APPENDIX T
SOCIO-ECONOMICS TECHNICAL SUPPORT DOCUMENT

CÔTÉ GOLD PROJECT
TECHNICAL SUPPORT DOCUMENT:
SOCIO-ECONOMIC

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TABLE OF CONTENTS

PAGE

LIST OF TABLES

LIST OF GRAPHICS

LIST OF FIGURES

LIST OF APPENDICES

GLOSSARY AND ABBREVIATIONS

AADT	annual average daily traffic
AANDC	Aboriginal Affairs and Northern Development Canada
Aboriginal	in the context of the Côté Gold Project, includes both First Nation and Métis people
AMEC	AMEC Environment & Infrastructure
CDSSAB	Cochrane District Social Services Administration Board
CMHC	Canadian Mortgage and Housing Corporation
EA	Environmental Assessment
EIS	Environmental Impact Statement
FedNor	Federal Economic Development Initiative for Northern Ontario
GDP	Gross Domestic Product
GLSB	Gogama Local Services Board
km	kilometre
kV	kilovolt
m^3/day	cubic metres per day
MOHTLC	Ministry of Health and Long Term Care
MiHR	Mining Industry Human Resources Council
MLS	Multiple Listings Service
MTO	Ministry of Transportation
NAPS	Nishnawbe-Aski Police Service
OHSAS	Occupational Health and Safety Advisory Services
OPP	Ontario Provincial Police
PHU	Porcupine Health Unit
SC	Statistics Canada
SDHU	Sudbury District Health Unit
STI	sexually transmitted infection
TEDC	Timmins Economic Development Corporation
ToR	Terms of Reference
TSD	technical support document
USD	United States dollars

EXECUTIVE SUMMARY

The Côté Gold Project (the Project) is an advanced stage gold exploration project located in the Chester and Neville Townships, District of Sudbury, in northeastern Ontario, approximately 20 kilometres (km) southwest of Gogama, 130 km southwest of Timmins and 200 km northwest of Sudbury. IAMGOLD proposes to construct, operate and eventually rehabilitate a new open pit gold mine on the property.

This technical support document (TSD) relates to the socio-economic component of the EA. It discusses how the Project will affect socio-economic conditions in areas close to the Project and across Ontario. In particular, it focuses on how the Project's hiring and expenditure produce economic effects of employment opportunities, income growth, human capital formation and expanding opportunities for regional businesses which in turn could affect social factors such as population, demographics, housing, government finances, community services, community infrastructure and transportation infrastructure in the region. It also offers strategies to avoid, mitigate, enhance and/or compensate for economic and social effects. These strategies are called effects management strategies and are based on the collaborative shared management concept where all stakeholders including government, public, and aboriginal groups work together to develop and implement the strategies. Lastly, the TSD describes possible residual effects in areas where the effects remain after effects management strategies are applied.

The socio-economic environment is described according to two study areas, namely:

- The regional study area which is comprised of communities that are likely to experience direct and indirect employment and economic benefit and associated economic and social effects. Regional study area communities include: Gogama; City of Timmins; City of Greater Sudbury; Unorganized North Sudbury Subdivision; and Unorganized Timiskaming West. Highway 144 that connects the Project site with the City of Timmins to the north and City of Greater Sudbury to the south is also considered part of the regional study area.
- The local study area includes communities that are closest to the Project site and could therefore experience more direct socio-economic Project effects. The local study area is comprised of Gogama and Mattagami First Nation reserve (Mattagami Indian Reservation #71) and the portion of Highway 144 that connects these communities with the Project site.

The temporal boundaries used to assess the affected socio-economic conditions spanned all phases of the Project:

- construction for two (2) years, Years -2 and -1;
- operations for fifteen (15) years, Years 1 to 15;
- closure for two (2) years, Years 16 and 17; and
- post-closure, Year 18 onwards.

In order to effectively assess potential Project related impacts, a set of effects assessment indicators were selected based on consultation efforts with government agencies, stakeholders, First Nations, Métis and members of the communities in the regional study area highlighting several key effects assessment indicators related to Project activities.

The effects assessment indicators used for the prediction of socio-economic effects include:

- labour market;
- business opportunities;
- government finances;
- population and demographics;
- community health conditions;
- housing and temporary accommodations;
- public utilities;
- education;
- emergency services;
- other community services and infrastructure; and
- transportation.

This socio-economic prediction of effects is based on data provided prior to the completion of the pre-feasibility study. As such, it is provided for planning purposes and does not have a formal margin of error.

Construction Phase

Over the construction phase, residual effects on labour markets are positive and highly distinguishable in the regional study area. The Project is expected to require 2,637 person-years of work (direct employment) and peak on-site employment averages 1,116 workers annually within Year -1. Total indirect and induced employment in Ontario is projected to be about 1,521 person-years. Based on assessments of the regional capacity to provide services and labour, it is predicted that 60% of the construction workforce will be hired from the regional study area and 40% from elsewhere in the province of Ontario. Jobs created by the Project will be relatively lucrative; people from the regional study area directly employed in the construction of the Project are expected to earn an average of $148,645 annually in labour compensation, 3.0 times the urban regional study area average median earnings of those working full-time and 5.0 times the average median earnings for all those persons aged 15 and over.

The Project is expected to make a positive, highly distinguishable effect on business opportunities in the local and regional study areas, spending $648 million on goods and services in the construction phase. Businesses in the regional study area can supply every major input

demanded by the Project. For government revenues the effect is also expected to be positive and outside normal variation, some $160 million in provincial and federal government revenues through direct economic activity and $240 million through direct, indirect and induced economic activity.

Based on forecasts of population change and a model of demographic impacts from the Project, populations in the local and regional study areas are estimated to grow as a result of the Project, although for the urban centres of Timmins and Sudbury (expected to receive 208 migrants each when construction begins in Year -2) the effects make up less than 0.01% of the total population and are not expected to be noticeable. For Gogama, the Project is expected to reverse the trend of population decline, increasing the population to an estimated 289 from 277 people by Year -1. For Mattagami First Nation the effect on population is expected to accelerate the trend of population growth, increasing population from 193 in 2011 to an estimated 256 in Year -1, a 33% increase. This is considered a positive, highly distinguishable effect and may result in the need for investment by the community or government that lasts for the construction phase.

Existing housing stocks in urban areas are sufficient to meet the demand from newcomers, amounting to less than 0.5% of existing housing stock for any given year. The residual effect is therefore within the normal range of variability for housing. In contrast, the demand for housing in the local study area communities is distinguishable: demand for housing in Gogama is expected to increase by 6.1% in Year -2 and by 1.5% the following year. The supply of surplus housing in the area is anticipated to be adequate to meet demand; 39% of the total housing stock in the Unorganized North Sudbury Subdivision (which contains Gogama) was not occupied by usual residents in 2011 (about 669 units), although many of these are cottage units which may not be inhabitable year-round. Gogama currently faces infrastructure issues that could limit the construction of new housing in the community in this phase. Demand for new housing in the first year of the construction phase on the Mattagami First Nation reserve is expected to rise by 12.4%, of which 11.1% would come from the need to house people moving onto the reserve due to Project employment. Currently a waiting list exists for band-owned housing. Off-reserve workers wishing to live in the community would be expected to finance construction through a band-guaranteed mortgage or to purchase housing from another member. This bottleneck may result in a change in the distribution of population effects away from the First Nation. Residual housing effects in the local study area, while considered positive, are distinguishable and require investment by the community or government to address these during the construction phase (Years -2 to -1),

The Project is not expected to have measurable effects on the health of regional and local populations. Efforts to avoid and mitigate the potential negative effects of increased population on emergency services, particularly in local study area communities, are expected to reduce effects to a level where they would not require additional community or government response or investment. Residual effects on community services in Timmins and Sudbury are expected to be within the normal range of variability and last throughout the life of the Project. While increased demands for community services are likely to occur and be distinguishable in

Gogama and Mattagami First Nation reserve, these would be considered positive for recreation services and negative due to lack of services in local study area communities (for shelters, victims' services, child care and health care). This effect is expected to last during construction and first years of the operations phases until community service providers adjust service levels to meet the needs of the population.

Population changes in Timmins and Sudbury are not expected to have a noticeable effect on demand for public utilities. In Gogama and the Mattagami First Nation reserve, where populations are expected to increase in the construction phase, there will be additional demands on public utility infrastructure. In particular, there is an immediate need to increase capacity of Gogama's wastewater treatment system to facilitate population growth. The issue of having only one public utility system is being actively addressed by the community with the support of IAMGOLD. There are no concerns or capacity issues with provision of public utilities on the Mattagami First Nation reserve and therefore the residual effect is expected to be measurable but not distinguishable from normal variation and is expected to last for the life of the Project.

The residual effect on primary and secondary education is considered positive since it results in a slight increase in enrolment in elementary schools in the local study area and in enrolment in high schools in the regional study area (Timmins and Sudbury). The residual effect on post-secondary education is also positive and could result in increased capacity of the local and regional workforce to access Project employment. These effects are considered positive, manageable within current system capacities, and are within the normal range of variability.

Project-related traffic volumes are forecasted to slightly increase traffic on Highway 144, by 16 additional vehicle trips per day on average. According to these estimates, at most an increase of just under 3% could occur on Highway 144 in the section between Highway 560 and 661 where vehicles would be turning off Highway 144 at Sultan Industrial Road to access the Project site. These turning movements are occurring on a portion of Highway 144 where service levels are considered most favourable. An increase in traffic will also marginally increase the potential for vehicle collisions (less than 1 per year on average) for the duration of the construction phase. These volumes will be higher during peak construction months, but are, on average, manageable and within the service capacities of the Highway in all sections evaluated. The effects on traffic are considered distinguishable but within the normal range of variability and last throughout the Project although at lower levels in the operations, closure and post-closure phases than in the construction phase.

Operations

Residual effects are such that the Project's operations phase is expected to make a strong and positive contribution to direct, indirect and induced employment; incomes and the development of human capital. On average annually, the Project will create direct employment for about 582 people in Ontario. Annual indirect and induced employment in Ontario during operations is expected to total an estimated 530 and 500 jobs, respectively. Total labour compensation from direct employment is estimated to be $89.4 million and total labour compensation from direct,

indirect and induced employment is $147.6 million. Operations earnings are expected to be far higher than current regional study area median earnings: average projected earnings (including only wages and benefits) per direct employee from the regional study area of $153,800 are 3.0 times the current regional study area average median earnings for full time workers. This is considered a positive effect that is clearly distinguishable and a measurable change in employment and income that will last until after peak production and will start to decline in Year 13, although the magnitude is expected to lessen thereafter.

The Project is forecasted to create an annual average of $177 million in contracted expenditures on goods and services in the operations phase that will be spent primarily on professional services ($37.4 million), other finance and insurance ($22.6 million) and mineral support services ($20.4 million). Business in the regional study area can supply every major input demanded by the Project. Residual effects are such that the Project's operations phase is expected to make a clearly distinguishable and positive contribution to business opportunities in the local and regional study area throughout the operations phase.

The Project is estimated to generate $48 million annually in government revenue from the taxation of direct, indirect and induced activity, of which $35 million is expected to arise from the taxation of direct economic activity. Over the operational life of the Project, the Project is expected to raise $483 million for the Federal government and $241 million for the Provincial government. In the context of the regional economy where taxes from mining accounted for an estimated $484 million in 2011 the annual increase over the operations phase in government revenues is estimated at around 10.0% of that amount. The effect on the regional study area is therefore considered highly distinguishable.

The total effects on migration relative to baseline population projections from Years 1 to 15 are considered positive and are greatest when operations begin in Year 1 in Timmins and Sudbury, with a net increase of 106 net migrants each, but these effects make up less than 0.01% of the total population in both cities and are not likely to be noticeable. For Gogama and the Mattagami First Nation the effect on population is to stabilize the population will stabilize after Years 5 and 6. This is considered a positive, but not distinguishable over the operations phase.

Existing housing stocks in Timmins and Sudbury are sufficient so that the number of homes taken by newcomers during the operations phase is expected to be less than 0.1% of existing housing stock for any given year. In Timmins, the effect is not sufficient to reverse falling demand due to a projected ongoing decline in population. Within the local study area effects peak at less than 1.0% of the existing housing stock in Years 2 and 3. In Gogama, the Project helps increase housing demand on a community that would otherwise have a projected decline in population. In the Mattagami First Nation reserve, the Project modestly expands demand for housing until Years 5 and 6, supporting a projected increase from rising population. After Years 5 and 6 the on-site workforce is expected to decline and with it a projected decline in housing demand to baseline levels. In Gogama, these declines amount to 2.1% of the 2011 housing stock in Year 14 and 2.3% in Year 15. In the Mattagami First Nation reserve the declines in housing demand amounts to 2.4% of the housing stock in Year 14 and 2.9% in Year 15, an

effect partially minimized by the continued natural growth of population in the community. If a local shortage of housing occurs then, the effect may be to reduce the housing waiting list. The effect on local study area communities would be considered negative and noticeable but do not require a community response or investment into the last few years of operations

Effects on community health are expected to be within the normal range of variability. No residual public utilities effects in either the local or regional study area communities are anticipated. The Project site will have its own supply of power and potable water, sewage treatment systems, and solid waste disposal system and therefore, additional demands from on site activities are not anticipated. No residual effects on the highway transportation system are anticipated.

Even though there will be an accommodations complex at the Project site, an increase in the number of families within the local study area communities is foreseen. This growth may have a distinguishable positive effect that is within the normal range of variability on sustaining or growing primary school enrolments in Timmins, Gogama and on the Mattagami First Nation reserve, while enrolment in schools in Sudbury are estimated to be virtually unnoticed. Similarly, even with effects management strategies applied, and new training needs for IAMGOLD workers hired throughout the operations phase to replace leaving or retiring workers, some sustained demands for post-secondary education could occur. This would be a positive effect that is within the normal range of variability that lasts until the end of the operations phase.

Efforts to avoid and mitigate the potential negative effects on emergency services of increased population and income particularly in local study area communities are expected to reduce effects to noticeable but manageable levels. The effect is expected to last for the life of the Project and possibly into the first few years of the post-closure phase. Demands in these communities for child care services will be addressed by discussing potential Project related effects on child care needs in the local study area communities and implementing appropriate management measures (which may include on-site child care, and shorter work shifts for women or single-parent families). Effects within the local study area are expected to be distinguishable but within the normal range of variability and last throughout the life of the Project.

Closure and Post-Closure

Annual indirect and induced employment in Ontario during closure is expected to total approximately 77 and 54 jobs, respectively. When added to direct employment, total employment in Ontario as a result of closure is 275 jobs per year. Total labour compensation from direct employment is estimated to be $12.0 million and total labour compensation from direct, indirect and induced employment is $24.4 million. Following closure there is expected to be much fewer (related to ongoing monitoring or site maintenance) jobs associated with the Project. Effects management strategies can minimize stresses from job losses associated with Project closure, but it cannot reverse the end of most employment effects from the Project. Workers who held jobs during the Project will retain human capital, in the form of experience

and training which can then be utilized in seeking employment on other mining projects. Despite these positive effects, reductions in expenditures and employment relative to the operations phase are expected to have an overall negative effect on labour markets until they adjust and return to baseline conditions. The effect is distinguishable and outside the normal range of variability.

Effects management strategies can help businesses develop the capacity to serve new clients after Project closure, but it cannot reverse the end of most (but not all) procurement opportunities arising from the Project. Internal capacity, in the form of improved management and processes, will be retained by these companies and foster new business activity. Still, reductions in expenditures relative to the operations phase are expected to have an overall negative effect on business opportunities until they adjust to return to baseline conditions. Overall the residual effect is considered negative, distinguishable and outside the normal range of variability but is not expect to require a government response or investment in businesses.

During the closure phase the Project is expected to generate $14.4 million in government revenues through direct economic activity and $17.8 million through direct, indirect and induced economic activity during closure and to generate no government revenues in post-closure. Although there is some tax revenues gained through the closure phase, overall the effect on government revenue is a predictable decline relative to those seen in the operations phase which may be seen as a temporary negative effect as government revenues return to baseline conditions. These effects are within the normal range of variability.

With Project closure community populations are expected to return to baseline conditions in closure and post-closure phases, although populations may be higher if workers choose to remain in the community either to commute to a different mine, to follow a different career or to retire. The residual effect is considered indistinguishable in Timmins and Sudbury but clearly distinguishable in Gogama and the Mattagami First Nation, although not substantive enough to require an additional community response.

Community health service provision available during the operations phase is expected to be adequate to address demands in closure and post-closure phases. Over time, these potential effects are considered negative and measureable but do not require additional community or government response. They will diminish and become indistinguishable in the post-closure phase as populations return to baseline conditions.

Housing prices would decline with closure and remain low through the post-closure phase, although effects would differ between communities. In the cities of Sudbury and Timmins, with large and liquid housing markets, the effect is expected to be measurable but within the normal range of variability, particularly since workforce reductions are spread over many years. On the Mattagami First Nation reserve, the effect is reduced by the projected growth in the population, and housing sales between members may alleviate long-standing housing shortages. In Gogama there is a risk that additional supplies of residential housing could be developed over

the operational life that in this phase would create a challenge of local oversupply. These effects are expected to last throughout the closure and post-closure phases.

