industrial	886.5	0.2	886.5	0.2	886.5	0.2	0.0	0	0.0	0
rural industrial site	1307.6	0.3	1,307.6	0.3	1,307.6	0.3	0.0	0	0.0	0
clearings	9.4	<0.1	5.0	<0.1	1.8	<0.1	-7.6	-80.9	-3.2	-64.0
subtotal	*12,038.5*	*3.0*	*12,034.1*	*3.0*	27,895.8	5.4	*15,857.3*	*131.7*	*15,861.7*	*131.8*
Total Disturbance	**395,024.0**	**100**	**406,345.9**	**100**	**517,178.0**	**100**	**122,154.0**	**30.9**	**110,832.1**	**27.3**

(a) Includes other disturbed vegetation, other development, cultivation and man-made lakes.

Note: Some numbers are rounded for presentation purposes. Therefore, it may appear that the totals do not equal the sum of the individual values.

The MCFN Traditional Territory used for this table (8,634,755 ha) does not include the area of the MCFN Traditional Territory that is outside Alberta provincial boundaries (2,123,868.8 ha).

Table C-8 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Disturbances in Athabasca Chipewyan First Nation Traditional Territory

Disturbance Type	2013 Base Case Disturbance		2013 PRM Application Case Disturbance		2013 Planned Development Case Disturbance		Change from 2013 Base Case to PDC		Change from 2013 PRM Application Case to PDC	
	[ha]	[% of total]	[ha]	[% of total]	[ha]	[% of total]	[ha]	[%]	[ha]	[%]
Oil Sands and other Oil and Gas										
mine development	143,149.0	59.0	154,757.0	61.0	217,853.3	67.1	74,704.3	52.2	63,096.3	40.8
pipeline	8,888.3	3.7	8,888.3	3.5	8,147.0	2.5	-741.3	-8.3	-741.3	-8.3
well site (active and inactive)	12,290.8	5.1	12,243.7	4.8	9,862.5	3.0	-2,428.3	-19.8	-2,381.2	-19.5
in situ development	5,848.2	2.4	5,848.2	2.3	17,523.0	5.4	11,674.8	199.6	11,674.8	199.6
subtotal	*170,176.3*	*70.2*	*181,737.2*	*71.6*	*253,385.8*	*78.0*	*83,209.5*	*48.9*	*71,648.6*	*39.4*
Forestry										
cutblock	55,742.7	23.0	55,742.7	22.0	55,496.4	17.1	-246.3	-0.4	-246.3	-0.4
Linear Access										
cutline/trail	9,671.8	4.0	9,488.3	3.7	8,535.0	2.6	-1,136.8	-11.8	-953.3	-10.0
seismic line	644.3	0.3	644.3	0.3	644.3	0.2	0.0	0	0.0	0
road	3,324.4	1.4	3,273.3	1.3	3,111.2	1.0	-213.2	-6.4	-162.1	-5.0
truck trail	88.0	<0.1	88.0	<0.1	87.1	<0.1	-0.9	-1.0	-0.9	-1.0
subtotal	*13,728.5*	*5.7*	*13,493.9*	*5.3*	*12,377.6*	*3.8*	*-1,350.9*	*-9.8*	*-1,116.3*	*-8.3*
Other Disturbances										
municipalities	242.1	0.1	242.1	0.1	242.1	0.1	0.0	0	0.0	0
quarry	1,699.4	0.7	1,699.4	0.7	2,196.1	0.7	496.7	29.2	496.7	29.2
power line	418.7	0.2	418.7	0.2	369.0	0.1	-49.7	-11.9	49.7	-11.9
urban/industrial/other	222.8	0.1	222.8	0.1	169.2	0.1	-1.5	-0.7	-1.5	-0.7
other[(a)]	146.4	0.1	146.4	0.1	476.5	0.1	278.0	189.9	278.0	189.9
borrow pits, dugouts, sumps	5.1	<0.1	5.1	<0.1	5.1	<0.1	0.0	0	0.0	0
rural residential/industrial	55.4	<0.1	55.4	<0.1	56.0	<0.1	0.6	1.1	0.6	1.1
rural industrial site	56.0	<0.1	56.0	<0.1	56.0	<0.1	0.0	0	0.0	0
clearings	9.4	<0.1	5.0	<0.1	1.8	<0.1	-7.6	-80.9	-3.2	-64
subtotal	*2,855.3*	*1.2*	*2,850.9*	*1.1*	*3,571.3*	*1.1*	*716.0*	*25.1*	*720.4*	*25.3*
Total Disturbance	**242,502.8**	**100**	**253,824.7**	**100**	**324,831.0**	**100**	**82,328.2**	**34.0**	**71,006.3**	**28.0**

(a) Includes other disturbed vegetation, other development, cultivation and man-made lakes.

Note: Some numbers are rounded for presentation purposes. Therefore, it may appear that the totals do not equal the sum of the individual values.

The ACFN Traditional Territory used for this table (4,373,928 ha) does not include the area of the ACFN Traditional Territory that is outside Alberta provincial boundaries (1,738,862.4 ha).

Table C-9 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Disturbances in Fort McMurray #468 First Nation Traditional Territory

Disturbance Type	2013 Base Case Disturbance		2013 PRM Application Case Disturbance		2013 Planned Development Case Disturbance		Change from 2013 Base Case to PDC		Change from 2013 PRM Application Case to PDC	
	[ha]	[% of total]	[ha]	[% of total]	[ha]	[% of total]	[ha]	[%]	[ha]	[%]
Oil Sands and other Oil and Gas										
mine development	147,311.6	8.0	153,864.8	8.3	185,283.7	9.5	37,972.1	25.8	31,418.9	20.4
pipeline	61,959.1	3.3	61,959.1	3.3	60,556.7	3.1	-1,402.4	-2.3	-1,402.4	-2.3
well site (active and inactive)	53,117.6	2.9	53,084.3	2.9	50,712.6	2.6	-2,405.0	-4.5	-2,371.7	-4.5
in situ development	11,063.6	0.6	11,063.6	0.6	60,555.3	3.1	49,491.7	447.3	49,491.7	447.3
subtotal	*273,451.8*	*14.8*	*279,971.7*	*15.1*	*357,108.3*	*18.3*	*83,656.5*	*30.6*	*77,136.5*	*27.6*
Forestry										
cutblock	363,600.3	19.6	363,600.3	19.6	362,759.0	18.6	-841.3	-0.2	-841.3	-0.2
Linear Access										
cutline/trail	11,348.7	0.6	11,209.6	0.6	9,959.2	0.5	-1,389.5	-12.25	-1,250.4	-11.2
seismic line	67,388.7	3.6	67,388.7	3.6	67,388.7	3.5	0.0	0	0.0	0
road	67,985.1	3.7	67,952.8	3.7	67,690.8	3.5	-294.3	-0.4	-262.0	-0.4
truck trail	272.9	<0.1	272.9	<0.1	262.0	<0.1	-10.9	-4.0	-10.9	-4.0
rail	1,749.9	0.1	1,749.9	0.1	1,749.9	0.1	0.0	0	0.0	0
subtotal	*148,745.3*	*8.0*	*148,574.0*	*8.0*	*147,050.6*	*7.5*	*-1,694.7*	*-1.1*	*-1,523.4*	*1.0*
Other Disturbances										
municipalities	5,454.2	0.3	5,454.2	0.3	20,716.4	1.1	15,262.19	279.8	15,262.19	279.8
quarry	1,699.4	0.1	1,699.4	0.1	2,223.1	0.1	523.72	30.8	523.72	30.8
power and transmission lines	6,369.2	0.3	6,369.2	0.3	6,267.0	0.3	-102.2	-1.6	-102.2	-1.6
urban/industrial/other	3,048.0	0.2	3,048.0	0.2	2,947.5	0.2	-100.6	-3.3	-100.6	-3.3
other[(a)]	1,010,362.1	54.6	1,010,362.1	54.6	1,010,362.1	51.8	0.0	0	0.0	0
borrow pits, dugouts, sumps	1,441.2	0.1	1,441.2	0.1	1,441.2	0.1	0.0	0	0.0	0
rural residential/industrial	34,045.1	1.8	34,045.1	1.8	34,045.1	1.7	0.0	0	0.0	0
rural industrial site	3,770.0	.2	3,770.0	.2	3,770.0	0.2	0.0	0	0.0	0
clearings	8.2	<0.1	4.3	<0.1	1.1	<0.1	-7.0	-86.1	-3.1	-73.45
subtotal	*1,066,197.2*	*57.6*	*1,066,193.4*	*57.4*	*1,081,773.4*	*55.5*	*15,576.2*	*1.5*	*15,580.1*	*1.5*
Total Disturbance	**1,851,994.7**	**100**	**1,858,339.4**	**100**	**1,948,691.3**	**100**	**96,696.6**	**5.2**	**90,351.9**	**4.9**