No residual public utilities effects are anticipated. There will be a decline in primary school enrolment and an increase in demands for post-secondary training to transition workers to other employment. The effects on the education systems in regional study area communities are likely to be clearly noticeable, but not to require a community or government response. No residual effects on transportation are anticipated in the closure and post-closure phases.

Efforts to avoid and mitigate the potential negative effects on emergency services of declining employment and population, particularly in local study area communities are expected to reduce effects to within the normal range of variability of established service levels. The effect is expected to last until the end of the closure phase and possibly into the first few years of the post-closure phase.

Decreased employment may lead to personal and family stresses during the transition to new jobs, and through loss of income which may result in an increase in demand for some community services. Community service provision available during the operations phase is expected to be adequate to address demands in closure and post-closure phases. Over time, these potential effects are expected to lessen as the population adjusts and are considered negative, and measureable, but do not require additional community or government response. These effects are expected to diminish and become indistinguishable in the post-closure phase.

1.0 INTRODUCTION AND PROJECT OVERVIEW

The Côté Gold Project (the Project) is an advanced stage gold exploration project located in the Chester and Neville Townships, District of Sudbury, in northeastern Ontario, approximately 20 kilometres (km) southwest of Gogama, 130 km southwest of Timmins and 200 km northwest of Sudbury (see Figure 1). IAMGOLD proposes to construct, operate and eventually rehabilitate a new open pit gold mine on the property.

The proposed site layout places the required mine-related facilities in close proximity to the open pit, to the extent practicable. The proposed site layout is presented in Figure 2 showing the approximate scale of the Côté Gold Project. The site plan will be refined further as a result of ongoing consultation activities, land purchase agreements and engineering studies.

This technical support document (TSD) has been prepared by AMEC Environment & Infrastructure and is one of a series of technical reports to support the Environmental Assessment (EA) of the Project.

1.1 Prediction of Socio-Economic Effects

This document discusses how the Project will affect socio-economic conditions in areas close to the Project, and across Ontario. In particular, it focuses on how the Project's hiring and expenditure produce economic effects of employment opportunities, income growth, human capital formation and expanding opportunities for regional businesses which in turn will affect social factors such as population, demographics, housing, government finances, community services, community infrastructure and transportation infrastructure in the region.

Economic effects are primarily driven by the considerable investments made in building and decommissioning the Project and from the sale of the minerals extracted while it is in production. In the absence of pre-feasibility data for this Project, the total capital cost, the shares of labour and materials & equipment, labour requirements and wages & salaries were estimated using comparable projects as a benchmark. The economic prediction of effects was used to estimate effects on the following assessment indicators:

- labour market (including employment, income growth and human capital);
- business opportunities; and
- government finances.

Social effects are primarily driven by the labour requirements of the Project, which will bring workers and their families to the region, and by the physical demands that Project activities will place on regional and local community services and infrastructure. This approach was used as used to estimate the effects in all Project phases on the following socio-economic indicators:

- population and demographics;
- community health conditions;
- housing and temporary accommodations;
- public utilities;
- education;
- emergency services;
- other community services and infrastructure; and
- transportation.

For each effects assessment indicator, effects were predicted based on:

- presence of a potential interaction between a Project activity and the economy or social conditions; and
- application of effects management strategies.

Effects were assessed if an interaction is reasonably expected to occur between the effects assessment indicator (an economic or social condition) and a Project activity (such as the employment of local residents for pre-production work during the construction phase), or as a result of a Project activity (i.e., people returning to their home community in search of work affecting the availability of housing). Information gathered from baseline studies which combined analysis of public data with stakeholder interviews as well as comments received during consultation activities, informed the prediction of effects. The methods used for predicting economic and social effects are described in Section 2.4.

1.2 Management of Socio-Economic Effects

Effects management strategy (rather than 'mitigation') is the term used throughout this document and refers to measures to avoid, mitigate and/or compensate economic and social effects. Mitigation is generally applied to biophysical effects because it refers to mitigating adverse impacts whereas effects management strategies address both positive and negative effects typical to human environment (including social and economic) effects. Effects management strategies can include elements inherent in the Project design to enhance a positive effect or prevent the effect from occurring. Effects management strategies may also include compensation, as in the case of potential adverse effects and are intended to help offset adverse effects. If the anticipated effect is positive, the actions that could be taken to enhance

the effect will be indicated. Effects management strategies were initially developed based on best practices and will continue to be discussed with stakeholders and Aboriginal groups to refine them to be locally or regionally appropriate and achievable.

The residual effect (the effect remaining after effects management strategies are applied) is then described. Best professional judgment was used in carrying out the effects analysis, incorporating information from available sources, including opinions and perspectives expressed by the various government agencies, Aboriginal communities and stakeholders participating in the EA process.

Generally, socio-economic effects associated with the Project will be managed through a socio-economic management plan. Socio-economic management plans are recognized internationally by organizations such as the International Council on Mining and Metals as being an effective mechanism for enhancing the potential beneficial socio-economic effects or mitigating any potential negative effects of mining projects. To be effective, socio-economic management plans must be developed jointly with community and regional partner organizations such as training institutions, economic development agencies, municipal and provincial government agencies. Successful mitigation of socio-economic effects depends more on establishing an ongoing joint process for monitoring and addressing issues, rather than identifying specific conditions to be addressed by IAMGOLD alone.

2.0 METHODOLOGY

2.1 Spatial Boundaries

The Côté Gold Project is located in the District of Sudbury, outside of any incorporated municipality. The Project site is located within four geographic townships: Chester, Neville, Potier, and Yeo. Depending on the alternative route selected, the proposed 160 km 230kV transmission line from Timmins to the site will intersect with 20 geographic townships: Tisden, Ogden, Deloro, Thorneloe, Price, McKeown, Doyle, Hassard, Gouin, Emerald, Mattagami, Burrows, Cabot, Connaught, Miramichi, Garibaldi, Londonderry, Champagne, Benneweis and Chester; it also intersects with the City of Timmins. Nearby cottages are located on Mesomikenda Lake.

The closest local communities to the Project site are Gogama, Mattagami First Nation, the City of Timmins and the City of Greater Sudbury. Sudbury is the largest community in the area and, as such, is a service provider in the immediate region, followed by Timmins. Sudbury is accessible by way of Highway 144, rail and air. The principal employment sectors are business services, healthcare and social services and retail / trade. Timmins' economy is similar to Sudbury's, but has a stronger emphasis on resource-based industries (e.g., forestry and mining). The Project area is largely known and used for outdoor recreation and tourism (e.g., hunting and fishing).

The regional study area for the socio-economic prediction of effects is defined as the area that could be influenced by the Project (see Figure 3). The regional study area is broader than that typically used for biophysical disciplines because socio-economic effects are inherently cumulative and usually experienced in human communities located outside of the Project's physical footprint. The regional study area was defined using the following criteria:

- Aboriginal or non-Aboriginal communities within reasonable commuting distance to the Project (approximately 100 to 150 km), and that are therefore expected to experience socio-economic effects from the Project;
- communities likely to provide key services and/or benefit from business opportunities resulting from the Project;
- major travel and service corridors; and
- Statistics Canada reporting units.

The regional study area is comprised of communities that are likely to experience direct and indirect employment and economic benefits and associated economic and social effects. Regional study area communities include: Gogama; City of Timmins; City of Greater Sudbury; Unorganized North Sudbury Subdivision; and Unorganized Timiskaming West. Highway 144 connects the Project site with the City of Timmins to the north and City of Greater Sudbury to the south and is also considered a part of the regional study area. It is recognized that although some socio-economic influences may be felt outside of the regional study area (e.g.,

procurement of equipment in another part of Canada or internationally) the primary socio-economic effects are expected to be experienced in the local and regional study areas.

Aboriginal communities that may also experience employment and economic benefits and/or social effects either due to their proximity to the Project, or through benefits received through agreements signed with IAMGOLD, include:

- Flying Post First Nation;
- Mattagami First Nation;
- Brunswick House First Nation;
- Matachewan First Nation; and
- Métis Nation of Ontario – Region 3.

The socio-economic local study area includes communities that are closest to the Project site and could therefore experience more direct socio-economic Project effects. The local study area is comprised of Gogama and Mattagami First Nation reserve (Mattagami Indian Reservation #71) and the portion of Highway 144 that connects these communities with the Project site (see Figure 4).

2.2 Temporal Boundaries

The temporal boundaries of the EA will span all phases of the Project:

- construction for two years (Years -2 and -1);
- operations for 15 years (Years 1 to 15);
- closure for two years (Years 16 and 17); and
- post-closure (Year 18 onwards).

2.3 Selection of Effects Assessment Indicators

In general, the development of this Project is well suited to the regional socio-economic context; an area with a long history of mining that incorporates mining activity (and the lifestyle arising from mining activity) within its institutions, culture and infrastructure. Consultation efforts to share Project information and scope issues with government agencies, stakeholders, First Nations, Métis and members of the communities in the regional study area have highlighted several key effects assessment indicators related to Project activities. These effects assessment indicators have been incorporated into this report following guidelines for the EA set out in the July 9, 2013 Environmental Impact Statement Guidelines by the Canadian Environmental Assessment Agency (CEAA, 2013).

The socio-economic effects assessment indicators selected and the rationale for selection is presented in Table 2-1.

Table 2-1: Effects Assessment Indicators Selected for Socio-Economics

Effect Assessment Indicator	Rationale for Selection
Labour market (including direct, indirect and induced employment opportunities; income growth and human capital)	The Project will increase or sustain levels of employment. A change in the level of employment has the potential to reduce levels of unemployment and underemployment. The Project will increase or sustain income levels and may change the distribution of income. The Project will increase the demand for skilled workers, particularly with skills relating to the mining sector, and this may lead to an increase in the development of human capital which can be used with other future projects.
Business opportunities	The Project will increase or sustain business revenue through procurement of goods and services.
Government finances	Governments will benefit through increased tax and fee for service revenues. Governments incur costs related to the provision of services.
Population and demographics	Direct job opportunities will attract workers to the area for short-term (i.e., construction) and longer term (i.e., operations). Population change will result in changes in demand for social and physical infrastructure and services. The influx of workers due to the Project could benefit long-term economic and community development, supporting community vibrancy and improved social infrastructure (e.g., housing, organized recreation, support for local business, etc.).
Community health conditions	Increased employment and income leads to change in health conditions.
Housing and temporary accommodation	Influx of workers and families leads to changes in demand for and availability and cost of, temporary and permanent housing and tourism accommodation.
Public utilities	If there are changes in population in local or regional communities resulting from employment/population effects, this may change demands for public utilities.

Effect Assessment Indicator	Rationale for Selection
Education	If there are changes in population in local or regional communities resulting from employment/population effects, this may change demands for education.
Emergency services	If there are changes in population in local or regional communities resulting from employment/population effects, this may change demands for emergency services.
Other community services	If there are changes in population in local or regional communities resulting from employment/population effects, this may change demands for community services and infrastructure.
Public utilities, education, emergency services and other community services and infrastructure	If there are changes in population in local or regional communities resulting from employment/population effects, this may change demands for community services and infrastructure.
Transportation	Increased traffic (highway) related to transporting workers, goods and services to the Project site have the potential to impact highway functionality and safety.

2.4 Prediction of Effects

The Project's economic effects are estimated using the provincial input/output economic multipliers for Ontario as provided by the Industry Accounts Division of Statistics Canada. These multipliers describe how a change in final demand for the output of one particular industry would affect economic activity in the entire province. The multipliers show the direct, indirect, and induced effects on Gross Domestic Product (GDP), labour income and jobs that would be associated with a $1 change in economic output.

Change in final demand was estimated based on a multiple of the projected workforce compared to similar (open-pit gold) mining operations in Ontario. Economic effects were then calculated using the multipliers for the "gold and silver ore mining" industry (Code BS212220). Annual effects were calculated from the residual of construction and closure effects. For construction and closure, the change in final demand is modelled in terms of total value of spending on construction in Ontario using multipliers drawn from similar projects for direct effects and from the "other engineering construction" industry (Code BS23C500) for indirect and induced effects. No estimate currently exists for closure costs; these costs were assumed to be proportional to capital costs in a ratio drawn from comparable (open-pit gold) mining operations in Ontario.

The input/output economic multipliers were used to estimate direct, indirect and induced impacts. Direct impacts include the labour, goods and services that are needed to construct and

operate the Project; these include workers at the Project site as well as people working offsite to produce goods and services. Indirect impacts occur when other industries increase their output in response to the demands of the directly affected industries. For example, companies that directly provide the steel needed for construction will, in turn, have increased demands for raw materials (e.g., coal and iron ore) that will indirectly affect these industries. Induced impacts measure the extent to which spending by workers, whose wages are directly or indirectly affected by the Project, will result in increased production of consumer goods and services.

This socio-economic prediction of effects is based on data provided prior to the completion of the pre-feasibility study. As such, it is provided for guidance purposes and does not have a formal margin of error. Once the pre-feasibility study has been completed, a margin of error will be attributed to the projections provided. Assumptions made in developing this prediction of effects are stated in the text. Estimates of regional effects are based on current conditions and structural changes in the regional economy may affect the extent of economic effects over the life of the Project.

3.0 PREDICTION OF EFFECTS

3.1 Construction Phase

The capital costs of Project construction are estimated at $1.2 billion based on expenditures on comparable Projects. Of that amount, it is estimated that approximately 59% ($712 million) will be spent on materials and equipment and 24% ($286 million) will be spent on labour during the two year construction period. Of the $712 million spent on materials and equipment, it is assumed (based on comparable projects) that 70% will be purchased from within Ontario, specifically in the regional study area, 17% from other provinces and 13% imported from other countries, primarily the United States.

Construction activity would last approximately 24 months, beginning in the first quarter of Year -2, and continuing until the fourth quarter of Year -1, with peak activity and employment occurring in Year -1. Approximately 97% of the construction labour force would come from outside the local study area, while 3% would be local. IAMGOLD's hiring policy would determine what percent of these local workers would be Aboriginal, but for the purposes of this analysis it is assumed that the share of the workforce drawn from the local study area that are Aboriginal would be similar to the share seen in the pre-construction workforce.

3.1.1 Labour Market

The labour market in the regional study area already incorporates a high level of mining and construction employment. Mining in Ontario accounted for 16,067 employees earning $1.7 billion in wages and salaries, with the Sudbury region accounting for 35.8% of the jobs and 37.2% of the wages and salaries paid (Dungan and Murphy, 2012). In 2011, mining employed 14.5% of the workforce of Timmins and 8.6% of Sudbury compared to an Ontario average of 0.4% (SC, 2013a). In 2013 mining employed 51.1% of Mattagami First Nation's workforce and 14.3% of Flying Post First Nation's workforce (pers. comm., Mattagami First Nation, July 2013; pers. comm., Flying Post First Nation, July 2013).

Worker productivity in mining is high in Ontario: the value of output per worker at metal mines in 2011 was almost $740,000. Output per worker in all mining in 2011 was $680,000, roughly six times the provincial industrial average. Remuneration is in line with this productivity: the average weekly wage paid in the mining industry in 2011 was almost 60% more than the Ontario average industrial wage, while wages paid in the mining support sector were almost 95% higher (Dungan and Murphy, 2012).

The demographics and aging of Sudbury's workforce indicates that the mining industry will soon be losing a large number of experienced workers. A 2012 survey by the Mining Industry Human Resources Council (MiHR) indicated that companies reported as much as 40% of their regional mining workforce will become eligible to retire over the next five years. The average age of retirement in mature operations in the region is 59.5 years, well below the national average age of 62 years for the overall Canadian labour force. MiHR predicts that 31% new hires will be

necessary in order to replace retiring workers into 2022 (see Table 3-1). The "Region" listed in the table is more expansive than the regional study area – it is composed of the Districts of Sudbury, Cochrane (including Timmins) and Timiskaming.

Table 3-1: Cumulative Hiring Requirements Forecast to 2022, Baseline Scenario

District	Change in Employment	Replacement Requirements		Cumulative Hiring Requirements
		Retirement	Non-Retirement Separation	
Sudbury	8,390	6,580	6,430	21,440
Cochrane	4,190	3,720	4,000	11,870
Timiskaming	440	640	590	1,680
Region	13,020	10,940	11,020	34,990

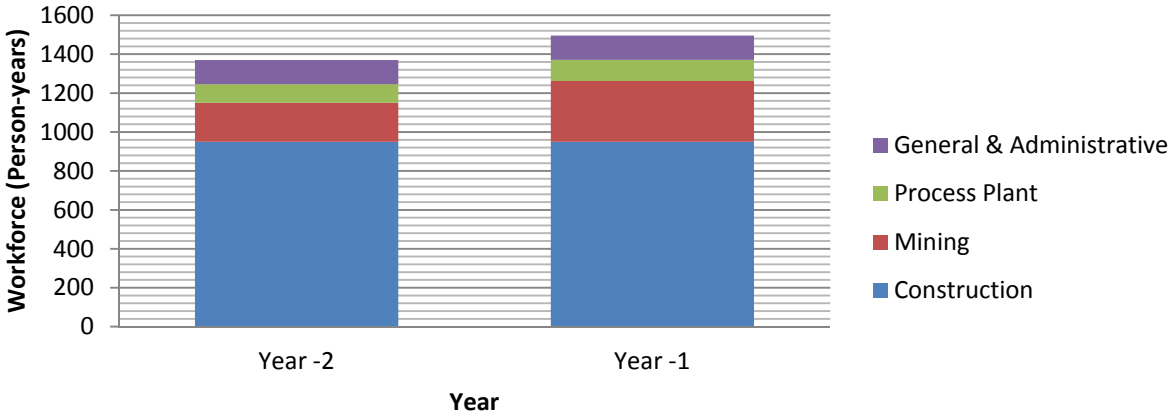
Source: MiHR, 2012a; MiHR, 2012b

Recently, the regional mining sector has been hurt by falling commodity prices. Gold prices in particular fell precipitously in 2013, reaching $1,229 USD by mid-June 2013 from $1,529 in mid-June 2011 (World Bank Group, 2013). A recent poll reported that 46% of mining companies across Canada are considering layoffs to compensate (Sankey, 2013). The MiHR study on hiring requirements consider the effects of a contractionary mining economy on hiring and find it reduces expected hiring demand by 3.2% over the period to 2022, to 33,900 from 34,990 (MiHR, 2012a, MiHR, 2012b). Thus replacement requirements are such that even with a shrinking mining economy, the labour market for skilled workers in the mining sector is expected to be tight in the regional study area over the next decade.