(a) Includes other development and disturbed vegetation, canals, cultivation, livestock operations, peat mine and man-made lakes.

Note: Some numbers are rounded for presentation purposes. Therefore, it may appear that the totals do not equal the sum of the individual values.

The FM468 Traditional Territory used for this table (9,965,443 ha) does not include the area of the FM468 Traditional Territory that is outside Alberta provincial boundaries (1,001,428 ha).

Table C-10 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Disturbances in First Nation Traditional Territories

First Nation Traditional Territory and Disturbance Type	2013 Base Case Disturbance		2013 PRM Application Case Disturbance		2013 Planned Development Case Disturbance		Change from 2013 Base Case to PDC		Change from 2013 PRM Application Case to PDC	
	[ha]	[% of total]	[ha]	[% of total]	[ha]	[% of total]	[ha]	[%]	[ha]	[%]
Fort McKay First Nation										
oil sands and other oil and gas	187,588.8	62.3	199,149.7	63.8	307,702.3	72.0	120,113.5	64.0	108,552.6	54.5
forestry	86,524.1	28.7	86,524.1	27.7	85,654.1	20.0	-870.0	-1.0	-870.0	-1.0
linear access	21,196.6	7.0	20,962.0	6.7	19,337.9	4.5	-1,858.7	-8.7	-1,624.1	-7.7
other disturbances	5,672.2	1.9	5,667.8	1.8	14,525.2	3.4	8,853.0	56.1	8,857.4	156.3
total disturbance	**300,981.6**	**100**	**312,303.5**	**100**	**427,219.4**	**100**	**126,237.8**	**41.9**	**114,915.9**	**36.8**
Mikisew Cree First Nation										
oil sands and other oil and gas	196,997.6	49.9	208,558.5	51.3	306,238.4	59.2	109,240.8	55.5	97,679.9	46.8
forestry	149,265.6	37.8	149,265.6	36.7	148,218.0	28.7	-1,047.6	-0.7	-1,047.6	-0.7
linear access	36,722.3	9.3	36,487.7	9.0	34,825.8	6.7	-1,896.5	-5.2	-1,661.9	-4.6
other disturbances	12,038.5	3.0	12,034.1	3.0	27,895.8	5.4	15,857.3	131.7	15,861.7	131.8
total disturbance	**395,024.0**	**100**	**406,345.9**	**100**	**517,178.0**	**100**	**122,154.0**	**30.9**	**110,832.1**	**27.3**
Athabasca Chipewyan First Nation										
oil sands and other oil and gas	170,176.3	70.2	181,737.2	71.6	253,385.8	78.0	83,209.5	48.9	71,648.6	39.4
forestry	55,742.7	23.0	55,742.7	22.0	55,496.4	17.1	-246.3	-0.4	-246.3	-0.4
linear access	13,728.5	5.7	13,493.9	5.3	12,377.6	3.8	-1,350.9	-9.8	-1,116.3	-8.3
other disturbances	2,855.3	1.2	2,850.9	1.1	3,571.3	1.1	716.0	25.1	720.4	25.3
total disturbance	**242,502.8**	**100**	**253,824.7**	**100**	**324,831.0**	**100**	**82,328.2**	**34.0**	**71,006.3**	**28.0**
Fort McMurray #468 First Nation										
oil sands and other oil and gas	273,451.8	14.8	279,971.7	15.1	357,108.3	18.3	83,656.5	30.6	77,136.5	27.6
forestry	363,600.3	19.6	363,600.3	19.6	362,759.0	18.6	-841.3	-0.2	-841.3	-0.2
linear access	148,745.3	8.0	148,574.0	8.0	147,050.6	7.5	-1,694.7	-1.1	-1,523.4	1.0
other disturbances	1,066,197.2	57.6	1,066,193.4	57.4	1,081,773.4	55.5	15,576.2	1.5	15,580.1	1.5
total disturbance	**1,851,994.7**	**100**	**1,858,339.4**	**100**	**1,948,691.3**	**100**	**96,696.6**	**5.2**	**90,351.9**	**4.9**

Note: Some numbers are rounded for presentation purposes. Therefore, it may appear that the totals do not equal the sum of the individual values.

The Traditional Territories used for this table do not include the area of the Traditional Territories that is outside Alberta provincial boundaries.