3.1.1.1 Potential Project Effects

During the approximate 24 month construction phase, the Project is expected to require 1,900 person-years of work; a person-year being equivalent to one person working full-time for a year or 12 people working full-time for a month, and is the best metric for describing the construction phase employment effects of a Project that requires more than one year to construct and has variable labour requirements over time. In addition, the Project will employ pre-production operations workers in all areas of activity (see Graphic 3-1). Employment will be highly seasonal but the number of workers at the site is not expected to exceed 1,500 at any given time when labour requirements peak in Year -1.

Graphic 3-1: Project Workforce during the Construction Phase, Years -2 to -1



In addition to direct employment effects, indirect and induced employment effects will occur in the Province and the region. These "spin-off" effects (shown in Table 3-2) are related to the purchase of goods and services needed to construct and operate the Project (indirect effects) and the expenditures of direct and indirect labour income on consumer goods and services (induced effects). Estimates of employment effects include both planned construction and pre-production operations workforce. In Ontario, each year, Project construction is expected to generate about 1,433 person-years of direct employment, 1,851 person-years of indirect employment and 1,306 person-years of induced employment. Total employment in Ontario as a result of the Project's construction phase is projected to be about 4,590 person-years.

Table 3-2: Employment and Income Effects from Construction Phase, Annual, Years -2 to -1

	Ontario		Regional Study Area	
	Jobs (person-years)	**Income ($ millions)**	**Jobs (person-years)**	**Income ($ millions)**
Direct	1,433	209.3	1,116	165.9
Indirect	1,851	115.0	1,078	69.5
Induced	1,306	64.8	444	22.7
Total	4,590	389.0	2,637	258.1

Annual labour compensation from direct employment is estimated to be $209.3 million (averaging $146,025 per person-year of employment), while annual labour compensation resulting from direct, indirect and induced employment is estimated to be $389.0 million (averaging $84,752 per person-year of employment). Jobs in the planned construction and pre-

production mining workforce are expected to be higher paid than the jobs produced by contractors, suppliers, and through induced economic activity.

Based on assessments of the regional capacity to provide services and labour, it is predicted that 60% of the construction workforce will be hired from the regional study area and 40% from elsewhere in the province of Ontario. A fifth (20%) of the pre-production operations Project workforce is expected to be hired from the regional study area and 80% from the rest of Ontario. Forty percent of the pre-production workforce is expected to be long distance commuters from elsewhere in Ontario, following the current average for mining company employees in the Sudbury area (MiHR, 2012a). The regional study area is expected to provide 78% of the services and 65% of materials associated with construction.

Project construction is expected to generate economic effects in the regional study area (see Table 3-2) as a result of approximately 1,116 person-years annually of direct employment, 1,078 person-years annually of indirect employment and 444 person-years annually of induced employment. Total annual employment in the regional study area as a result of the construction phase is projected to be about 2,637 person-years. Total labour compensation from direct employment within the regional study area is estimated to be $165.9 million (averaging $148,645 per person-year of employment), while total labour compensation resulting from direct, indirect and induced employment is estimated to be $258.1 million (averaging $97,865 per person-year of employment).

People from the regional study area directly employed in the construction of the Project are expected to earn 2.9 times the urban regional study area average median earnings of those working full-time and 5.0 times the average median earnings for all those persons aged 15 and over. Average wages for total (direct, indirect and induced) employment generated by the Project are expected to be 1.9 times the urban regional study area average median earnings for those working full time and 3.3 times the urban regional study area median average of all those 15 and over. Note that median earnings data for rural communities from the 2011 census are not available, and regional study area estimates are based on incomes from 2010 (SC, 2013a).

3.1.1.2 Government, Aboriginal and Public Comments and Concerns

Job and business opportunities were discussed in meetings and open houses and were noted as important to local citizens, stakeholders, First Nations and Métis groups. Comments shared included the importance of informing stakeholders and Aboriginal communities of contracting opportunities and training programs. Related to employment, access to and from the Project site was important for Mattagami First Nation members who live on the reserve but don’t drive.

Timmins, Sudbury, and Gogama representatives and community members expressed interest and support, in several meetings related to the economic benefits that the Project could bring to their respective communities.

3.1.1.3 Effects Management Strategies

Since the effects on the local study area and regional study area economies are considered positive, IAMGOLD will enhance positive effects by:

- implementing a hiring policy that supports employment for local community members (First Nation, Métis communities and Gogama);
- developing and implementing a procurement process that promotes suppliers from the local community (First Nations, Métis and Gogama);
- developing a cultural awareness-training program and requiring employees and contractors to complete the training;;
- providing on-the-job Common Core training to assist local and regional workers to develop mining-specific skills and help workers identify development needs and priorities through IAMGOLDs Performance Management Process (PMP); and
- providing education and training for potential employees from local communities (Aboriginal communities and members of Gogama).

3.1.1.4 Residual Effects

Residual effects are positive and highly distinguishable in the regional study area. The Project is expected to require 2,637 person-years of work (direct employment) and peak on-site employment averages 1,116 workers annually within Year -1. Total indirect and induced employment in Ontario is projected to be about 1,521 person-years. Based on assessments of the regional capacity to provide services and labour, it is predicted that 60% of the construction workforce will be hired from the regional study area and 40% from elsewhere in the province of Ontario. Jobs created by the Project will be relatively lucrative; people from the regional study area directly employed in the construction of the Project are expected to earn an average of $148,645 annually in labour compensation, 3.0 times the urban regional study area average median earnings of those working full-time and 5.0 times the average median earnings for all those persons aged 15 and over. Average wages of $97,865 for total (direct, indirect and induced) employment generated by the Project are expected to be 2.0 times the urban regional study area average median earnings for those working full time and 3.3 times the urban regional study area median average of all those people aged 15 and over. In conclusion the effect on employment is positive and highly distinguishable in the regional study area and lasts for the life of the Project.

3.1.2 Business Opportunities

3.1.2.1 Potential Project Effects

Within the regional study area, both Sudbury and Timmins have over a century of history as mining centres and have had over a dozen mines operating within their combined city limits. Over the past decade, Sudbury has been shifting its focus from being a producer of metals to developing a cluster of mining supply and technology services with a focus on underground

hardrock mining technologies. The operations of two large mining majors—Vale and Xstrata—serve as anchors for the cluster and half of the firms in the cluster rely on sales to these two firms (Canadian Chamber of Commerce, 2013). Timmins has developed a particular expertise in services relating to gold mining, with Goldcorp operating a substantial gold mining operation within city limits and major gold mines such as Detour Gold's Detour Gold Project using the city as a service hub (City of Timmins, May 2013). As a result, capacity exists for a variety of contract services, supplies and materials to be supplied by local and regional companies (including Aboriginal companies) during Project construction.

Based on industry averages (in this case, derived from the 2009 Input-Output Tables published by Statistics Canada), of the total $648 million in expenditures on goods and services in the construction phase, the largest areas for contracting opportunities will be professional services ($148.8 million), fabricated metallic products ($79.5 million) and non-metallic mineral products ($67.6 million). The ability of regional study area firms to successfully win contracts depends on the capacity of these businesses to meet contract requirements at competitive prices. Business capabilities in the region are high; as shown in Table 3-3, businesses in the regional study area can supply every major (defined as having annual expenditures over $1 million) input demanded by the Project and in most categories. There are firms in the region with more than 50 employees for 55% of the industry categories representing almost 70% of expenditures (SC, 2013b).

Table 3-3: Goods and Services Purchased by Industry over Construction Phase (Years -2 and -1) and Regional Study Area Firms

Description	Expenditures ($ millions)	No. of firms*	No. of employees			
			Indeter-minate	Less than 50	51 to 200	More than 200
Professional services (except software and research and development)	148.8	1,092	608	472	12	0
Fabricated metallic products	79.5	60	13	43	4	0
Non-metallic mineral products	67.6	18	3	15	0	0
Refined petroleum products (except petrochemicals)	62.2	3	0	2	1	0
Mineral support services	32.7	95	46	37	6	6
Non-metallic minerals	28.0	18	3	15	0	0
Real estate, rental and leasing and rights to non-financial intangible assets	28.0	1,349	1,046	303	0	0
Electrical equipment, appliances and components	27.4	4	1	3	0	0
Other finance and insurance	21.3	535	377	155	1	2
Primary metallic products	13.6	3	0	0	0	3

Description	Expenditures ($ millions)	No. of firms*	No. of employees			
			Indeter-minate	Less than 50	51 to 200	More than 200
Administrative and support, head office, waste management and remediation services	12.1	781	479	281	17	4
Computer and electronic products	9.7	11	5	6	0	0
Industrial machinery	8.9	56	17	30	9	0
Transportation and related services	6.4	281	156	114	11	0
Plastic and rubber products	6.1	10	2	8	0	0
Wood products	3.8	18	8	8	2	0
Chemical products	3.7	6	1	5	0	0
Mineral fuels	3.4	4	3	1	0	0
Telecommunications	2.4	16	6	7	3	0
Utilities	1.5	14	3	11	0	0

Source: SC, 2012b; SC, 2013b.
*Firms in regional study area in 2012.

The leading services required during the construction of the Project are professional services ($149 million) and mining support services ($33 million). There are 1,092 listed professional services firms operating within the regional study area, although only 10% of these have more than 100 employees. Mining support services is a major regional industry, with 95 firms operating within the regional study area, of which 6% have more than 100 employees. For inputs such as fuel, mineral products and energy, however, regional study area participation will likely be limited to distribution of goods produced outside the regional study area. The extent to which businesses will be able to take advantage of the opportunities presented by the Project depends on their success in selling their goods and services. IAMGOLD is committed to an open and transparent bidding procurement process that includes consideration of local content in choosing suppliers.

The Project also has the potential to have negative effects on existing businesses through changes in land use. Effects on land use are detailed in the Land and Resource Use TSD. Effects on forestry and trapping are not expected to be noticeable in the context of the local economy. Tourism is an important industry in the local study area, and one that is important for the area's long term economic health. No adverse effects to water quality are expected, and consequently recreational fishing in popular fishing lakes will not be affected (Côté Lake, which will be affected, is not listed as a popular lake for fishing). Some recreational activities, notably canoeing, will be curtailed and this will have some negative effect on the local tourism industry but not of a magnitude (less than $1 million annually) to be captured in an analysis of economic effects.

3.1.2.2 Government, Aboriginal and Public Comments and Concerns

The Ministry of Economic Development, Trade and Employment and the Ministry of Research and Innovation stated that the Project will provide a significant contribution to the long-term economic vitality of northeastern Ontario, will support the centers of excellence in mining equipment and services in Greater Sudbury and Timmins and enhance the national and international reputation of this region as an important mining centre.

3.1.2.3 Effects Management Strategies

Since the effects on the local study area and regional study area economies are considered mostly positive, IAMGOLD will enhance the positive effects by:

- implementing a procurement process that encourages suppliers from local Aboriginal communities and Gogama;
- establishing a system to monitor and report on local and regional content with mechanisms to adapt procurement policies, where required; and
- support capacity building for local businesses during the construction and operations phases to help them effectively bid for opportunities in the closure and post-closure phases.

3.1.2.4 Residual Effects

Residual effects are such that the Project is expected to make a strong and positive contribution to business opportunities in the local and regional study areas. Based on industry averages, the Project will spend a total $648 million on goods and services in the construction phase. Businesses in the regional study area can supply every major (defined as having annual expenditures over $1 million) input demanded by the Project and in most categories.

The Project also has the potential to have negative effects on existing businesses through changes in land use. Effects on forestry and trapping are not expected to be noticeable in the context of the local economy. Tourism is an important industry in the local study area, and one that is important for the area's long term economic health. No adverse effects to water quality are expected, and consequently recreational fishing in popular fishing lakes will not be affected (Côté Lake, which will be affected, is not listed as a popular lake for fishing). Some recreational activities, notably canoeing, will be curtailed and this will have some temporary negative effects on the local tourism industry but not of a magnitude (less than $1 million annually) to affect the positive contributions from expenditures in the local and regional study areas. In conclusion the Project will have a positive, highly distinguishable effect on business opportunities throughout the life of the Project.

3.1.3 Government Finances

3.1.3.1 Potential Project Effects

The Project is expected to produce substantial revenues for Federal and Provincial governments through corporate taxes and royalties, indirect taxes on products, indirect taxes on production and direct taxes on income earned from economic activity. Taxes paid to municipalities have yet to be determined. During construction, the Project is estimated to generate $160 million in government revenues through direct economic activity and $240 million through direct, indirect and induced economic activity. This includes direct taxes ($134 million), indirect taxes on products ($16 million) and indirect taxes on production ($11 million). Of these revenues, $163 million would go to the Federal government and $76 million to the Ontario government.

3.1.3.2 Government, Aboriginal and Public Comments and Concerns

There were no government, Aboriginal or public comments or concerns related to government finances.

3.1.3.3 Effects Management Strategies

IAMGOLD is currently in negotiations regarding the effect of the Project on municipal governments and First Nations and Métis groups affected by the Project. Since the effects on the local and regional study area economies are considered positive, no effects management strategies are required other than the ones previously indicated.

3.1.3.4 Residual Effects

The Project is estimated to generate $160 million in provincial and federal government revenues through direct economic activity and $240 million through direct, indirect and induced economic activity. The residual effect is considered a positive effect that lasts for the life of the Project and is expected to result in a measurable change in revenues outside of the normal range of variability for the Provincial and Federal governments.

3.1.4 Population and Demographics

3.1.4.1 Potential Project Effects

The Project will create employment during the construction, operation and closure phases. This has the potential to positively affect, directly and indirectly, the population and demographics of regional study area communities. At the time of the 2011 Census, Gogama reported a total population of 277, down 29.7% from the 2006 Census. The population of the Unorganized Subdivisions of North Sudbury and Timiskaming West fell 15.4% from 2001 to 2011. This reflects the pattern of declining rural populations in northeastern Ontario and consolidation in urban areas; the combined populations of Timmins and Greater Sudbury grew by 2.5% over the same period (SC, 2012a).

The Ontario Ministry of Finance has published population projections for Ontario and its Census Divisions for the period 2011 to 2036. In this period the total Ontario population is forecasted to grow 32.7% while the population of the proximate census districts of Greater Sudbury, Sudbury and Cochrane (which contains Timmins) are projected to remain more or less stable, growing by 1.0% over 25 years. This overall stability hides local changes. The more rural districts of Sudbury and Cochrane are projected to shrink by 9.3% and 5.3% respectively over this period and the urban district of Greater Sudbury is projected to expand by 5.6% (Ontario Ministry of Finance, 2012). This analysis does not make specific projections concerning First Nation reserves, although AANDC projects on-reserve populations across Canada to increase at a slowing rate from 1.8% in 2014 to 1.0% in 2029 (AANDC, 2013).

The Project's demand for workers is expected to affect local demographics in three ways:

- a share of the employees of the Project are expected to move into the regional study area, and to a lesser extent the local study area, from outside the region;
- new economic opportunities within the local study area, and to a lesser extent the regional study area, will encourage existing working-age residents to remain within their communities; and
- a share of the employees of the Project are expected to be recruited from jobs in the regional study area, and their employers will in turn replace some of them with workers from outside the region.

For these reasons, most of the population effects assume that direct employment is the primary driver of demographic changes. The share of migrants into the region is projected at approximately 45% of the direct workforce due to the tightness of the local labour market for skilled workers including the displacement effect of recruitment from other regional employers. The presence of a camp at the site and extended shift schedules allow for a substantial share of long-distance (outside of the regional study area) commuters. A 2012 survey of mine workers in the Sudbury region found that 40% of them commuted long distances, and this is assumed to also be the case for the Project workforce (MiHR, 2012a).

Local study area communities are projected as attracting 10% of the migrant workforce, split equally between Gogama and the Mattagami First Nation reserve. For Gogama, this includes both families moving into the area and local residents taking jobs at the Project who would otherwise leave the community. For the Mattagami First Nation reserve, this includes off-reserve members returning to their home community to work at the Project. Within the regional study area, migrants are assumed to split evenly between Timmins and Sudbury for their home communities. There are many factors that migrants would weigh to choose between these two cities such as: commuting time, affordability and availability of housing and access to services such as education and recreation. This report assumes that the current bottleneck of housing availability in Timmins (see Section 3.1.6) will be resolved and that migrants will exhibit no clear preference between the two cities. Migrants are expected to bring households with them, sized

at 2.6 individuals for those moving to non-reserve communities (the Ontario average) and 3.7 individuals for those moving to First Nation reserves, based on the 2006 on-reserve average (SC, 2012a; CMHC, 2011).

During the approximate 24 month construction phase, the Project is expected to require 1,900 person-years of construction work; construction workers are not expected to migrate to the region and this workforce is expected to be highly seasonal. Pre-production operations employment would begin in Year -2 (see Graphic 3-1) with 420 workers and 546 workers in Year -1. Pre-production operations employees are expected to increase regional migration since they will be employed over a much longer period of time (into the operations phase) and are not seasonal.

The total effects on migration relative to baseline population projections from Years -2 and -1 are shown in Table 3-4. The largest magnitude effects are expected in Timmins and Sudbury when construction begins in Year -2, with 208 migrants each, but these effects make up less than 0.01% of the total population in both cities and are not likely to be noticeable. For Gogama, the effect on population is to reverse the trend of population decline (between 2006 and 2011 the population in the community fell from 394 to 277), increasing the population to 289 by Year -1(SC, 2012a). For Mattagami First Nation, the effect on population is to accelerate the trend of population growth, increasing population from 193 in 2011 to 256 by Year -1, a 33% increase.

Table 3-4: Projected Population, Regional Study Area, Years -2 to -1

Area	Census	Projected Population (change from baseline projection)	
	2011	Year -2	Year -1
Gogama	277	284 (+23)	289 (+30)
City of Timmins	43,165	44,447 (+208)	44,444 (+274)
City of Greater Sudbury	160,770	164,986 (+208)	165,364 (+274)
Unorganized North Sudbury Subdivision	2,306	2,198 (+23)	2,187 (+30)
Unorganized Timiskaming West Subdivision	2,925	2,759 (0)	2,735 (0)
Mattagami First Nation	193	241 (+33)	256 (+43)
Flying Post First Nation	0	0 (0)	0 (0)
Brunswick House First Nation	189	204 (0)	208 (0)
Matachewan First Nation	83	90 (0)	91 (0)
Regional Study Area	209,548	214,925 (+562)	215,284 (+714)
Regional Study Area(Urban)	203,935	209,433 (+416)	209,808 (+549)
Regional Study Area(Rural)	5,231	4,956 (+23)	4,922 (+30)
Regional Study Area(Reserve)	465	535 (+33)	555 (+43)

Source: SC, 2012a; Ontario Ministry of Finance, 2012, AANDC, 2013

3.1.4.2 Government, Aboriginal and Public Comments and Concerns

The aging and declining population of Gogama was a concern for its leadership (pers. comm., GLSB, July 2013). Declining population was a concern for Timmins, particularly in light of continued outmigration of young workers, and the city is looking to attract skilled workers to maintain its role as a gold mining hub (pers. comm., TEDC, May 2013).

3.1.4.3 Effects Management Strategies

Gogama has expressed concerns about their community's population losses over the last decade; this concern is heightened by its aging demographics. Members of Mattagami First Nation are concerned by migration of its members off-reserve. Since the Project could potentially reverse both of these trends, the effects are considered positive for local study area communities, although they may produce challenging secondary effects in terms of housing and temporary accommodation (see Section 3.1.6), and community services and infrastructure (see Section 3.1.7). Throughout the regional study area, municipal leadership is supportive of increasing the population of their communities, although the effects of the Project on the populations of the cities of Sudbury and Timmins are not likely to be noticeable. IAMGOLD will enhance these positive effects by:

- implementing a hiring policy that supports employment for local community members (First Nation, Métis communities and Gogama);
- developing and implementing a procurement process that promotes suppliers from the local community (First Nations, Métis and Gogama);
- developing a cultural awareness-training program and requiring employees and contractors to complete the training;;
- providing on-the-job Common Core training to assist local and regional workers to develop mining-specific skills and help workers identify development needs and priorities through IAMGOLDs Performance Management Process (PMP); and
- initiating discussions with potential partners for developing youth mentorship programs.

3.1.4.4 Residual Effects

Residual positive (growth) effects are expected in Timmins and Sudbury when construction begins in Year -2, with 208 migrants each, but these effects make up less than 0.01% of the total population in both cities, are not likely to be noticeable and will last for the construction phase.

For Gogama, the effect on population is to reverse the trend of population decline, increasing the population to 289 from 277 people by Year -1. For Mattagami First Nation the effect on population is to accelerate the trend of population growth, increasing population from 193 in 2011 to 256 in Year -1, a 33% increase. This is considered a positive, highly distinguishable

effect, and may result in the need for investment by the community or government that lasts for the construction phase.

3.1.5 Community Health Conditions

3.1.5.1 Potential Project Effects

Mining projects, including this Project, have the potential to affect the existing health of the population in a variety of ways including the interaction of the workers with the local population, increased employment and income. This interaction could result in a more positive or adverse lifestyle depending on individual choices and the on-site work environment.

Health is defined as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (World Health Organization, 1948). The prediction of effects focuses on potential effects related to selected health indicators taken from the Porcupine Health Unit (PHU) and the Sudbury District Health Unit (SDHU) used in the socio-economic baseline study report (see Appendix I) which includes:

- self-rated health;
- suicide rates;
- food insecurity;
- obesity rates;
- incidence of diabetes;
- teen pregnancy rates;
- rates of sexually transmitted infections; and
- unintentional injury rates.

Baseline health conditions within the PHU and SDHU indicate lower levels of health than the provincial average.

Increased employment and income in the region is likely to lead to better lifestyles (including improved food security). This, in turn, could improve how people perceive their health status (self-rated health) which is influenced by factors such as food security, better housing, and less overall stress. However, shift work could contribute to lower self-rating of health as a result of being away from family and friends for extended time periods. There is evidence that correlates shift work to negative short and long-term health effects (Griffin, 2010; Wright and al. 2013). Due to the relatively short-term (2-year) construction period, it is most likely that short-term effects could potentially occur (e.g. insomnia, gastrointestinal symptoms, and feeling of being unwell). These potential effects could impact family health conditions and a workers’ mood due to their sleeping throughout the day, working during statuary holidays, and changing regular eating habits to unconventional hours.

Obesity and diabetes rates in northern Ontario are greater in the PHU and SDHU regions than in the Province (SC, 2013c). More wealth could encourage positive and negative lifestyle choices. Increased household income and greater occupational status may contribute to healthy dietary choices (Galobardes et al, 2001). In contrast, negative choices such as alcoholism and drug consumption may increase due to higher incomes earned within the regional study area communities. However, there is some evidence that these effects are temporary and diminish as individuals adjust to a higher income level (IDRC and The World Bank, 2001; Gibson et al., 2005).

Workers in isolated settings coupled with short breaks in work schedule are more likely than those living and working close to their home communities to interact with people living in nearby communities. This possibility is increased if they are working longer shifts sequences of 14 days on and 7 days off. Interactions among miners and nearby communities have been linked to an increased incidence of teen pregnancy and sexually transmitted infections (Goldenberg et al., 2008). The rates of teenage pregnancy in the PHU (53.1) are roughly twice that of Ontario (25.7) and substantially higher than the rate in the SDHU (32.6). Similarly, rates of Chlamydia in the PHU and SDHU (303.2 and 292.6 per 100,000 populations, respectively) are approximately 30% higher than the Ontario rate of 219.8 per 100,000 population (MOHLTC, 2009a). Long working days, stigmatization towards sexually transmitted infections testing, testing facilities operational hours (daytime), and limited mobility to off-site locations can create barriers to accessing sexually transmitted infections testing if not available on site and could potentially increase rates in nearby communities.

Mining projects have been linked to some negative health effects for local Aboriginal populations (Hipwell et al., 2002; North Slave Métis Alliance, 2000). Mining development effects have been attributed to increased rates of alcoholism, sexually transmitted infections as a result of in-migration of transient workers. Changes in socio-economic structures on First Nation reserves could also lead to increased levels of family violence and decreased access to country food. The effect of these health issues on Aboriginal women is of particular concern as women hold a crucial role in maintaining family and community structures, and also in passing on cultural traditions. These studies, however, are based on experiences in remote Northern sites in communities that did not already have a high level of integration with mainstream economy, unlike the Aboriginal communities within the local study area. Other studies have found positive effects from employment and income in stabilizing social structures in areas with high levels of unemployment (Gibson et al., 2005).Unintentional injuries in the regional study area are 1.5 times greater than Provincial average (SC, 2013c). The potential for on and off-site injuries and increases in injury hospitalizations are of primary concern due to working conditions such as heavy equipment use; working with chemicals; dusty and loud environments, strenuous physical activity, fatigue and the high level of activity on site, particularly during peak construction months. Heavy drinking is more common in northern Ontario than in the rest of the province and could also contribute to injuries on- and off-site (SC, 2013c).

3.1.5.2 Government, Aboriginal and Public Comments and Concerns

No specific concerns have been expressed by government agencies, Aboriginal groups and other stakeholders in relation to human health effects associated with the Project.

3.1.5.3 Effects Management Strategies

Effects management strategies to be used include:

- provide access to long-distance calls and internet connections to help maintain healthy family relationships; making mental health resources available on-site (help lines, therapy, counselling) - these types of services are generally available under the 'Employee and Family Assistance Program';
- provide for basic worker health care and immediate access to care if required to minimize additional demands on off-site community health facilities;
- provide information on health-related issues such as nutrition, sexually transmitted infections, alcohol abuse, etc., to workers;
- provide transportation to and from site, including potentially bussing employees from communities that are beyond a reasonable commuting distance, e.g., Timmins and Sudbury; and
- implement internationally recognized health and safety standards such as the Occupational Health, Safety and Security (OHSAS) and IAMGOLD's Zero Harm policy, which emphasize behavioural-based programs with a focus on prevention in order to reduce workplace risk and empower employees to take responsibility for their own health and safety on the job.

Additionally, IAMGOLD may consider the following effects management strategies:

- providing regular medical examination opportunities for health monitoring in line with IAMGOLD's medical monitoring program; and
- providing healthy food options at the work camp.

3.1.5.4 Residual Effects

With the application of appropriate effects management strategies, shift work and related health effects are expected to be distinguishable but not measurable and last for the life of the Project.

Potential health impacts on Mattagami First Nation will require monitoring throughout the life of the Project as potential effects may be long term and not easily observable during the short construction phase.

3.1.6 Housing and Temporary Accommodations

3.1.6.1 Potential Project Effects

The Project will interact with permanent and temporary housing through the need to provide housing to the temporary workforce, migrants seeking work and others who are attracted to the region as it becomes a more robust economy.

The Project, through stimulating economic growth within the regional study area and bringing outside workers into the region, will encourage the housing market, producing increased home sales, housing starts, and house and rental prices. In order to avoid a housing boom and bust cycle, the Project includes the construction of a camp at the Project site capable of housing 1,500 employees during the construction phase and 750 employees during the operations phase. As a result, most (roughly 90%) of the workers are expected to commute from either regional study area communities outside of the local study area (roughly 50% of the workforce) or from Ontario communities outside of the regional study area (roughly 40% of the workforce). Commuters from within the regional study area are projected to be split evenly between the cities of Greater Sudbury and Timmins.

Sudbury and Timmins both have healthy real estate markets. Prices of homes have been rising in Timmins, by 11.3% in 2011 and 8.1% in 2012. However, the number of sales and listings fell by 5.5% in 2012. Falling sales and rising prices may be evidence of a supply bottleneck and this may have been a driving factor in the 38.1% increase in the number of new homes constructed that year. Sudbury has not seen as rapid a rise in housing prices (3.5% in 2011 and 4.7% in 2012) and CMHC forecasts that housing prices in Sudbury will only increase by 1.7% in 2013 (CMHC, 2012; CMHC 2013). Finding a rental property in Timmins has become increasingly difficult, with vacancy rates declining from 1.5% in 2012 to 1.1% in 2013. No new buildings have been constructed for rental purposes in the last year. Vacancy rates in Sudbury are higher (2.9% in 2013) and new developments show a greater mix with 114 new apartments built in 2012 (CMHC, 2013).

The tightness of the real estate market has become an issue for mining companies and local government. This will be alleviated somewhat since Timmins intends to expand the water capacity in the northern part of the city, which will open 2,000 lots by 2014. In 2012, average home prices in Timmins were $89,187, lower than in Sudbury, and the city continues to be attractive as an affordable alternative (pers. comm., City of Timmins, May 2013; CMHC 2013).

Within the local study area the real estate market is less liquid. The number of dwellings in Gogama did not change between the 2006 and 2011 Census, while the population of the community fell from 394 to 277 (SC, 2007; SC, 2012a). Gogama has few Multiple Listing Service (MLS) listings (MLS, 2012). Flying Post First Nation's reserve is uninhabited and contains no infrastructure. Mattagami First Nation's reserve has faced challenges both from a growing population and from restrictions on real estate transactions common to Indian Reserves. Currently, the community has seven apartments, 13 townhouses or duplexes and 55

single family homes for an on-reserve population of 168. Members wishing to build a home in the community can finance construction through a band-guaranteed mortgage. The average amount of an outstanding mortgage on the existing housing stock is $150,000. There is a waiting list for housing, and crowding is an issue in the community (pers. comm., Mattagami First Nation, July 2013; AANDC, 2013).

The Project's work camp capacity is for 1,500 workers over the construction period, and is expected to meet the temporary housing requirements of both the peak construction workforce and the pre-production operations workforce (see Graphic 3-1). Gogama also has one hotel with 11 units and five lodges with 35 units that can provide temporary accommodation as necessary. As discussed in Section 3.4.1, the demand for pre-production operations workers is expected to encourage the migration of approximately 714 people into the regional study area. Table 3-5 shows the effects of migration relative to 2011 housing stocks over the construction phase, both relative to baseline conditions and to demands arising solely from Project effects.

Table 3-5: Housing Requirements as Share of Existing Housing Stock in Regional Study Area over Construction Phase, Years -2 to -1

Community	New housing demand from Project as share of 2011 housing stock[1] (%)		New housing demand of combined Project and baseline effects as share of 2011 housing stock[1] (%)	
	Year -2	Year -1	Year -2	Year -1
Gogama	6.8	2.2	6.1	1.5
City of Timmins	0.4	0.1	0.3	0.0
City of Greater Sudbury Subdivision	0.1	0.0	0.2	0.2
Unorganized North Sudbury Subdivision	0.8	0.3	0.1	-0.4
Unorganized Timiskaming West Subdivision	0.0	0.0	-0.8	-0.7
Mattagami First Nation	11.1	3.5	12.4	4.8
Flying Post First Nation	0.0	0.0	0.0	0.0
Brunswick House	0.0	0.0	3.4	3.4
Matachewan First Nation	0.0	0.0	1.3	1.4

[1] Housing stock defined as dwellings inhabited by usual residents Source: SC, 2012a

Even though Timmins and Sudbury are expected to house most of the migrants into the region, existing housing stocks are sufficient so that the number of homes taken by newcomers is expected to amount to less than 0.5% of existing housing stock for any given year. The effect on rural subdivisions and First Nation reserves outside the local study area is nonexistent.

In the local study area, however, housing effects are likely to be noticeable, particularly in Year -2 when construction begins. In Year -2, the demand for housing in Gogama is expected to

increase by 6.1% and by 1.5% the following year. The supply of surplus housing in the area is anticipated to be adequate; although data for Gogama is not available. Of the total housing stock in the Unorganized North Sudbury Subdivision (which contains Gogama), 39% are not occupied by usual residents (about 669 units), although many of these are cottage units which may not be inhabitable year-round (SC, 2012a). Gogama currently faces infrastructure issues that could limit the construction of new housing in the community during this phase (see Section 3.1.7.1). IAMGOLD is currently working with Gogama to address these infrastructure issues.

In Year -2, demand for new housing on the Mattagami First Nation reserve is expected to rise by 12.4%, of which 11.1% would come from the need to house people moving onto the reserve due to Project employment effects. Currently a waiting list exists for band-owned housing. Off-reserve workers wishing to live in the community would be expected to finance construction through a band-guaranteed mortgage or to purchase housing from another member. The former may cause challenges for Mattagami First Nation since each house constructed represents a contingent liability that the band is responsible for if the mortgage goes into arrears.

3.1.6.2 Government, Aboriginal and Public Comments and Concerns

A housing shortage in Timmins is of concern for the Cochrane District Social Services Administration Board (CDSSAB), specifically related to affordable housing and homelessness. The CDSSAB stated in an interview that homelessness in Timmins is a downside of prosperity.

3.1.6.3 Effects Management Strategies

In general, a stable and growing real estate market is desirable for regional study area communities since it indicates a growing economy and promises rising municipal revenue from property taxes. For such communities, the effect of a modest increase in housing demand stimulated by the Project is a positive effect. Under specific circumstances, however, the direction of effects can be reversed.

For First Nations, although housing is recognized as an essential asset for members (and for the community, given continued growth in population), housing demand brings special costs. Local governments typically need to secure outside funding to build homes and no regional study area First Nations levy property taxes on existing homes. Since migrants are expected to be returning to the Mattagami First Nation reserve to take stable and relatively high-income employment at the Project, they may wish to pay for new homes to be constructed. However, banks will not offer mortgages for homes built on reserves without a guarantee in the event of default. In order to overcome this issue, Mattagami First Nation has in the past guaranteed mortgages through the Ministerial Loan Guarantee program. While this limits the up-front costs to the First Nation, it would require the First Nation to take on new contingent liabilities without securing additional revenue through income or property taxation (see Section 3.1.3). As a result, the effect of housing demand on First Nation communities is ambiguous and depends on correlated effects on local government revenue.