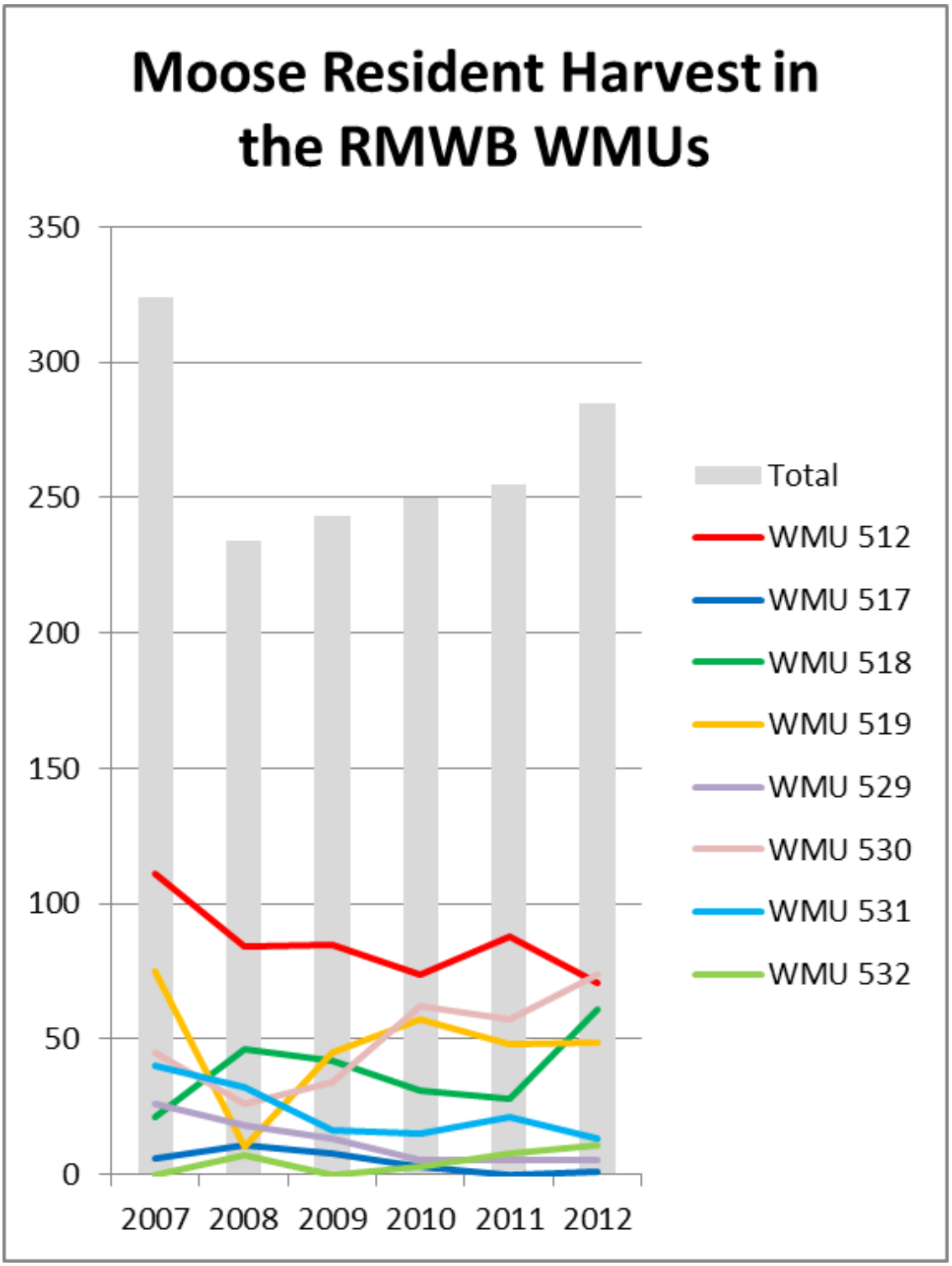
ATTACHMENT D

Hunting Trends in the Regional Municipality of Wood Buffalo Wildlife Management Units