Some regional study area communities face bottlenecks in their ability to accommodate changes in the housing stock necessary to receive potential migrants arriving to their community in the construction phase. Key bottlenecks are:

- Gogama: water infrastructure to support new lot construction (see Section 3.1.7);
- Mattagami First Nation: capital to fund housing construction for new residents given the effect of limited ownership rights on private funding; and
- Timmins: an ongoing housing shortage driven by an already strong economy for the community.

Bottlenecks can cause short-term spikes in housing prices by limiting the supply of housing, but the extent of these effects is limited by the fact that migrants retain the option of choosing to move to other communities within the regional study area. If a housing bottleneck in a community is not resolved by the time effects from the construction phase are felt, this can both reverse the direction of the Project effect (to adverse) and alter the distribution of population migrations from restricted communities to those with more liquid real estate markets.

Effects management strategies to be used include:

- developing on-site camp while supporting the needs of commuters from across the regional study area through the provision of transportation services; and
- monitoring indicators of Project housing effects and adapting management measures.

3.1.6.4 Residual Effects

Although Timmins and Sudbury are expected to house most of the migrants into the region, existing housing stocks are sufficient so that the number of homes taken by newcomers is expected to amount to less than 0.5% of existing housing stock for any given year. The residual effect is therefore within the normal range of variability for housing and will last for the life of the Project.

In contrast, the demand for housing in the local study area communities is distinguishable. Gogama is expected to increase by 6.1% in Year -2 and by 1.5% the following year. The supply of surplus housing in the area is anticipated to be adequate; although data for Gogama is not available. Of the total housing stock in the Unorganized North Sudbury Subdivision (which contains Gogama), 39% is not occupied by permanent residents (about 669 units), although many of these are cottage units which may not be inhabitable year-round. Gogama currently faces infrastructure issues that could limit the construction of new housing in the community in this phase.

In Year -2, demand for new housing on the Mattagami First Nation reserve is expected to rise by 12.4%, of which 11.1% would come from the need to house people moving onto the reserve

due to Project employment. Currently a waiting list exists for band-owned housing. Off-reserve workers wishing to live in the community would be expected to finance construction through a band-guaranteed mortgage or to purchase housing from another member. Residual housing effects in the local study area, while considered positive, are distinguishable and require investment by the community or government to address these. They will be most acutely experienced in the construction phase (Years -2 to -1),

3.1.7 Public Utilities

3.1.7.1 Potential Project Effects

The Project has the potential to effect demands on public utilities such as water and wastewater, electricity, and solid waste systems because the Project will require them on-site and an increase in population may result in growth in housing and businesses with associated demands for public utilities.

Given the fact that the Project site will have its own supply of power and potable water, sewage treatment systems, and a solid waste disposal system throughout all Project phases, additional demands on existing public utilities infrastructure in the study area are not anticipated.

Population changes in Timmins and Sudbury are low and therefore not expected to result in noticeable increased demands for any public utilities which have adequate capacities to meet current demands and future growth in both cities.

In Gogama and the Mattagami First Nation reserve, where populations are expected to increase in the construction phase, there will be additional demands on public utility infrastructure. In particular the need to increase capacity of Gogama's wastewater treatment system to facilitate population growth was described in Section 3.1.6 with appropriate effects management strategies outlined in Section 3.1.6.3. There are no concerns or capacity issues with provision of public utilities on the Mattagami First Nation reserve.

As noted earlier, Gogama is currently undertaking an engineering study, with the assistance of IAMGOLD, to determine the maximum allowable wastewater system upgrade to realize the benefits of the potential growth associated with in-migration from Project workers.

3.1.7.2 Government, Aboriginal and Public Comments and Concerns

On October 26th, 2012 IAMGOLD met with the Gogama Local Services Board (GLSB) to discuss upgrading water treatment capacity from 300 m^3/day to 450 m^3/day in order to help the community better mitigate the possible population influx expected from the Project.

On February 2, 2013, IAMGOLD met with various Gogama committees and discussed Project details. A GLSB representative inquired if the proposed transmission line was to be dedicated

and maintained by the mine. IAMGOLD identified that the hydro line would be owned and maintained by IAMGOLD, and that maintenance would most likely be contracted out.

No other concerns related to public utilities were expressed by the other regional study area communities or stakeholders.

3.1.7.3 Effects Management Strategies

IAMGOLD will continue to support Gogama Local Services Board to identify ways to improve wastewater treatment capacity issues. Other appropriate management strategies are outlined in Section 3.1.6.3 to ensure that public utility capacity issues do not pose a bottleneck to Gogama's growth.

3.1.7.4 Residual Effects

Population changes in Timmins and Sudbury are low and therefore not expected to result in noticeable increased demands for any public utilities which have adequate capacities to meet current demands and future growth in both cities. This effect is expected to last for the life of the Project.

In Gogama and the Mattagami First Nation reserve where populations are expected to increase in this phase, there will be additional demands on public utility infrastructure. In particular, there is an immediate need to increase capacity of Gogama's wastewater treatment system to facilitate population growth. This issue is being actively addressed by the community with the support of IAMGOLD. There are no concerns or capacity issues with provision of public utilities on the Mattagami First Nation reserve and therefore the residual effect is expected to be distinguishable but not measurable and is expected to last for the life of the Project.

3.1.8 Education

3.1.8.1 Potential Project Effects

The Project could intersect with the education and training sector in a variety of ways including:

- increases in population of school aged children; and
- increased demands for post-secondary school training to access Project employment effects (direct, indirect and induced).

Overall, northern Ontario schools have been experiencing declining enrolments over the past decade. Gogama and the Mattagami First Nation reserve have capacity for more students than are currently enrolled. Both communities have no senior high school and bus older students to schools in Timmins. Timmins and Sudbury have seen relatively stable enrolments with students increasing in some Timmins school board districts and Sudbury enrolments being stable or slightly declining.

Primary and Secondary School Education

During the construction phase, the number of new dwellings as a result of direct employment and as a proportion of existing dwellings, is estimated to increase slightly (0.3%) in Sudbury and Timmins. This amounts to not more than five new households which would produce approximately 2 - 3 school aged children (assuming that there are 0.5 school aged children per 2.6 person household). In Gogama the number of new dwellings as a result of direct employment and as a proportion of existing dwellings, is estimated to increase by 6.1%. This results in approximately eight new households/dwellings or 4 – 5 additional school aged children (assuming the same proportion of children per household). On the Mattagami First Nation reserve the number of new dwellings as a result of direct employment and as a proportion of existing dwellings, is estimated to increase by 11.8%. This results in nearly 10 new households/dwellings. Assuming that the proportion of school aged children matches the Canadian average for First Nation households of 1.6 children per 3.7 person household, there would be approximately 16 additional children (SC, 2012a). The older children would be bussed to Timmins for high school and some will be younger than school aged. Nevertheless, there will be increased enrolment in elementary schools in those communities. Since excess capacity exists for enrolment, this could be considered a positive effect since it may prevent loss of teachers or school closures. The new older students are expected to be easily accommodated in schools where the overall populations of the urban communities are stable (Sudbury) or slowly declining (Timmins).

Post Secondary Education and Training Institutes

A number of post-secondary education and training institutes are located in Timmins and Sudbury which offer courses applicable to the mining sector and have capacity for increasing demands; in fact, student recruitment efforts are falling below targets.

3.1.8.2 Government, Aboriginal and Public Comments and Concerns

Comments or concerns regarding primary or secondary school education expressed by government, Aboriginal or the public during consultation activities conducted to date include interests by First Nations and local residents in receiving training to access employment with the Project. The Gogama Local Services Board expressed concern over low enrolments in local primary and secondary school.

IAMGOLD has been meeting with community organizations and post-secondary training institutions such as Northern College, Laurentian University and Cambrian College since early 2012 to address anticipated demands on training and employment recruitment needs in the region. In these meetings, Northern College indicated that they can work directly with IAMGOLD in order to design programs that will develop the specific skills the company needs in order to employ students. Similarly, Cambrian College indicated that their focus is on practical, hands-on skills training and that although their specialty is nickel mining, they have the capacity to design a tailored program to fit IAMGOLDs needs. Cambrian College noted that they wish to build long-

term partnerships with employers, and build on each other's interests, and noted that they have previously implemented innovative training programs for mining companies.

In a meeting with representatives of Northern College, Laurentian University, and Cambrian College, these institutions suggested that middle school, high school and college students could be targeted for employment in the mining sector through sponsorship of seminar series, scholarships and bursaries, research, and the Indigenous Sharing and Learning Centre. The institutes recommended working together to encourage Aboriginal students to pursue non-traditional career paths. Laurentian University indicated that geology and engineering programs already have co-op terms, so they could provide a potential source of IAMGOLD summer students/employees.

In 2013, and in response to these early discussions, the Bharti School of Engineering at Laurentian University established Canada's first Research Chair in Open-Pit Mining, with significant support ($1.25 million) from IAMGOLD. The investment is expected to enhance the research capacity of the school and provide cutting-edge knowledge to mining engineering programs. The Chair will provide leadership for national and international collaborative research into open-pit mining, including open-pit design and slope stability, resource estimation, optimization of drilling and blasting, and practical application of grade simulation. This investment is expected to enhance the reputation of the region as a mining centre and indirectly helps to provide more long-term Project opportunities for local people.

3.1.8.3 Effects Management Strategies

Primary and Secondary Education

Effects are considered positive but very minimal and therefore no further enhancements are recommended.

Post Secondary Education

In addition to the provision of funds for the Research Chair in Open-Pit Mining at the Bharti School of Engineering at Laurentian University, IAMGOLD is expected to enhance positive effects in the region on post secondary education institutes and educational attainment through encouraging and supporting post secondary education of workers (including scholarships for programs related to mining for First Nation and Métis students).

3.1.8.4 Residual Effects

The residual effect on primary and secondary education is considered positive since it results in a slight increase in enrolment in elementary schools in the local study area and in enrolment in high schools in the regional study area (Timmins and Sudbury). The residual effect on post-secondary education is also positive and could result in increased capacity of the local and

regional workforce to access Project employment. These effects are considered positive and manageable within current system capacities, and are within the normal range of variability. The effect is expected to last until the end of Project operations.

3.1.9 Emergency Services

3.1.9.1 Potential Project Effects

The Project will interact with emergency services because of increases in population; increases in disposable income levels due to direct and indirect employment related to the Project; and through increases in Project-related accidents that require medical attention.

Fire fighting services are available in all study area communities, with the smaller communities relying on volunteer fire fighting services. Policing is also available in all study area communities, with adequate levels of service and capacity in all but in Mattagami First Nation reserve. Nishnawbe-Aski Police Service (NAPS), the police service with jurisdiction on reserves, are facing funding cuts and existing levels of service are not meeting current community demands. Ambulance and paramedic services are also available in all communities with Gogama supporting the Mattagami First Nation reserve in this regard.

Population changes in Timmins and Sudbury will be minimal during the construction phase. Therefore, changes in demands on police and emergency services in these communities are also expected to be minimal.

In Gogama and Mattagami First Nation reserve, demands on policing and emergency services are expected to increase due to a growing population and a rise in disposable income which could lead to negative social behaviours such as substance abuse. Increased population in Mattagami First Nation reserve may also increase numbers of people living within one house if housing issues are not addressed. This could result in associated social issues that may require emergency or policing response.

Increased disposable income can have both positive and negative effects, and the extent of the effect will depend on choices made at the individual level. This is expected to have some strains on policing on the reserve since NAPS is already challenged with current demands. In both Mattagami First Nation reserve and Gogama IAMGOLD employees with newly acquired disposable income may make spending choices that improve their quality of life and standard of living, or they may make spending choices that have adverse consequences. A common correlation exists between increased disposable income and short-term increased use of drugs and alcohol and crimes and/or violence, particularly in areas that experience a large or unprecedented economic boom (North Slave Métis Association, 2002; Shandro, J.A. et al., 2011; The Star Phoenix, 2008). This effect is not expected to be as pronounced in this region, compared to others in Ontario, since mining sector employment is common and the increase in mining jobs has been slowly experienced over the last five years (i.e., the boom is not new or

unexpected). Negative behaviours associated with increased income, if experienced, are usually short term since workers adjust to higher incomes over time and re-occurring dysfunctional behaviours can lead to job / income losses if adjustments are not made (Gibson, G. and Klinck, J., 2005).

Negative behaviours related to substance abuse may increase the burden on certain health and social services that deal with drug and alcohol-related issues (such as addictions services and outpatient rehabilitation) as well as on the Ontario Provincial Police (OPP), and NAPS and child and family services that work with social issues associated with drug and alcohol-related family dysfunction (such as violent crime, children in care referrals).

In addition, the potential exists for Project-related accidents and increased traffic on Highway 144 that would require emergency and/or policing response. The effect on traffic volumes is addressed in Section 3.1.11 and it is expected to be managed within the current system's capacity. While the number of accidents is expected to be rare and traffic volumes are expected to be manageable within current highway service levels, additional demands are likely to be experienced by emergency services; specifically the OPP and NAPS.

3.1.9.2 Government, Aboriginal and Public Comments and Concerns

To date, no comments or concerns have been raised regarding the effects of the Project on emergency or police services.

3.1.9.3 Effects Management Strategies

Potential effects on emergency services associated with lifestyle choices are uncertain and will depend on individual choices. While they cannot be managed solely by IAMGOLD, the company will take active steps to influence worker behaviour, monitor the occurrence of social issues in Gogama and in Mattagami First Nation reserve (if permitted), and work collaboratively with local service providers on indentifying and supporting appropriate government- or community-led solutions. IAMGOLD will support locally provided programs for employees aimed at influencing workers' behaviour, which may include financial management and work-life balance seminars, behaviour protocols for employees as part of site orientation (including policies respecting off-duty illicit drug use, and zero tolerance for impaired driving).

IAMGOLD will maintain open communication with local service providers (local OPP, NAPS Police, and Cochrane District Social Services Administration Board (CDSSAB)) to monitor existing social issues (appropriate indicators will be selected with input from these service providers) so that any effects resulting from the Project are identified and managed appropriately by responsible parties.

3.1.9.4 Residual Effects

Efforts to avoid and mitigate the potential negative effects on emergency services of increased population and income particularly in local study area communities are expected to reduce effects to a level where they would not require additional community or government response or investment. The effect is expected to last for the life of the Project and possibly into the first few years of the post-closure phase.

3.1.10 Other Community Services and Infrastructure

3.1.10.1 Potential Project Effects

Potential Project effects will be assessed on community services and infrastructure pertaining to recreation, shelters and victims' services, child care, and health care services. The Project could affect community services because of population changes and residency decisions, and the extent to which direct or indirect population growth in certain communities may place pressure on their services and infrastructure.

In a region that has experienced population declines over the past decade, an increase in demand on some community services (such as recreation programs) can be perceived as a positive since it supports (or grows) demands for these services and can contribute to overall community sustainability. However, increased pressure on most social services is generally understood to be an adverse or undesirable effect since they indicate more societal dysfunction (depending on the service, such as employment assistance, victims services and shelters, and similar), while reducing pressure on these types of services is seen as a positive effect.

Recreation Programs and Services

The Project is not expected to have adverse effects on recreational services and infrastructure in the regional study area as population projections are predicted to only change slightly. Also, the workforce is expected to consist mainly of residents (60% - average 266) and 40% (average 178) from outside the regional study area. Due to the short timeframe of construction, non-resident workers will less likely move to the regional study area and will access recreation services in their home communities or at the work camp.

Potential significant increases in population may occur in the local study area: in Gogama these amount to 7.6% or approximately 21 new residents and on the Mattagami First Nation reserve they amount to 18% or approximately 35 new residents. This may increase demand for recreation facilities and programs which are limited in both communities. However, this increase is considered positive and the Gogama Local Services Board has expressed desire and capacity to accommodate additional needs.

Employment Assistance

Employment assistance programs (e.g., Ontario Works, Aboriginal Skills and Employment Training Strategy (ASETS)) and counsellors available in the regional and local study areas to assist with training opportunities and preparing for employment are likely to experience increased demands in preparation for employment during construction. Construction work is often seasonal, leading to greater demand on applications for employment insurance (EI).

Shelters and Victims' Services

The Project may have the potential to affect the socio-economic structures in communities due to changes in earnings and potential impacts on gender inequalities in the economic benefits of mining activities, where hiring practices and terms and conditions of employment may favour males and impose difficult circumstances on women with child-rearing responsibilities to participate in the workforce. Changes in socio-economic structures due to the Project may increase levels of family violence and alcoholism (Hipwell et al., 2002; Shandro, J.A. et al., 2011). There are no shelters or victims services in the local study area communities which may pose a risk to residents if no effects management strategies are in place. Timmins is the nearest access point for shelters and victims' services and is currently experiencing a lack of accessible shelters which will be exacerbated by any new demands from both local and regional study area communities.

Child Care Services

The Project is not expected to have adverse effects on child care services and infrastructure in the regional study area as population projections are predicted to change slightly.