October 2013
Project No. 13-1346-0001

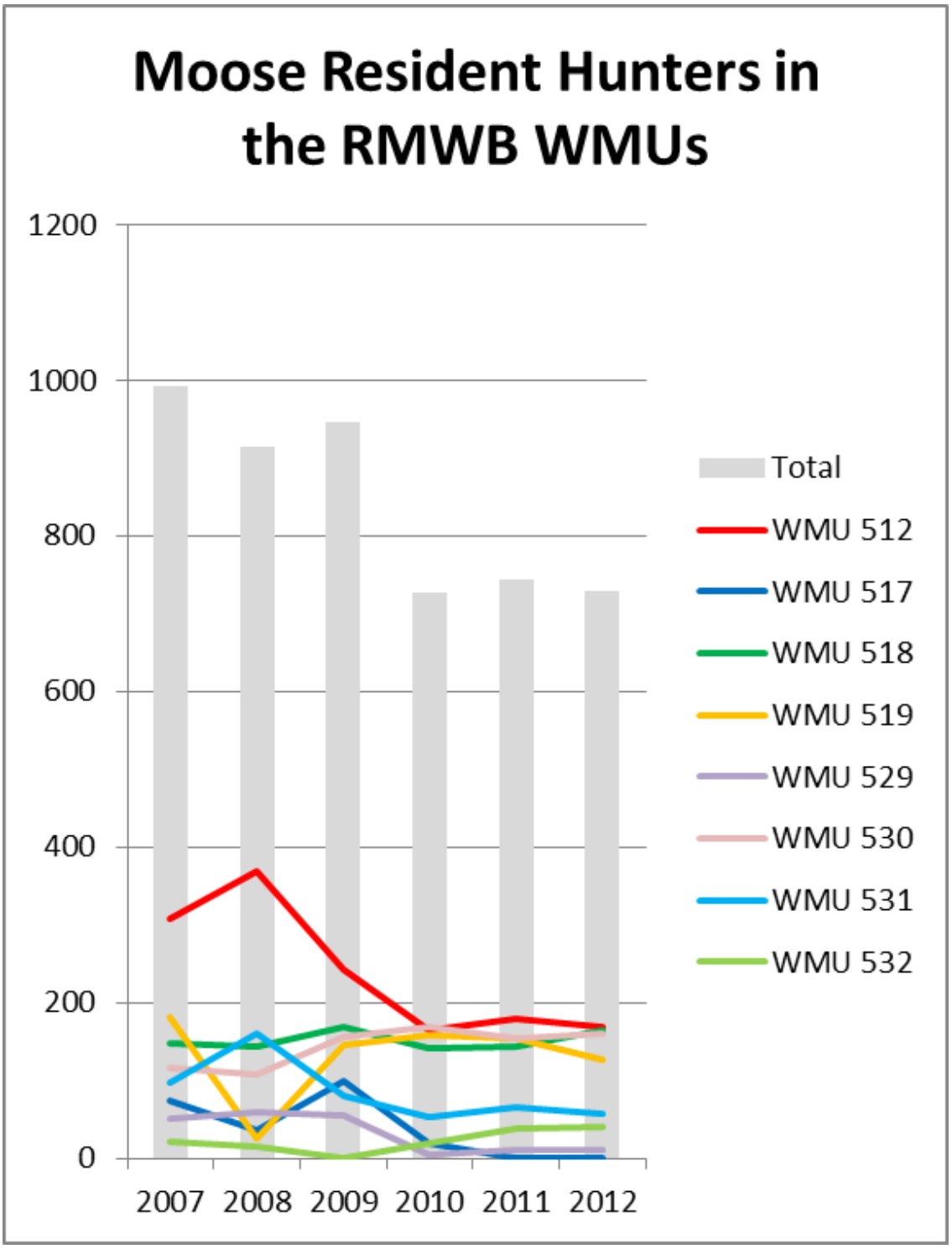
Golder Associates

Figure D-1 Resident Harvests and Hunters of Moose



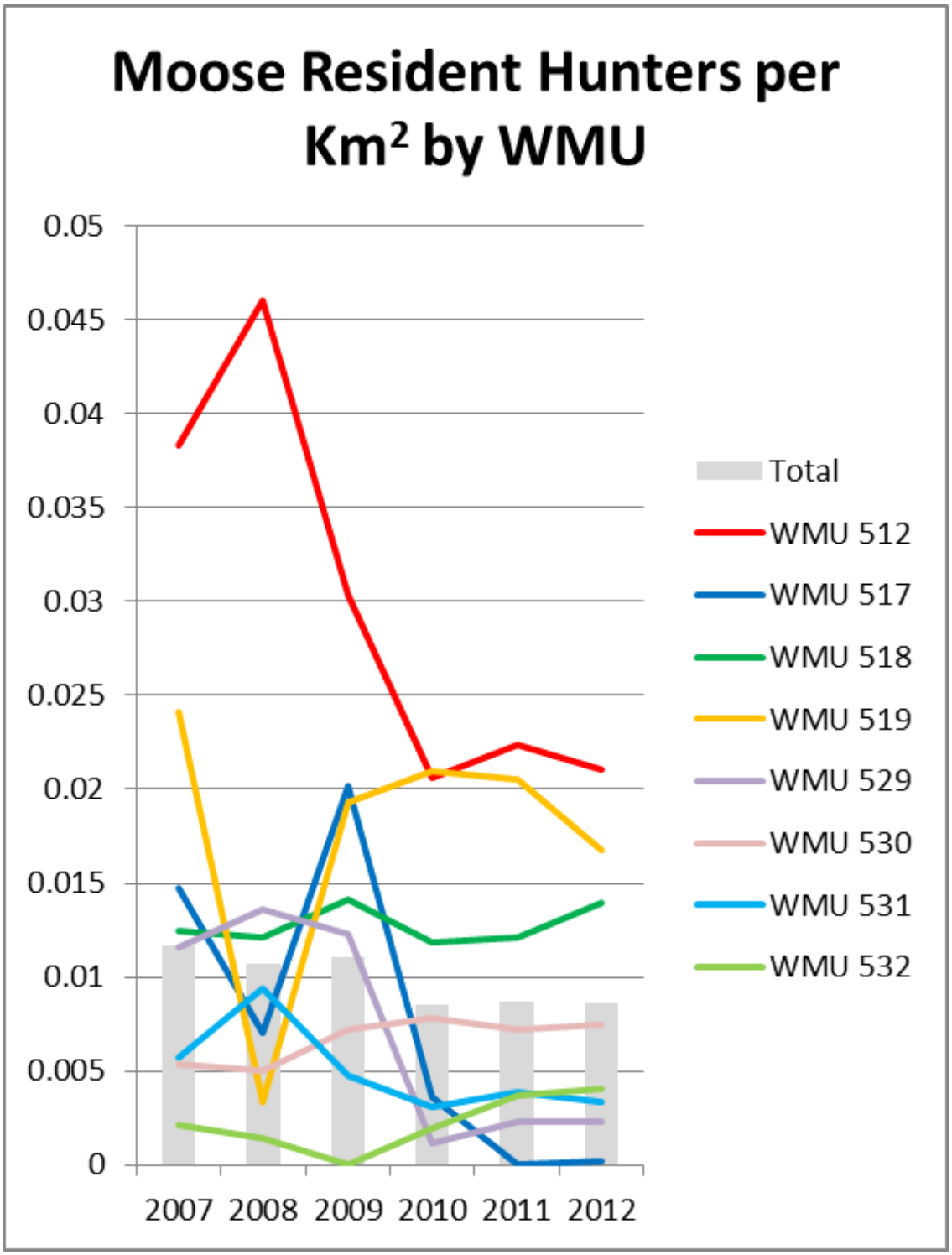
Source: Government of Alberta 2013.

Figure D-1 Resident Harvests and Hunters of Moose (continued)



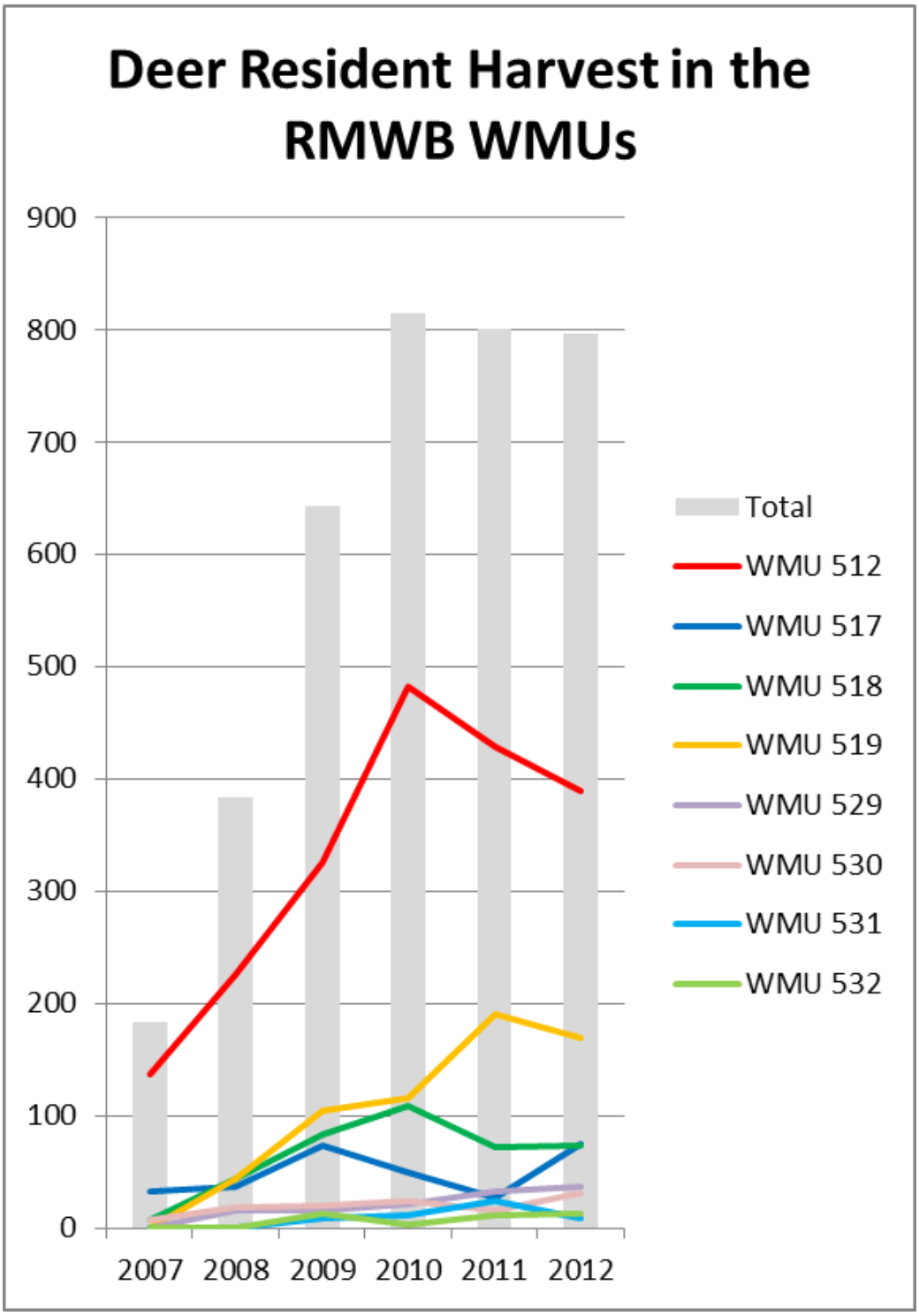
Source: Government of Alberta 2013.

Figure D-1 Resident Harvests and Hunters of Moose (continued)



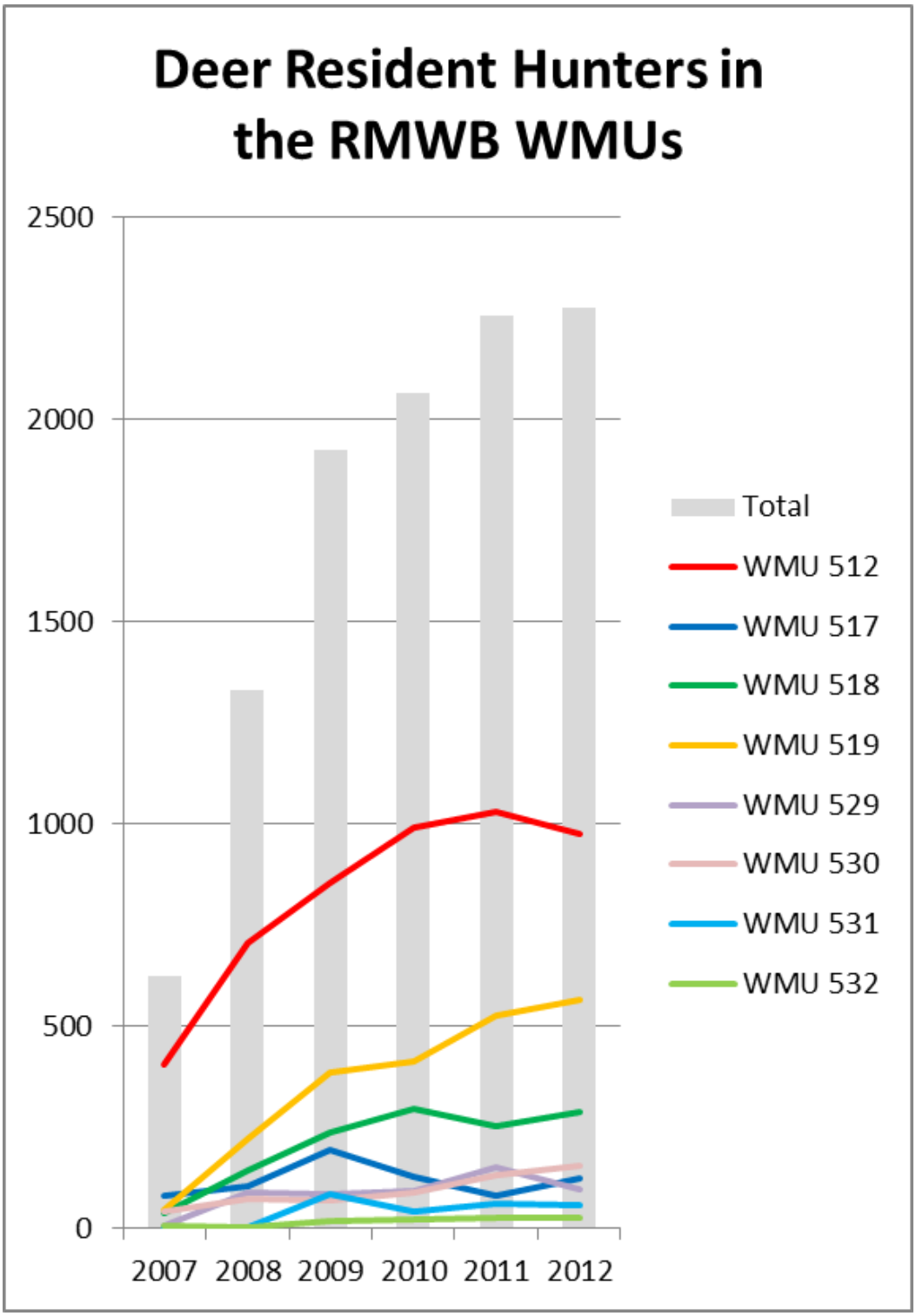
Source: Government of Alberta 2013.

Figure D-2 Resident Harvests and Hunters of Deer



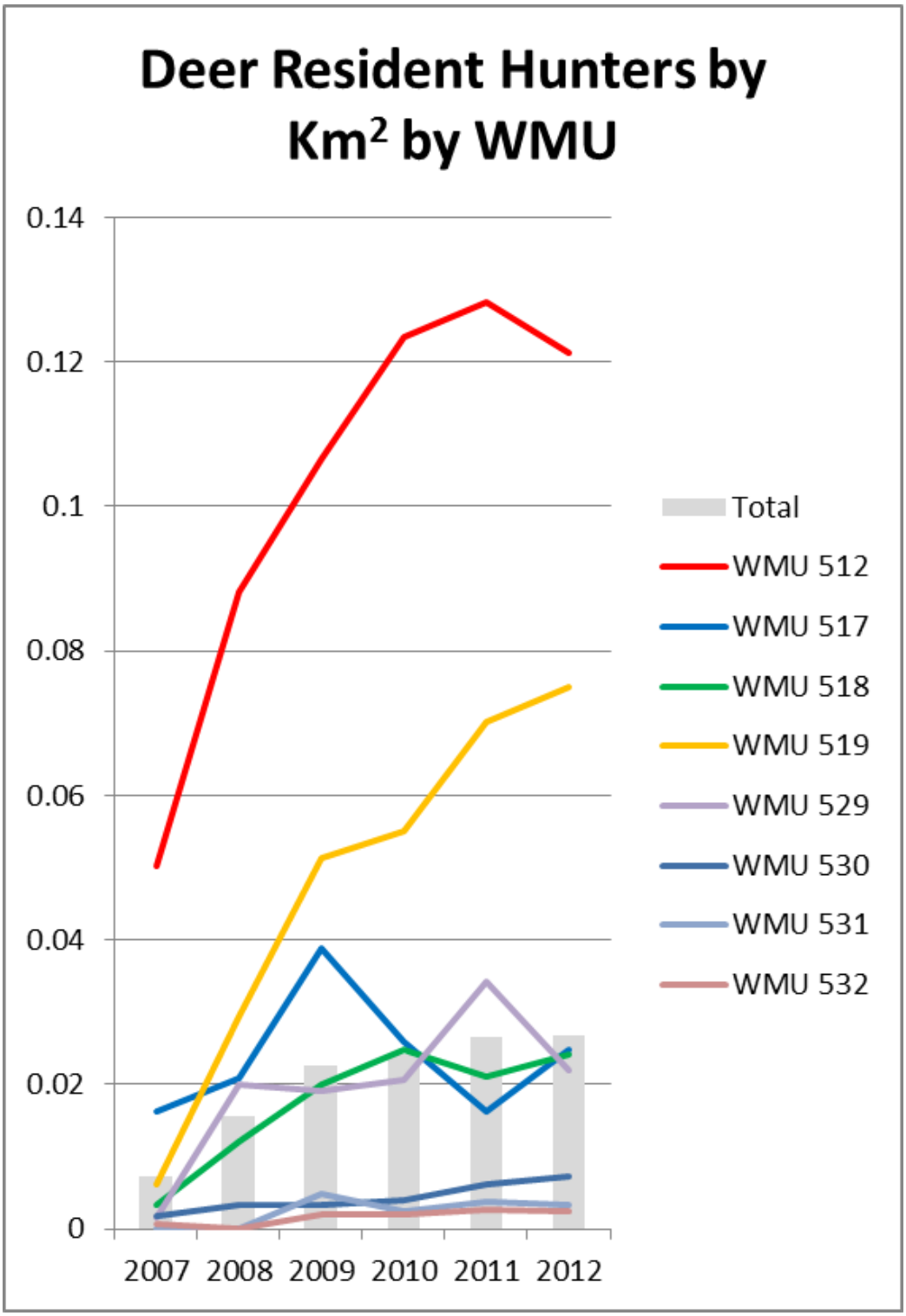
Source: Government of Alberta 2013.

Figure D-2 Resident Harvests and Hunters of Deer (continued)