Gogama has no child care services. If Gogama experiences an increase in population equivalent to eight additional households, the community may need to accommodate an additional 1.4 children under six years of age (0.17 per household). This is not expected to negatively affect the ability for women or single parent households, to participate in the workforce or to put additional stress on community resources (friends and family support for child care).

It is estimated that there are 1.6 children per family (3.7 persons per household) on the Mattagami First Nation reserve. An estimated influx of 10 additional households could potentially introduce 16 additional children with no child care on-reserve. This may affect the ability for women, in particular, to participate in the workforce and could put additional stress on community resources (friends and family support for child care).

Health Care Services

Timmins and Sudbury offer extensive health care services to residents in the regional study area and Côté Gold Project baseline study evidence suggests that they are operating at capacity. Local study area health clinics are located in both Gogama and Mattagami First Nation reserve which meet current demands. Increased demands on health infrastructure and services would occur as a result of:

- increases in regional study area population;
- increased demand for pre-employment medical examinations; and
- increases in Project-related accidents and health issues that require medical attention.

Given the low levels of population increases expected in Timmins and Sudbury, the effect on the existing health care services and infrastructure is forecasted to be minimal and manageable within the current system.

Within Gogama and the Mattagami First Nation reserve, increases in population and corresponding demands on health care services could require a management response. Demand for medical care related to accidents and other health issues on the Project site are not anticipated to be treated in Gogama or at the Mattagami First Nation reserve since IAMGOLD will have a medical clinic on-site. Serious injuries that cannot be addressed by on-site medical staff will be transported to the nearest hospital (either in Timmins or in Sudbury). These cases are expected to be rare and not anticipated to create additional demands on the health care systems in these cities.

3.1.10.2 Government, Aboriginal and Public Comments and Concerns

No comments or concerns were expressed related to health care services and infrastructure during consultation activities conducted to date.

3.1.10.3 Effects Management Strategies

IAMGOLD will train all employees on Zero Harm policies and procedure to potentially reduce the demand on local medical services. If increased demands require a response, then IAMGOLD will work with these communities to develop appropriate responses to ensure sufficient levels of health care services are delivered.

IAMGOLD may also consider the following effects management strategies:

- encouraging non-resident construction workers to access routine medical care in their home communities; and
- monitoring (and setting appropriate indicators for) health care services demands in collaboration with Mattagami First Nation and Gogama.

3.1.10.4 Residual Effects

Residual effects on community services in Timmins and Sudbury are expected to be within the normal range of variability and last throughout the life of the Project. While increased demands for community services are likely to occur and be distinguishable in Gogama and Mattagami First Nation reserve, these would be considered positive for recreation services and negative due to lack of services in local study area communities (for shelters, victims' services, child care and health care). The effects are expected to last during the construction phase and during the first years of the operations phase until community service providers adjust service levels to meet the needs of the population.

3.1.11 Transportation

3.1.11.1 Potential Project Effects

The primary effects of the Project on traffic volumes will occur on Highway 144 since vehicular traffic will be the main mode of transportation used to transport goods, services and workers to and from the Project site. Rail may also be used during the construction phase to transport some Project materials to Gogama, to be offloaded there and transported by truck to the Project site. Further, some workers (direct or contract) will travel to the region by air (through Timmins or Sudbury). The effect on these two latter modes of transportation is projected to be minimal, and is therefore, not assessed further.

The assessment is for traffic generated by direct rather than for indirect or induced employment since traffic for the latter forms of employment cannot be determined with enough precision to allow a reasonable assessment. This assessment is intended as an analysis of potential effects against a theoretical highway volume capacity.

Access to the site will be from the Sultan Industrial Road from Highway 144. As a result, no increased traffic should occur on the Mesomikenda Lake Road. This should lessen concerns about increased traffic on this road, which is also used by the Mesomikenda Lake cottagers.

The majority of the traffic generated by the Project will use Highway 144 as it connects the site with Timmins and Sudbury, which are projected to be the main traffic route of Project workers and contractors. During construction (and based on estimates derived from the Detour Gold Project, northeast of Cochrane, Ontario), approximately 6,000 vehicles will travel to and from the Project site. This will include vehicles to transport workers (including IAMGOLD and contractors), Project components, hazardous loads (fuels, explosives) and contractor service vehicles. This translates to an average of 16 vehicles trips per day (6,000 vehicles / 24 months / 30 days = 8 vehicles per day or 16 vehicle trips) over a two-year period originating equally from Timmins and Sudbury (8 vehicle trips from each city).

Of these eight vehicles, there is estimated to be three heavy equipment loads per day to transport large Project components for the construction of the process plant, and other building

materials to the Project site. Employees of IAMGOLD will be transported by shuttle bus (originating equally from both Timmins and Sudbury) to the Project site. Shuttle buses will make up the remaining 5 daily vehicles (10 vehicle trips/day). Shuttle buses will likely stop at a point near Gogama to transport workers living in the local study area (Gogama, Mattagami First Nation reserve) to and from the Project site. These traffic volume estimates are averaged over the 24 month construction phase. Actual construction phase traffic will be higher in the peak months of construction.

Table 3-6 shows that the increase in traffic over Annual Average Daily Traffic (AADT) counted in 2010 is very low compared to existing traffic volumes. At most, an increase could occur of just under 3% on Highway 144 in the section between Highway 560 and 661 where vehicles would be turning off Highway 144 at Sultan Industrial Road to access the Project site. These turning movements are occurring on a portion of Highway 144 where service levels are considered most favourable (Level A). A level of service definition generally describes these conditions in terms of factors such as speed and travel time, freedom to manoeuvre, traffic interruptions, comfort and convenience, and safety. Six levels of service are defined for each type of facility (highway), for which analysis procedures are available. They are given letter designations from A – F, with Level of Service A representing the best operating conditions and level of service F the worst.

The Project will contribute less than 1% of new traffic volumes in portions of the highway of lower service level (from Regional Road 15 (N) to Sudbury Road 8), it is not expected to change these service levels. The level of service is a qualitative measure describing operational conditions within a traffic stream, as perceived by motorists.

Table 3-6: Traffic Volumes During Construction

Highway 144		Distance (km)	AADT (2010)	Project Vehicle Trips	Level of Service	Change in traffic volume over 2010 AADT (%)
From	To					
Sudbury Regional Road 24(E)	Regional Road 15 (N) at Regional Road 35 (E)	14	3,750	8	C	0.21
Regional Road 15 (N) at Regional Road 35 (E)	St. Albert St. (W) at Charette St. (E)	1	22,000	8	D-E	0.04
St. Albert St. (W) at Charette St. (E)	Regional Rd 13 at Vermilion Lake Road (W)	5	11,600	8	D-E	0.07
Regional Rd 13 at Vermilion Lake Road (W)	Larchwood Avenue at Onaping Falls	4	8,400	8	D-E	0.10

Highway 144		Distance (km)	AADT (2010)	Project Vehicle Trips	Level of Service	Change in traffic volume over 2010 AADT (%)
From	To					
Larchwood Avenue at Onaping Falls	Sudbury Road 8	13	6,800	8	D-E	0.12
Sudbury Road 8	Onaping Falls W LTS	3	2,350	8	C	0.34
Onaping Falls W LTS	Cartier East Entrance	13	2,350	8	C	0.34
Cartier East Entrance	Onaping Lake Rd (E)	17	1,700	8	A	0.47
Onaping Lake Rd (E)	Sudbury – New Liskeard District Boundary	45	1,100	8	A	0.73
Sudbury – New Liskeard District Boundary	Highway 560	35	1,100	8	A	0.73
Highway 560	Highway 661 – Gogama road	32	1,100	16	A	2.91
Highway 661 – Gogama road	Hassard/Doyle Township Boundary	53	1,100	8	A	0.73
Hassard/Doyle Township Boundary	Timmins – Cochrane District Boundary	21	1,400	8	A	0.57
Timmins – Cochrane District Boundary	End of highway 144	12	1,400	8	A	0.57

Source: (Ontario Ministry of Transportation, 2010)
Notes:
AADT = average annual daily traffic
Shaded row indicates the location of the intersection of Highway 144 and the Project access road

Accident rates for Highway 144 between August 2012 and August 2013 were obtained from the Ontario Provincial Police detachments in South Porcupine and Sudbury and are presented in Table 3-7. Using weighted average AADT from 2010 on Highway 144 and assuming that the accident rates remain constant, it is estimated that the slight increase in vehicle traffic during construction could result in nearly one more accident per year on average.

Table 3-7: Traffic Accidents on Highway 144 (2012-2013)

District	Accidents Reported	Daily Accident Rate	Weighted Average of 2010 AADT	Accidents/AADT (%)	Additional Daily Project Trips	Estimated Additional Collisions (Annual)
Cochrane	76	0.2	1,183	0.018	8	0.5
Sudbury	139	0.4	2,748	0.014	8	0.4
Total	215	0.6	3,930	0.015	16	0.9

3.1.11.2 Government, Aboriginal and Public Comments and Concerns

IAMGOLD held an open house in February 2013 in Sudbury, Ontario to present an overview of the IAMGOLD draft Project Description. At the open house, a local cottager identified several concerns including the potential for an increase in traffic both on the road and in water.

In a telephone interview with a bait fish harvester for the Chester Township in May 2013, the harvester indicated he hasn't used the area much in the last seven years due to increases in road traffic.

In May 2013, the Ministry of Transportation (MTO) indicated a potential need for a traffic study to determine if road improvements will be necessary to maintain traffic flow as vehicles exit Highway 144 onto Mesomikenda Lake Road. IAMGOLD noted that the use of the Mesomikenda Lake Road is not proposed during the construction and operations and closure of the Côté Gold Project, rather the Sultan Industrial Road will be the main access point to the Project site. The MTO also noted that they would like to learn more about potential effects to Highway 144 related to the estimated increase in traffic from construction vehicles, transport trucks, heavy machinery, contractors, and employees.

In February 2013, IAMGOLD met with the Federal Economic Development Initiative for Northern Ontario (FedNor) to introduce the Côté Gold Project and solicit input on the development of their education, training, and skills development strategy. At the meeting, FedNor suggested that IAMGOLD be mindful of safety issues on the highway to and from Sudbury and Timmins.

3.1.11.3 Effects Management Strategies

The portion of Highway 144 between Highway 560 and Highway 661/Gogama Road is currently rated as having the best service level. This is where the highest change in traffic volume is estimated due to Project-related traffic and therefore is not expected to change this rating to the point where mitigation measures are needed to manage the effect. Nonetheless, several effects management initiatives are planned to improve safety for drivers on Highway 144 including right and left turning lanes to manage traffic access and an egress on to the Sultan Industrial Road

from Highway 144. IAMGOLD will engage the MTO on the potential impacts of Project related traffic on the Sultan Road / Hwy 144 intersection.

Potential traffic effects will also be managed by:

- implementing regular road safety awareness training for workers and contractors;
- scheduling delivery of major equipment at off peak times where practical;
- scheduling shuttle buses to travel during off-peak travel times to avoid conflicts with other commuters, school buses and recreation traffic;
- scheduling shifts so that not all construction workers travel off-site on the same days and, thereby limiting the number of daily shuttle buses;
- ensuring that heavy loads are sized appropriately and that truck traffic observe seasonal load restrictions;
- transporting oversized loads in parts to the Project site, if possible, to limit load stress on highway surfaces and obstruction of other traffic; and
- reporting of wildlife sightings on highways to inform workers and identify areas where wildlife is persistently present.

3.1.11.4 Residual Effects

Project-related traffic volumes will slightly increase traffic on Highway 144 (by 16 additional vehicle trips per day on average). At most, an increase of just under 3% could occur on Highway 144 in the section between Highway 560 and 661 where vehicles would be turning off Highway 144 at Sultan Industrial Road to access the Project site. These turning movements are occurring on a portion of Highway 144 where service levels are considered most favourable (Level A). An increase in traffic will also marginally increase the potential for vehicle collisions (less than 1 per year on average) for the duration of the construction phase. These volumes will be higher during peak construction months, but are on average manageable, and within the service capacities of the Highway in all sections evaluated. In conclusion the magnitude of the effects on traffic are considered distinguishable but within the normal range of variability and will last throughout the Project although at lower levels in the operations, closure and post-closure phases than in the construction phase.

3.2 Operations Phase

Full mining operations are assumed to start at the beginning of Year 1 and are expected to continue until the end of Year 15. Average annual expenditures over the operations phase are estimated at approximately $379 million (based on industry averages), and labour costs are estimated to be approximately $89 million annually (based on industry averages). Throughout the production period, it is estimated that 80% of operating expenditures would be spent in

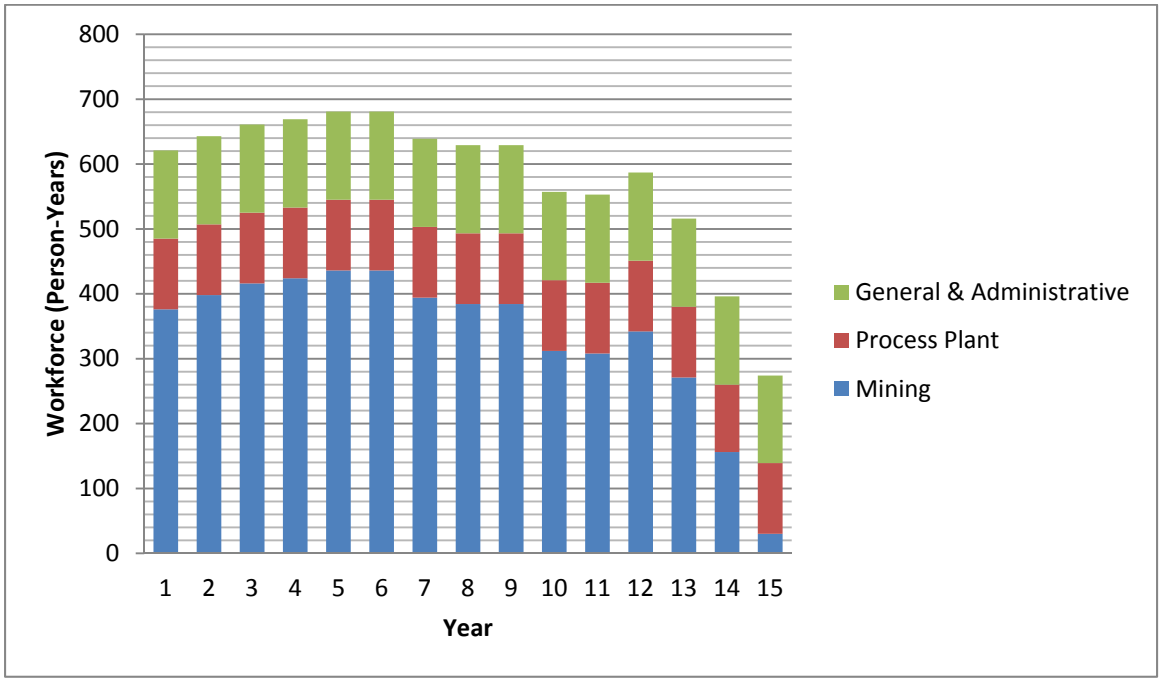
Ontario, specifically in the regional study area; 15% in other provinces and 5% in other countries, primarily the United States.

3.2.1 Labour Market

3.2.1.1 Potential Project Effects

The Project is expected to be in operation for a period of 15 years. On average, over the operations phase, approximately 12% of the operations workforce would be residing within the local study area, (i.e., Gogama and Mattagami First Nation), while the rest (88%) would come from elsewhere in Ontario and Canada, and reside in an on-site work camp. Total employment over the operations phase is shown in Graphic 3-2. Total employment peaks in Years 5 and 6 with 681 workers and declines quickly in the period prior to closure in Years 14 and 15.

Graphic 3-2: Project Workforce during the Operations Phase, Years 1 to 15



Expected economic effects over the life of the Project within the Province of Ontario in terms of Employment and Labour Income are detailed in Table 3-8. On average annually, the Project will create direct employment for about 582 people in Ontario. Annual indirect and induced employment in Ontario during operations is expected to total approximately 531 and 502 jobs, respectively. When added to direct employment, total employment in Ontario as a result of operations is 1,614 jobs per year. Total labour compensation from direct employment is estimated to be $89.4 million and total labour compensation from direct, indirect and induced employment is $147.6 million.

Table 3-8: Annual Employment and Income Effects from Operations, Years 1 to 15

	Ontario		Regional Study Area	
	Jobs (person-years)	Income ($M)	Jobs (person-years)	Income ($M)
Direct	582	89.4	473	72.7
Indirect	531	33.2	371	23.3
Induced	502	24.9	203	10.0
Total	1,614	147.6	1,047	106.0

The market for skilled mining workers in the regional study area is reported to be tight, although the relatively large size of the regional labour market is expected to allow regional sourcing of low-skilled positions. For skilled positions, the MiHR projection of regional cumulative hiring requirements until 2022, when operational hiring will peak, is estimated at 23,000 considering only changes in employment and replacing retirees (MiHR, 2012a; MiHR, 2012b).

The expected economic effects over the life of the Project within the regional study area are shown in Table 3-8. At a regional level, Project operations during this phase are expected to directly employ 473 people in the regional study area in new full-time jobs. On average, during this phase, the Project will support an annual total of 1,047 direct, indirect and induced jobs in the region. Regional labour income generated by the Project is expected to be about $106.0 million per year.