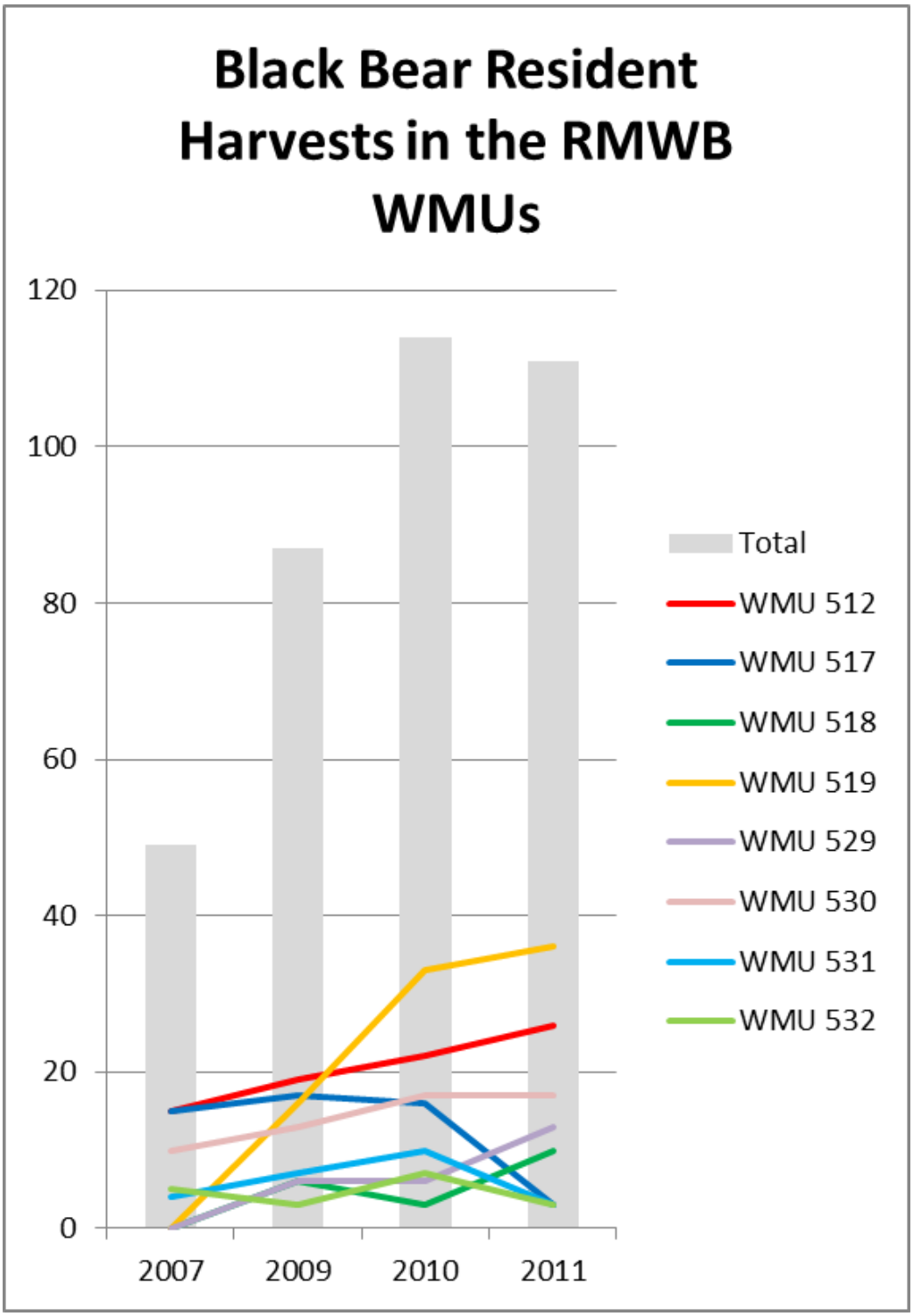
Source: Government of Alberta 2013.

Figure D-2 Resident Harvests and Hunters of Deer (continued)



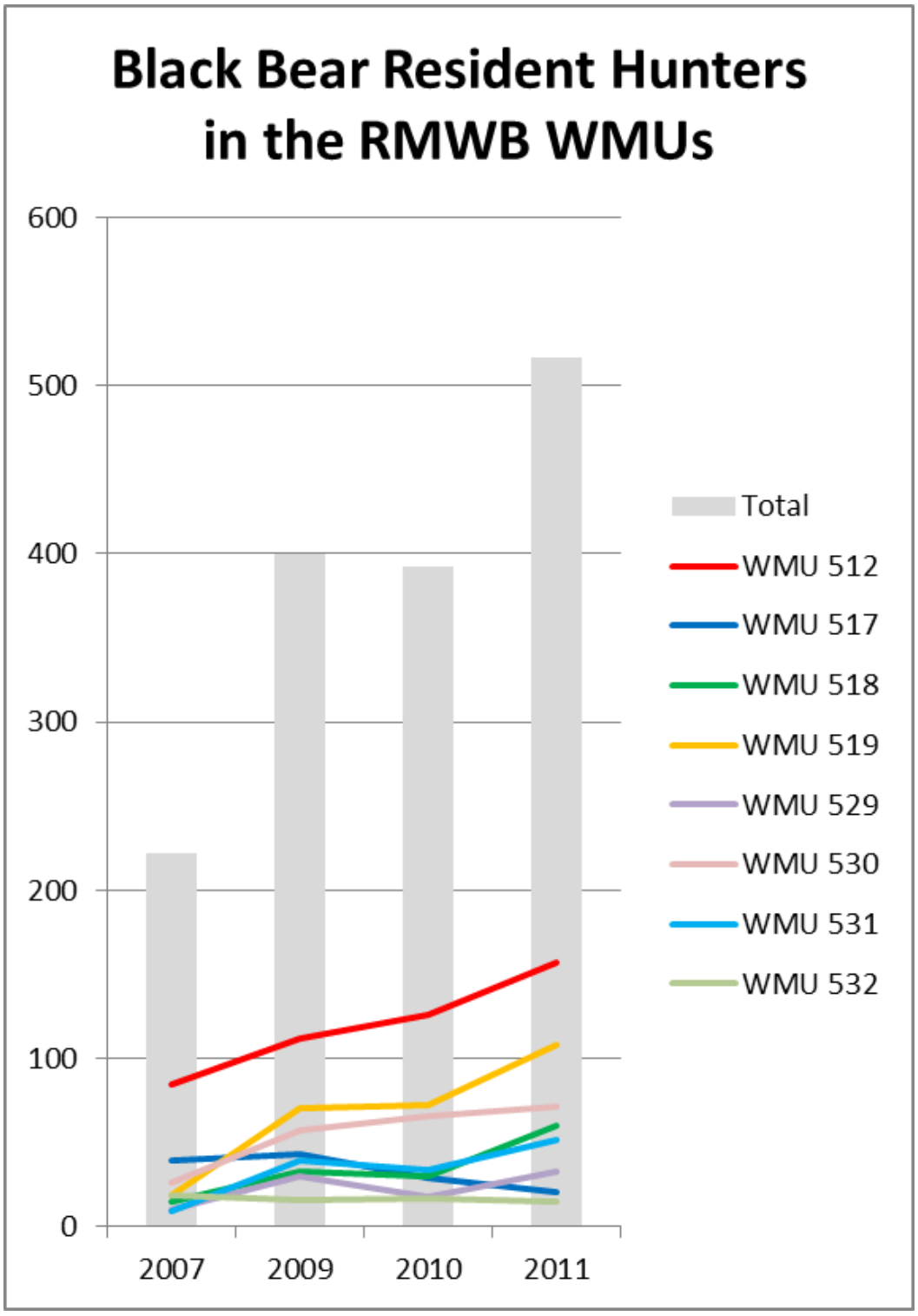
Source: Government of Alberta 2013.