Employment effects are expected to vary over the productive life of the Project. Annual effects are shown in Table 3-9.

Table 3-9: Annual Project Effects on Employment and Income, Ontario, Years 1 to 15

Year	Workforce	Jobs (person-years)				Income ($M)			
		Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
1	621	621	567	536	1,724	95.5	35.5	26.6	157.6
2	643	643	587	555	1,785	98.9	36.7	27.5	163.2
3	661	661	603	571	1,835	101.7	37.8	28.3	167.7
4	669	669	610	577	1,857	102.9	38.2	28.6	169.8
5	681	681	621	588	1,890	104.7	38.9	29.2	172.8
6	681	681	621	588	1,890	104.7	38.9	29.2	172.8
7	639	639	583	552	1,774	98.3	36.5	27.4	162.2
8	629	629	574	543	1,746	96.8	36.0	26.9	159.7
9	629	629	574	543	1,746	96.8	36.0	26.9	159.7
10	557	557	508	481	1,546	85.7	31.8	23.9	141.3
11	553	553	505	477	1,535	85.1	31.6	23.7	140.3
12	587	587	536	507	1,629	90.3	33.5	25.1	149.0
13	516	516	471	445	1,432	79.4	29.5	22.1	130.9
14	396	396	361	342	1,099	60.9	22.6	17.0	100.5
15	261	261	238	225	724	40.1	14.9	11.2	66.2
Total	8,723	8,723	7,961	7,529	24,213	1,342	499	374	2,214
Average	582	582	531	502	1,614	89	33	25	148

Operations earnings are expected to be far higher than current regional study area median earnings: average projected earnings (including only wages and benefits) per direct employee from the regional study area of $153,800 are 3.0 times the regional study area average median earnings for full time workers and 5.0 times the regional study area average median earnings for all those with earnings over 15. A total compensation of $101,274 from all types of economic activity (direct, indirect and induced) is 2.0 times the regional study area average median earnings for full time workers and 3.3 times the regional study area average median earnings for all those with earnings over the age of 15. Median earnings data from the 2011 census are not available, and regional study area estimates are based on incomes from 2005 in 2013 dollars (SC, 2006).

3.2.1.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.1.2.

3.2.1.3 Effects Management Strategies

Three primary methods are used for alleviating labour market pressures: training existing residents, long-distance commuting and encouraging in-migration of skilled workers. Government investment in training for the mining industry is increasing, evidenced by the $5.9 million in training funds recently announced for the Mattawa First Nations near the Ring of Fire mining region in northern Ontario (Ring of Fire Aboriginal Training Alliance, 2013). IAMGOLD will contribute to the development of human capital through ongoing investment in their employees and in regional mining-related education, exemplified by their significant support ($1.25 million) for the development of a Research Chair in Open-Pit Mining in Sudbury's Laurentian University (Laurentian University, 2013). Long distance commuting is already common in the region, with a 2012 survey of mining workers placing the share of mining workers commuting from outside the regional study area to work for companies within it at 40% (MiHR, 2012a). Over the last year, the City of Timmins has expanded efforts to attract skilled immigrant workers as part of their strategy to reduce labour bottlenecks for the mining industry (pers. comm., TEDC, May 2013).

Since the effects on the local and regional study area economies are considered positive, IAMGOLD will enhance these positive effects by:

- implementing a hiring policy supporting employment for local community members (First Nation, Métis communities and Gogama);
- developing and implementing a procurement process that promotes suppliers from the local community (First Nations, Métis and Gogama);
- developing a cultural awareness-training program and require employees and contractors to complete the training;

- providing on-the-job Common Core training to assist local and regional workers to develop mining-specific skills and help workers identify development needs and priorities through IAMGOLDs Performance Management Process (PMP);
- providing education and training for potential employees from local communities (Aboriginal communities and members of Gogama); and
- identifying and implementing basic skills and technical training for Aboriginal and local community members to upgrade marketable skills and increase capacity to find new employment.

After 2022, the operations workforce will decline until closure. Measures to mitigate the effects of layoffs in this period are detailed in the closure phase (see Section 3.3.1.3).

3.2.1.4 Residual Effects

Residual effects are such that the Project's operations phase is expected to make a strong and positive contribution to direct, indirect and induced employment; incomes and human capital. On average annually, the Project will create direct employment for about 582 people in Ontario. Annual indirect and induced employment in Ontario during operations is expected to total an estimated 530 and 500 jobs, respectively. Total labour compensation from direct employment is estimated to be $89.4 million and total labour compensation from direct, indirect and induced employment is $147.6 million. This is considered a positive effect that is clearly distinguishable and measurable. Change in employment and income will last lasts until after peak production and start to decline in Year 13, although the magnitude is expected to lessen thereafter.

3.2.2 Business Opportunities

3.2.2.1 Potential Project Effects

The Project has the potential to affect business opportunities through the need to acquire a variety of contract services, supplies and materials from local and regional companies (including Aboriginal companies). Based the 2009 Input-Output Tables published by Statistics Canada, the annual average of $177 million in contracted expenditures on goods and services in the operations phase will be spent primarily on professional services ($37.4 million), other finance and insurance ($22.6 million) and mineral support services ($20.4 million). The ability of regional study area businesses to gain contracts depends on the capacity of their businesses to meet contract requirements including delivery times at competitive prices. Business capabilities in the region are high; as shown in Table 3-10, businesses in the regional study area can supply every major (defined as having annual expenditures over $1 million) input demanded by the Project, and in most of the categories. For example, 57% of firms in the industry categories (representing 72% of expenditures), are based in the region and are of medium size (more than 50 employees; SC, 2013b).

Table 3-10: Goods and Services Purchased Annually by Industry and Regional Study Area Firms in the Operations Phase

Description	Expenditures ($ millions)	No. of firms	No. of employees			
			Indeter-minate	Less than 50	51 to 200	More than 200
Professional services (except software and research and development)	37.4	1,092	608	472	12	0
Other finance and insurance	22.6	535	377	155	1	2
Mineral support services	20.4	95	46	37	6	6
Utilities	16.7	14	3	11	0	0
Refined petroleum products (except petrochemicals)	15.8	3	0	2	1	0
Real estate, rental and leasing and rights to non-financial intangible assets	14.2	1,349	1,046	303	0	0
Repair construction services	7.5	119	79	31	5	4
Primary metallic products	7.1	3	0	0	0	3
Computer and electronic products	7.0	11	5	6	0	0
Administrative and support, head office, waste management and remediation services	5.9	781	479	281	17	4
Transportation and related services	4.7	281	156	114	11	0
Industrial machinery	4.6	56	17	30	9	0
Chemical products	3.7	6	1	5	0	0
Non-metallic minerals	2.4	18	3	15	0	0
Mineral fuels	2.0	4	3	1	0	0
Fabricated metallic products	1.3	60	13	43	4	0
Motor vehicle parts	1.3	10	1	9	0	0
Telecommunications	1.1	16	6	7	3	0
Non-metallic mineral products	1.0	18	3	15	0	0

Source: SC, 2012b; SC, 2013b.

The three leading contracting industries during the operations phase are all service industries. There are 1,092 listed professional services firms operating within the regional study area, although only 10% of these have more than 100 employees. Mining support services are a major regional industry, with 95 firms operating within the regional study area, of which 6% have more than 100 employees. Finance and insurance services have 535 firms, although data on size is not available for most of them. For inputs such as fuel, mineral products and energy, regional study area participation will likely be limited to distribution of goods produced outside the regional study area.

3.2.2.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.2.2.

3.2.2.3 Effects Management Strategies

The ability of businesses to take advantage of Project opportunities depend on success in selling their goods and services. IAMGOLD is committed to an open and transparent bidding procurement process that includes consideration of local content in choosing suppliers.

Since the effects on the local and regional study area economies are considered positive, IAMGOLD will enhance these positive effects by:

- implementing a procurement process that encourages suppliers from local Aboriginal communities and Gogama;
- implementing a procurement policy that structures opportunities in terms of package size and bid evaluation to reflect Aboriginal and local capabilities, where practicable;
- establishing a system to monitor and report on local and regional content with mechanisms to adapt procurement policies where required; and
- supporting capacity-building for local businesses during the construction and operations phases to help them effectively bid for opportunities in the closure and post-closure phases.

Procurement is expected to decline after Year 6 with the fall in production. Effects management for this period are discussed under the closure phase (see Section 3.3.2.3).

3.2.2.4 Residual Effects

The Project is expected to create an annual average of $177 million in contracted expenditures on goods and services in the operations phase that will be spent primarily on professional services ($37.4 million), other finance and insurance ($22.6 million) and mineral support services ($20.4 million). Business in the regional study area can supply every major (defined as having annual expenditures over $1 million) input demanded by the Project and in most of the categories. Residual effects are such that the Project's operations phase is expected to make a clearly distinguishable and positive contribution to business opportunities in the local and regional study area throughout the operations phase.

3.2.3 Government Finances

3.2.3.1 Potential Project Effects

The Project is expected to produce substantial revenues for Federal and Provincial governments through corporate taxes and royalties, indirect taxes on products, indirect taxes on production and direct taxes on income earned from economic activity. Taxes paid to

municipalities have yet to be determined. During operations (Years 1 to 15) the Project is estimated to generate $48 million annually in government revenue from the taxation of direct, indirect and induced activity, of which $35 million is expected to arise from the taxation of direct economic activity. Taxes collected by the Federal government from corporate taxes and royalties as well direct and indirect taxes on economic activity supported by the Project are estimated to average $28 million annually, of which $19 million are expected to be raised from direct taxes. Taxes collected by the Provincial government from corporate and mining taxes as well as direct and indirect taxes on economic activity supported by the Project are estimated to average $12 million annually. These values vary considerably from year to year, as shown in Table 3-11.

Table 3-11: Combined Federal and Provincial Government Revenue, Years 1 to 15

Year	Revenue ($M)	
	Direct	Total
1	37.4	51.5
2	38.8	53.3
3	39.8	54.8
4	40.3	55.5
5	41.1	56.5
6	41.1	56.5
7	38.5	53.0
8	37.9	52.2
9	37.9	52.2
10	33.6	46.2
11	33.3	45.9
12	35.4	48.7
13	31.1	42.8
14	23.9	32.8
15	15.7	21.6

Over the operational life of the Project, the Project is expected to raise $483 million for the Federal government and $241 million for the Provincial government.

3.2.3.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.3.2.

3.2.3.3 Effects Management Strategies

Since the effects on the local and regional study area economies are considered positive, no effects management strategies are required. IAMGOLD is currently in negotiations around the effect of the Project on municipal governments, First Nations and Métis groups affected by the Project.

3.2.3.4 Residual Effects

The Project is estimated to generate $48 million annually in government revenue from the taxation of direct, indirect and induced activity, of which $35 million is expected to arise from the taxation of direct economic activity. Over the operational life of the Project, the Project is expected to raise $483 million for the Federal government and $241 million for the Provincial government.

In 2011, mining in Ontario is estimated to have contributed between $1.3 and $1.5 billion in government revenues (Dungan and Murphy, 2013); the increase in government revenues estimated from the Project would amount to between 3.2% and 3.7% of that amount. This is considered to be a contribution that is clearly distinguishable. In the context of the regional economy where taxes from mining accounted for an estimated $484 million in 2011 the annual increase over the operations phase in government revenues is estimated at around 10.0% of that amount. The effect on the regional study area is therefore considered highly distinguishable.

3.2.4 Population and Demographics

3.2.4.1 Potential Project Effects

The Project has the potential to affect the population of the local and regional study area communities through employment opportunities that would provide a reason for people to remain in the region or by causing migrants to move to the area for jobs that cannot be filled locally.

During the 15 years the Project is in operation, the Project is expected to employ an average of 574 workers, with the overall workforce varying over the life of the Project (see Graphic 3-2). Operations employees are expected to increase regional in-migration since they will likely be employed for many years on the Project. The operations workforce is expected to increase from 621 in Year 1 to a peak of 681 in Year 6. After that the workforce is expected to decline, with the largest drops seen in the period from Year 7 onwards.

The total effects on migration relative to baseline population projections from Year 1 to 15 are shown in Table 3-12 (for a discussion of assumptions behind this analysis, see Section 3.1.4.1). The largest magnitude effects are expected when operations begin in Year 1 in Timmins and Sudbury, with a net increase of 106 net migrants each, however these effects make up less

than 0.01% of the total population in both cities and are not likely to be noticeable. For Gogama the effect on population is to stabilize the population seen in the construction phase until Year 7, when the Project workforce begins to decline. For Mattagami First Nation the effect on population is to stabilize population until Year 13. At that time, a decreasing workforce is expected to encourage former employees to move off-reserve in search of new employment and the population is expected to decrease from 289 in Year 13 to 274 in Year 15; a 5% decline.

Table 3-12: Projected Population, Regional Study Area, Years 1 to 15

Area	Projected Population (Change from Baseline Projection)														
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15
Gogama	292 (+35)	292 (+36)	292 (+37)	291 (+38)	290 (+38)	289 (+38)	285 (+36)	283 (+34)	281 (+33)	279 (+31)	277 (+31)	278 (+33)	273 (+29)	265 (+22)	256 (+14)
City of Timmins	44,420 (+314)	44,373 (+325)	44,329 (+335)	44,280 (+339)	44,238 (+345)	44,190 (+345)	44,120 (+323)	44,088 (+309)	44,056 (+294)	44,024 (+280)	43,969 (+278)	43,923 (+296)	43,822 (+259)	43,684 (+195)	43,538 (+124)
City of Greater Sudbury	165,794 (+314)	166,187 (+325)	166,558 (+335)	166,923 (+339)	167,270 (+345)	167,611 (+345)	167,910 (+323)	167,996 (+309)	168,082 (+294)	168,168 (+280)	168,447 (+278)	168,715 (+296)	168,899 (+259)	169,016 (+195)	169,075 (+124)
Unorganized North Sudbury Subdivision	2,177 (+35)	2,165 (+36)	2,154 (+37)	2,143 (+38)	2,133 (+38)	2,123 (+38)	2,110 (+36)	2,105 (+34)	2,100 (+33)	2,095 (+31)	2,084 (+31)	2,076 (+33)	2,061 (+29)	2,044 (+22)	2,026 (+14)
Unorganized Timiskaming West Subdivision	2,717 (0)	2,701 (0)	2,685 (0)	2,670 (0)	2,656 (0)	2,644 (0)	2,630 (0)	2,626 (0)	2,622 (0)	2,618 (0)	2,604 (0)	2,592 (0)	2,578 (0)	2,565 (0)	2,553 (0)
Mattagami First Nation	266 (+50)	271 (+51)	276 (+53)	280 (+54)	285 (+55)	288 (+55)	288 (+51)	287 (+49)	285 (+46)	284 (+44)	287 (+44)	292 (+47)	289 (+41)	282 (+31)	274 (+20)
Flying Post First Nation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brunswick House First Nation	212 (0)	215 (0)	219 (0)	222 (0)	225 (0)	229 (0)	232 (0)	233 (0)	234 (0)	235 (0)	238 (0)	241 (0)	243 (0)	246 (0)	249 (0)
Matachewan First Nation	93 (0)	95 (0)	96 (0)	97 (0)	99 (0)	100 (0)	102 (0)	102 (0)	103 (0)	103 (0)	104 (0)	106 (0)	107 (0)	108 (0)	109 (0)
Regional Study Area	215,678 (+712)	216,007 (+738)	216,317 (+760)	216,616 (+769)	216,907 (+784)	217,186 (+784)	217,393 (+734)	217,438 (+701)	217,482 (+669)	217,527 (+636)	217,732 (+631)	217,944 (+671)	217,999 (+587)	217,946 (+443)	217,825 (+282)
Regional Study Area *(Urban)*	210,214 (+628)	210,560 (+651)	210,887 (+670)	211,203 (+678)	211,509 (+691)	211,802 (+691)	212,031 (+647)	212,085 (+618)	212,138 (+589)	212,192 (+560)	212,416 (+556)	212,638 (+592)	212,720 (+517)	212,700 (+391)	212,614 (+249)
Regional Study Area *(Rural)*	4,894 (+35)	4,866 (+36)	4,840 (+37)	4,813 (+38)	4,789 (+38)	4,767 (+38)	4,740 (+36)	4,731 (+34)	4,722 (+33)	4,713 (+31)	4,688 (+31)	4,668 (+33)	4,639 (+29)	4,610 (+22)	4,579 (+14)
Regional Study Area *(Reserve)*	570 (+50)	581 (+51)	591 (+53)	600 (+54)	609 (+55)	617 (+55)	622 (+51)	622 (+49)	622 (+46)	622 (+44)	629 (+44)	639 (+47)	640 (+41)	637 (+31)	632 (+20)

Source: SC, 2012a; Ontario Ministry of Finance, 2012, AANDC, 2013

3.2.4.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.4.2.

3.2.4.3 Effects Management Strategies

Potential effects over the operations phase stabilize and sustain population in local and regional study area communities. Since these effects are considered positive, they do not require mitigation. Measures to increase local employment and income, as discussed in Section 3.2.1.3, may enhance these positive effects. As the Project approaches the closure phase, however, population declines are projected. Closure effects management are discussed in the closure phase (see Section 3.3.4.3).