Figure D-3 Resident Harvests and Hunters of Black Bear



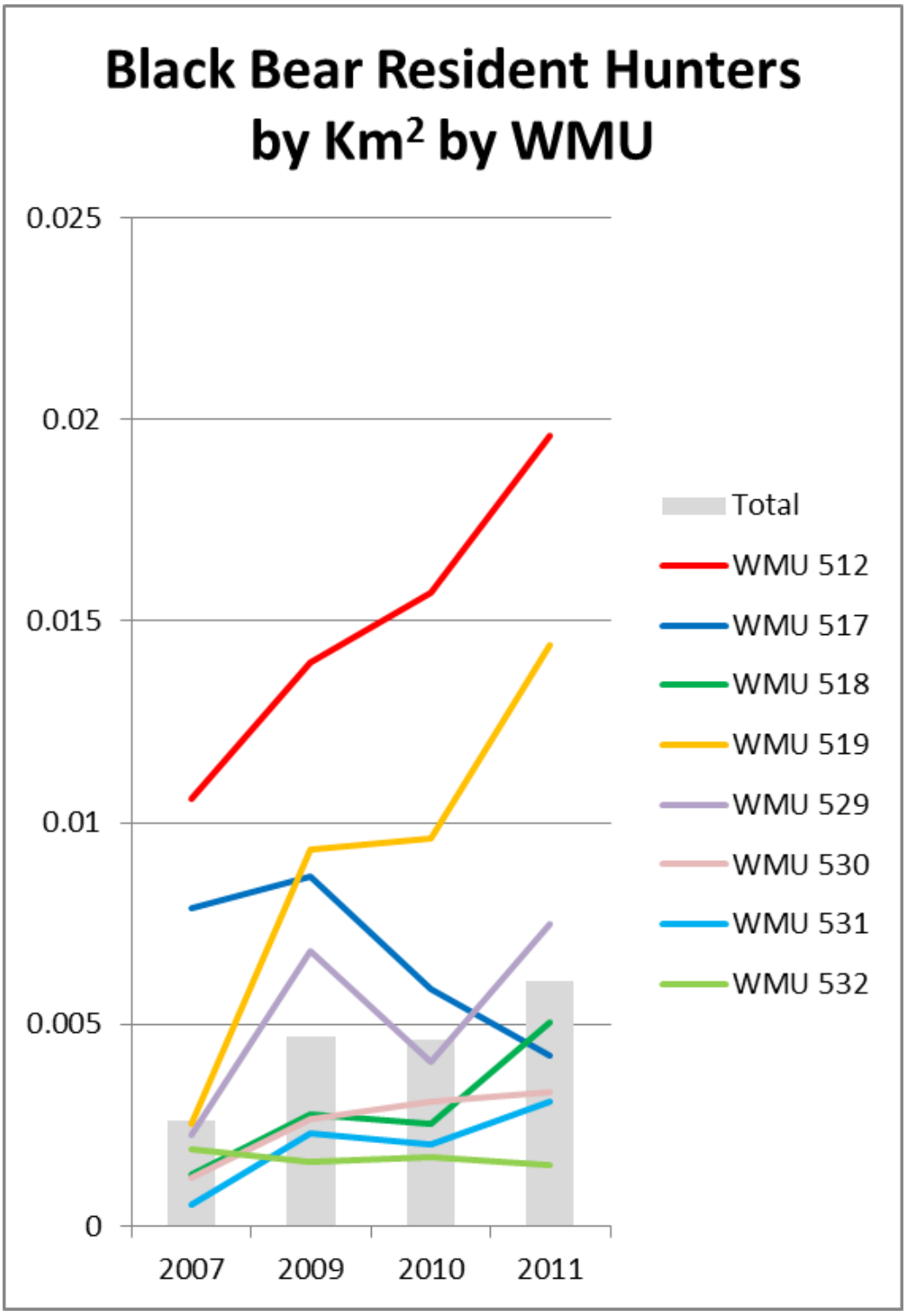
Source: Government of Alberta 2013.

Figure D-3 Resident Harvests and Hunters of Black Bear (continued)



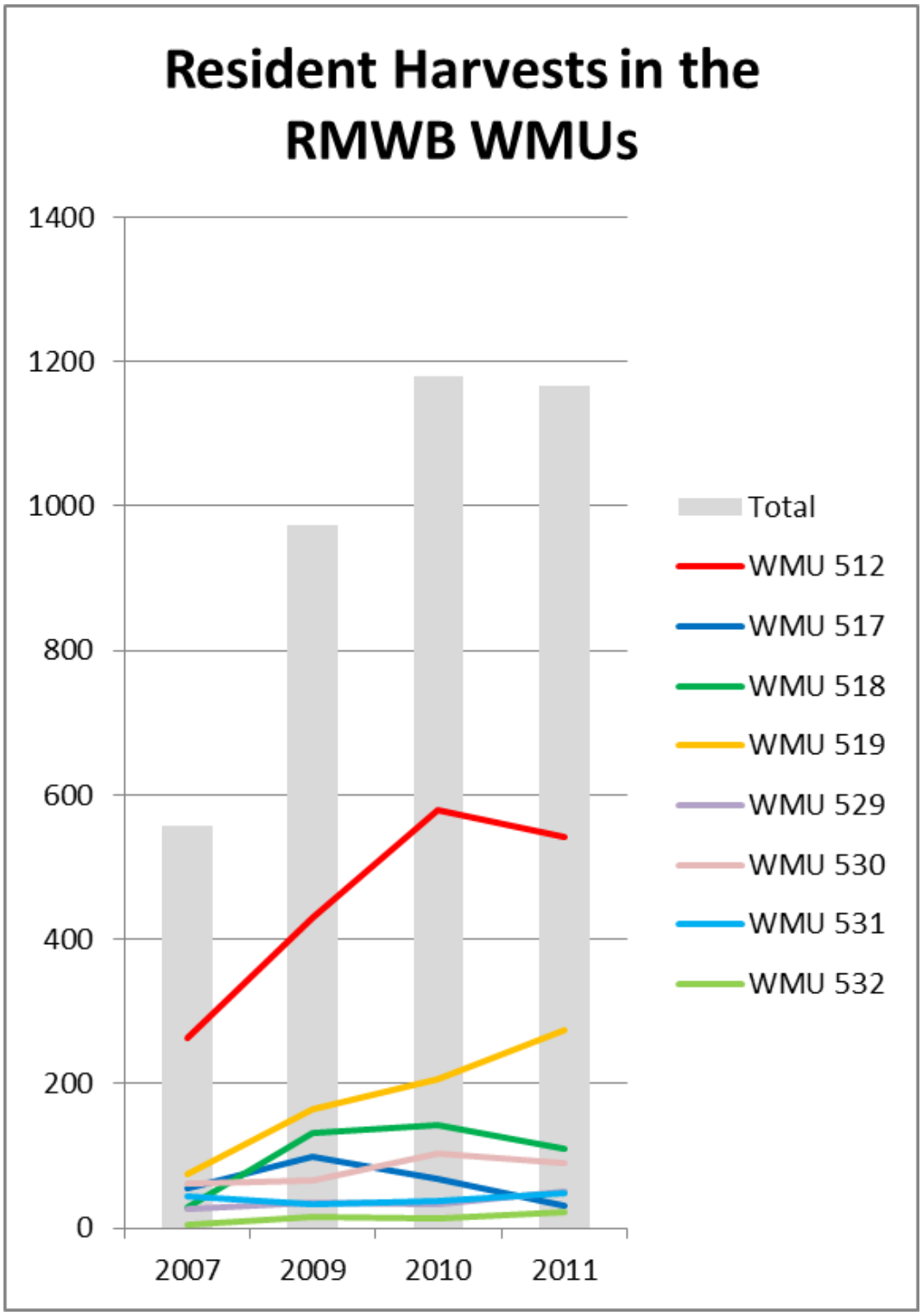
Source: Government of Alberta 2013.

Figure D-3 Resident Harvests and Hunters of Black Bear (continued)



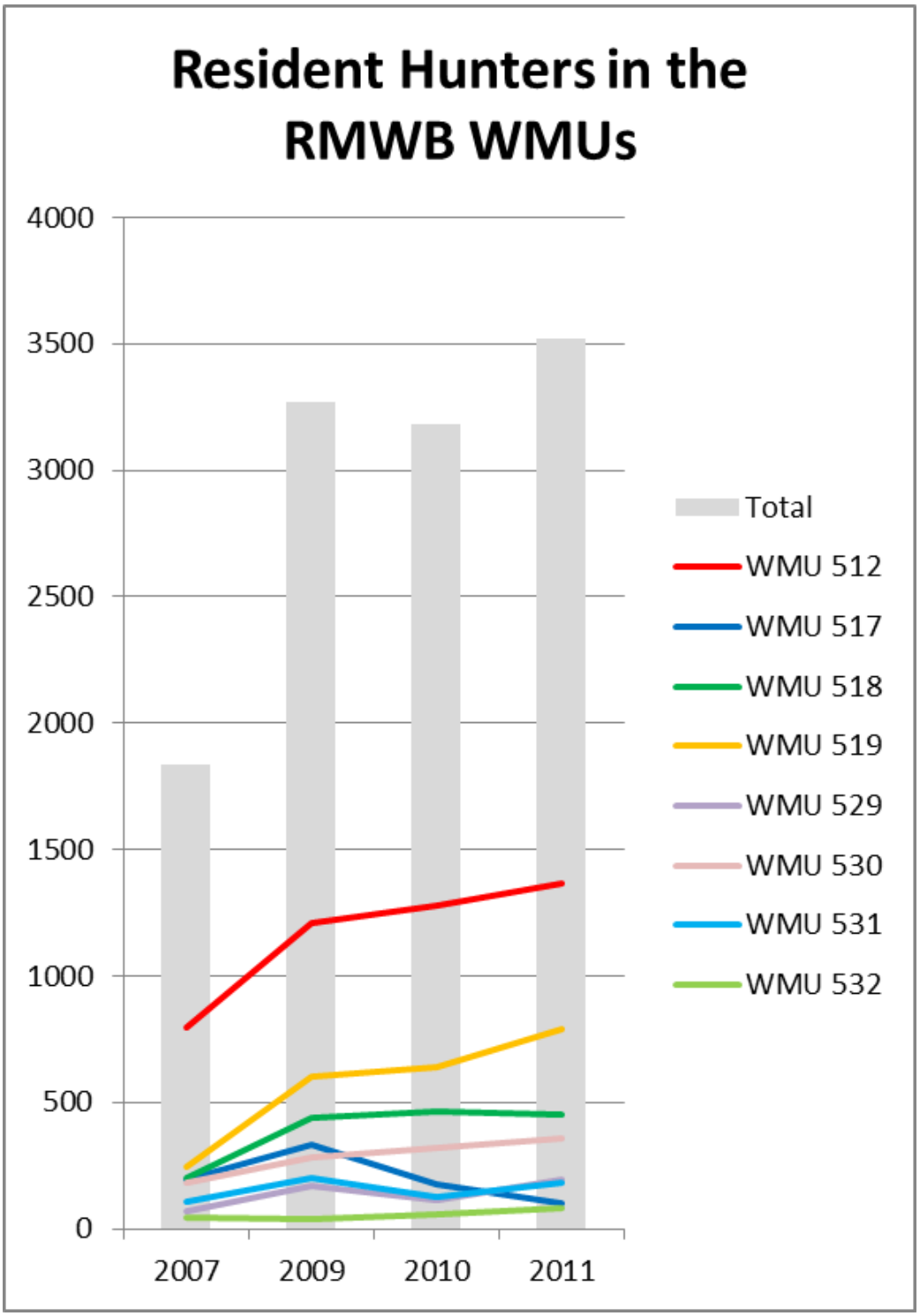
Source: Government of Alberta 2013.

Figure D-4 Resident Harvests and Hunters of Moose, Deer and Black Bear



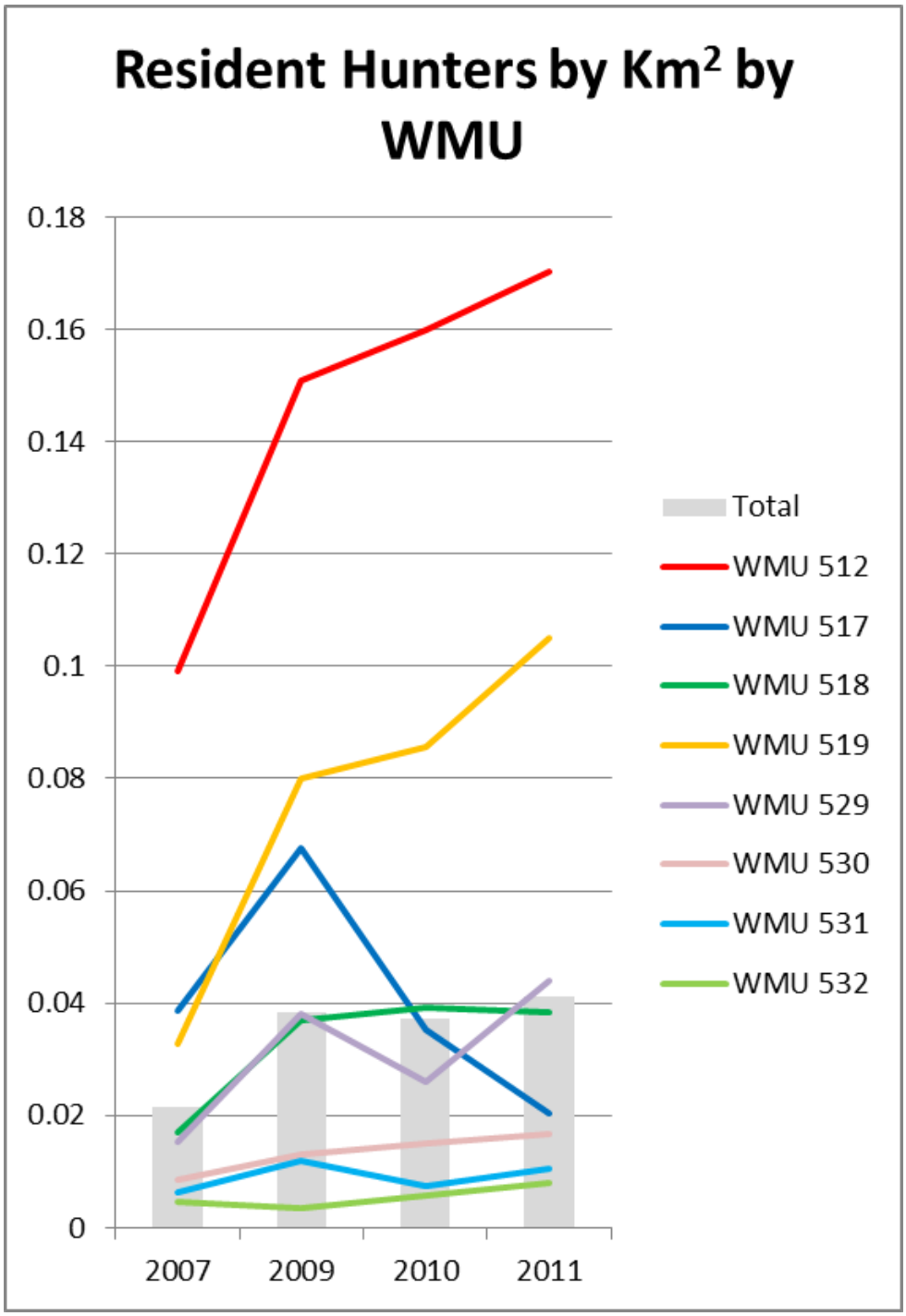
Source: Government of Alberta 2013.

Figure D-4 Resident Harvests and Hunters of Moose, Deer and Black Bear (continued)



Source: Government of Alberta 2013.

Figure D-4 Resident Harvests and Hunters of Moose, Deer and Black Bear (continued)



Source: Government of Alberta 2013.

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Government of Alberta. 2013. *My Wild Alberta Hunter Harvest*. Available at: http://mywildalberta.com/Hunting/HuntersHarvest.aspx. Accessed May 23, 2013.

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