3.2.4.4 Residual Effects

During the 15 years the Project is in operation, the Project is expected to employ an average of 570 workers, with the overall workforce varying over the life of the Project. The operations workforce is expected to increase from 621 in Year 1 to a peak of 681 in Years 5 and 6. After that the workforce is expected to decline, with the largest drops seen in the period from Years 14 and 15.

The total effects on migration relative to baseline population projections from Years 1 to 15 are considered positive and are greatest when operations begin in Year 1 in Timmins and Sudbury, with a net increase of 106 net migrants each, however these effects make up less than 0.01% of the total population in both cities and are not likely to be noticeable. For Gogama and the Mattagami First Nation the effect on population is to stabilize the population until Years 5 and 6. This is considered a positive effect, but not distinguishable over the operations phase.

3.2.5 Community Health Conditions

3.2.5.1 Potential Project Effects

The Project is likely to interact with community health through the provision of long-term employment and a stable income which could positively or negatively affect an individual's health depending on life style choices.

Long-term financial security for operational staff (15 years) could lead to increasing self-perception of health (self-rated) through long term access to healthy foods and in turn possibly lowering the risks of obesity and diabetes. During operations, the size of the workforce rises to 681 by year 5 and then will diminish gradually from Year 7 onwards. A fall in the overall workforce coupled with a declining share of newly recruited workers is expected to reduce the probability of workplace injuries over the operations phase. Teen pregnancy rates are not expected to be affected during this phase since this effect is primarily associated with temporary workforce (construction) effects. Rates of Sexually Transmitted Infections (STIs) and use of

related clinics are not expected to change since longer term employment and a stable workforce may facilitate positive sexual lifestyle choices (e.g., favouring long term relationships).

Conversely, long-term employment and increased income can facilitate unhealthy lifestyle choices such as alcoholism and poor dietary choices and/or decreased access to country food (for Aboriginal workers) which could increase the chances of diabetes and obesity (Griffin, 2010; Wright et al., 2013). Shift work over the 15 year operations phase could lead to long-term related health risks such as cardiovascular disease, diabetes, and obesity (Griffin, 2010; Wright and al. 2013). It is believed that shift work can affect health by encouraging lifestyle choices that could harm human health (e.g., sleep loss, difficulty exercising, increased junk food consumption) and imposing physiological stresses (e.g., metabolism, immune system, digestion). Symptoms can be chronic and long-term operational staff may be at greater risk (Griffin, 2010).

3.2.5.2 Government, Aboriginal and Public Comments and Concerns

No specific concerns have thus far been expressed by government agencies, Aboriginal groups and other stakeholders in relation to human health effects associated with the operations phase of the Project.

3.2.5.3 Effects Management Strategies

Effects management strategies proposed in the construction phase (see Section 3.1.5.3) would also be applicable for operations.

3.2.5.4 Residual Effects

The Project is likely to interact with community health through the provision of long-term employment and a stable income which could positively or negatively affect an individual's health depending on life style choices.

Conversely, long-term employment and increased income may facilitate unhealthy lifestyle choices such as alcoholism and poor dietary choices, decreased access to country food (for Aboriginal workers) which could increase the chances of diabetes and obesity. Shift work over the 15 year operations phase could lead to long-term related health risks such as cardiovascular disease, diabetes, and obesity.

With the application of effects management strategies, adverse effects from shift work and other health issues are expected to be within the normal range of variability and last for the life of the Project.

3.2.6 Housing and Temporary Accommodations

3.2.6.1 Potential Project Effects

During operations, the size of the Project workforce will both decrease and become more stable (see Graphic 3-2). Total employment peaks in Years 5 and 6 with 681 workers and decreases to 261 in the period prior to closure in Year 15. The capacity of the work camp built to temporarily accommodate construction workers will reduce its capacity from 1500 to 750 people. Operations workers (in contrast to construction workers) are much more likely to buy homes in the regional study area and the net effect is a modest increase in housing demand. As discussed in Section 3.4.2, the demand for operations workers is expected to encourage the migration of approximately 784 people into the regional study area in the production peak of Years 5 and 6. Table 3-13 shows the effects of migration relative to 2011 housing stocks over the operations phase.

Table 3-13: Housing Requirements as Share of 2011 Housing Stock in Regional Study Area over Operations Phase, Years 1 to 15

Community	New Housing Demand from combined Baseline and Project Effects as Share of 2011 Housing Stock[1] (%) (Change in Housing Demand from Project Effects)														
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15
Gogama	0.8 (+1.3)	-0.1 (+0.4)	-0.1 (+0.3)	-0.3 (+0.1)	-0.2 (+0.2)	-0.3 (0.0)	-1.1 (-0.7)	-1.3 (-0.9)	-1.6 (-1.2)	-1.8 (-1.4)	-0.5 (-0.1)	0.2 (+0.6)	-1.6 (-1.2)	-2.4 (-2.1)	-2.7 (-2.3)
City of Timmins	-0.1 (+0.1)	-0.1 (+0.0)	-0.1 (+0.0)	-0.1 (+0.0)	-0.1 (+0.0)	-0.1 (0.0)	-0.2 (0.0)	-0.2 (0.0)	-0.2 (-0.1)	-0.2 (-0.1)	-0.1 (0.0)	-0.1 (+0.0)	-0.2 (-0.1)	-0.3 (-0.1)	-0.3 (-0.2)
City of Greater Sudbury Subdivision	0.2 (+0.0)	0.2 (+0.0)	0.2 (+0.0)	0.2 (+0.0)	0.2 (+0.0)	0.2 (0.0)	0.2 (0.0)	0.2 (0.0)	0.1 (0.0)	0.1 (0.0)	0.2 (0.0)	0.2 (+0.0)	0.1 (0.0)	0.1 (0.0)	0.0 (0.0)
Unorganized North Sudbury Subdivision	-0.4 (+0.2)	-0.4 (+0.0)	-0.4 (+0.0)	-0.4 (+0.0)	-0.4 (+0.0)	-0.4 (0.0)	-0.5 (-0.1)	-0.5 (-0.1)	-0.5 (-0.2)	-0.5 (-0.2)	-0.4 (0.0)	-0.3 (+0.1)	-0.5 (-0.2)	-0.6 (-0.3)	-0.6 (-0.3)
Unorganized Timiskaming West Subdivision	-0.5 (0.0)	-0.5 (0.0)	-0.5 (0.0)	-0.5 (0.0)	-0.4 (0.0)	-0.4 (0.0)	-0.4 (0.0)	-0.4 (0.0)	-0.4 (0.0)	-0.4 (0.0)	-0.4 (0.0)	-0.4 (0.0)	-0.4 (0.0)	-0.4 (0.0)	-0.4 (0.0)
Mattagami First Nation	3.4 (+2.1)	1.9 (+0.6)	1.6 (+0.5)	1.4 (+0.2)	1.5 (+0.3)	1.2 (0.0)	0.0 (-1.2)	-0.4 (-1.6)	-0.9 (-1.9)	-1.3 (-2.3)	0.9 (-0.1)	1.9 (+1.0)	-1.0 (-2.0)	-2.4 (-3.4)	-2.9 (-3.8)
Flying Post First Nation	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Brunswick House	3.5 (0.0)	3.5 (0.0)	3.0 (0.0)	3.1 (0.0)	3.1 (0.0)	3.1 (0.0)	3.2 (0.0)	3.0 (0.0)	2.8 (0.0)	2.6 (0.0)	2.6 (0.0)	2.7 (0.0)	2.7 (0.0)	2.7 (0.0)	2.3 (0.0)
Matachewan First Nation	1.4 (0.0)	1.4 (0.0)	1.2 (0.0)	1.2 (0.0)	1.2 (0.0)	1.3 (0.0)	1.3 (0.0)	1.2 (0.0)	1.1 (0.0)	1.0 (0.0)	1.0 (0.0)	1.1 (0.0)	1.1 (0.0)	1.1 (0.0)	0.9 (0.0)

[1] Housing stock defined as dwellings inhabited by usual residents Source: SC, 2012a

Even though Timmins and Sudbury are expected to house most of the migrants into the region, existing housing stocks are sufficient so that the number of homes taken by newcomers is expected to be less than 0.1% of existing housing stock for any given year. In Timmins, the effect is not sufficient to reverse falling demand due to a projected ongoing decline in population (see Section 3.4.2 for more discussion of baseline population assumptions). The effect on rural subdivisions and reserves outside the local study area is nonexistent.

Within the local study area effects are also of a low magnitude, peaking at less than 1.0% of the existing housing stock in Years 2 and 3. In Gogama, the Project helps put positive pressure on a community that would otherwise be seeing falling housing demand due to a projected decline in population. In the Mattagami First Nation reserve, the Project modestly expands demand for housing until Years 5 and 6, supporting a projected increase from rising population. After Years 5 and 6 the on-site workforce is expected to decline and with it a projected decline in housing demand to baseline levels. In Gogama these declines are noticeable, amounting to 2.1% of the 2011 housing stock in Year 14 and 2.3% in Year 15. In the Mattagami First Nation reserve the declines amount to 2.4% of the housing stock in Year 14 and 2.9% in Year 15, an effect partially minimized by the continued natural growth of population in the community. If a local shortage of housing occurs then, the effect may be to reduce the housing waiting list.

3.2.6.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.6.2.

3.2.6.3 Effects Management Strategies

Potential effects over the operations phase stabilize and sustain real estate markets in regional study area communities. Since these effects are low and considered positive, they do not require effects management strategies. Nonetheless, measures introduced in the construction phase such as the development of an on-site camp will continue to mitigate the risk of negative effects and IAMGOLD will work with communities in the local study area and appropriate agencies to monitor indicators of Project housing effects and take measures to manage effects if appropriate. In the years prior to closure, falling employment is expected to put downward pressure on housing demand in the local study area as former workers leave the region in search of new employment. Closure effects management strategies are discussed in the closure phase (see Section 3.3.6.3).

3.2.6.4 Residual Effects

Existing housing stocks in Timmins and Sudbury are sufficient so that the number of homes taken by newcomers during the operations phase is expected to be less than 0.1% of existing housing stock for any given year. In Timmins, the effect is not sufficient to reverse falling demand due to a projected ongoing decline in population. The effect on rural subdivisions and reserves outside the local study area is nonexistent. The overall effect is distinguishable but not measurable and lasts until the end of the operations phase.

Within the local study area effects are also not measurable, peaking at less than 1.0% of the existing housing stock in Years 2 and 3. In Gogama, the Project helps increase housing demand in a community that would otherwise have falling housing demand due to a projected decline in population. In the Mattagami First Nation reserve, the Project modestly expands demand for housing until Years 5 and 6, supporting a projected increase from rising population. After Years 5 and 6 the on-site workforce is expected to decline and with it a projected decline in housing demand to baseline levels. In Gogama, these declines amount to 2.1% of the 2011 housing stock in Year 14 and 2.3% in Year 15. In the Mattagami First Nation reserve the declines in housing demand amounts to 2.4% of the housing stock in Year 14 and 2.9% in Year 15, an effect partially minimized by the continued natural growth of population in the community. If a local shortage of housing occurs then, the effect may shorten the housing waiting list. The effect on local study area communities would be considered negative and noticeable but do not require a community response or investment

3.2.7 Public Utilities

3.2.7.1 Potential Project Effects

The Project has the potential to create additional demands on water and wastewater treatment facilities, solid waste facilities and power supplies from population increases in local and regional study area communities.

As stated in the construction phase, the Project site will have its own supply of power and potable water, sewage treatment systems, and solid waste disposal system. Therefore, additional demands from on-site activities on existing public utility infrastructure in the local and regional study areas are not anticipated.

During operations (15 years), the population changes in Timmins and Sudbury are low and therefore not expected to result in noticeable increased demands for any public utilities which have adequate capacities to meet current demands and future growth in both cities.

In Gogama and the Mattagami First Nation reserve, where populations are expected to increase until Year 6, there will be additional demands on public utility infrastructure. In particular the need to increase capacity of Gogama's wastewater treatment system to facilitate population growth was described in Section 3.1.6 with appropriate effects management strategies outlined in Section 3.1.6.3. There are no concerns or capacity issues with provision of public utilities on the Mattagami First Nation reserve.

3.2.7.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.7.2.

3.2.7.3 Effects Management Strategies

The potential effects of the Project on Gogama public utilities are currently being addressed and will be further managed through strategies outlined in Section 3.1.6.3.

3.2.7.4 Residual Effects

No residual public utilities effects in either the local or regional study area communities are anticipated. The Project site will have its own supply of power and potable water, sewage treatment systems, and solid waste disposal system and therefore, additional demands from on site activities are not anticipated.

Population changes in Timmins and Sudbury are low and are therefore not expected to result in noticeable increased demands for any public utilities which have adequate capacities to meet current demands and future growth in both cities

In Gogama and the Mattagami First Nation reserve where populations are expected to increase until Year 6, there will increased demands on public utility infrastructure, however effects management strategies implemented in the construction phase will have addressed any service capacity issues. During operations therefore, the effect is considered distinguishable but not measureable and will last until workforce requirements start to decline in Year 6.

3.2.8 Education

3.2.8.1 Potential Project Effects

During the operational phase, the size of the workforce rises to 681 by year 5 and then will diminish gradually from Year 7 onwards. Even with this employment, the population is forecasted to slightly decrease yearly in Timmins and Gogama and slightly increase in Sudbury and the Mattagami First Nation reserve. The rate of population increases in the latter two communities is low with the greatest increase in population occurring at the beginning of the operations phase (Year 1) with 431 new residents in Sudbury (or 0.2% increase over the 2011 population) and 8 new residents in Mattagami First Nation (or 4.2% increase over the 2011 population on reserve).

Effects on primary and secondary education in Timmins and Gogama during operations is expected to be declining enrolment (potentially considered a negative effect if it leads to school closures), while enrolment in schools in Sudbury are estimated to be virtually unnoticed. In the Mattagami First Nation reserve, a few more students could enrol, but they are expected to be accommodated with the existing school capacity.

Declining or stable populations will not place any additional demands (over those experienced during construction) on post-secondary institutions. New training needs for IAMGOLD workers

hired throughout the operations phase to replace leaving or retiring workers, may result in sustained demands for post-secondary education.

3.2.8.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.8.2.

3.2.8.3 Effects Management Strategies

Enhancement measures noted for post secondary education in the construction phase (see Section 3.1.8.3) are also appropriate in the operations phase.

3.2.8.4 Residual Effects

Incentives for increasing families in local study area communities may have a distinguishable positive effect that is within the normal range of variability on sustaining or growing primary school enrolments in Timmins, Gogama and on the Mattagami First Nation reserve, while enrolment in schools in Sudbury are estimated to be virtually unnoticed (unmeasurable). Similarly, even with effects management strategies applied, and new training needs for IAMGOLD workers hired throughout the operations phase to replace leaving or retiring workers, some sustained demands for post-secondary education could occur. This would be positive effect that is within the normal range of variability that lasts until the end of the operations phase.

3.2.9 Emergency Services

3.2.9.1 Potential Project Effects

Effects on emergency services and policing will be the same in the operations phase as it was during the construction phase. Demands on services are typically resolved over the longer term as organizations' increase resources to meet demand. In Year 7, when employment levels begin to drop, demands on these services also decline.

3.2.9.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.9.2.

3.2.9.3 Effects Management Strategies

Effects management strategies recommended for the construction phase (see Section 3.1.9.3) will be continued throughout the operations phase.

3.2.9.4 Residual Effects

Efforts to avoid and mitigate the potential negative effects on emergency services of increased population and income particularly in local study area communities are expected to reduce

effects to noticeable but manageable levels. The effect is expected to last for the life of the Project and possibly into the first few years of the post-closure phase.

3.2.10 Other Community Services and Infrastructure

3.2.10.1 Potential Project Effects

During operations, the Project is expected to result in population changes which, in turn, could affect the delivery of community services such as employment assistance, shelters and victims, child care, recreation, and health care services.

During the operations phase, the workforce will increase to 681 in Year 6 and decline gradually from Year 7 onwards. Even with this employment, the population is forecasted to slightly decrease yearly in Timmins and Gogama and slightly increase in Sudbury and the Mattagami First Nation reserve. The rate of population increases in the latter two communities is low with the greatest increase in population occurring at the beginning of the operations phase (Year 1).

Recreation Programs and Services

The Project is not expected to have adverse effects on recreational services and infrastructure in the regional study area as population changes will be virtually unnoticeable and certainly manageable within current recreation service offerings in these communities.

Slight increases in population in Sudbury and the Mattagami First Nation reserve are not expected to place unmanageable demands on recreation facilities and programs.

Employment Assistance

Increased employment for long term opportunities (maximum 15 years) may reduce demands on employment insurance and employment assistance. Near the end of operations, an increase in demand for skills building and training may increase in preparation for, and as a result of, early (pre-closure) job losses.

Shelters and Victims' Services

The Project may have the potential to affect the socio-economic structures in local communities due to changes in earnings and potential impacts on gender inequalities in the economic benefits of mining activities, where hiring practices and terms and conditions of employment may favour males and impose difficult circumstances on women with child-rearing responsibilities to participate in the workforce. Changes in socio-economic structures due to the Project may increase levels of family violence and alcoholism (Hipwell et al., 2002; Shandro, J.A. et al., 2011). There are no shelters or victims services in the local study area communities which may pose a risk to residents if no effects management strategies are in place. Timmins is

the nearest access point for shelters and victims' services and is currently experiencing a lack of accessible shelters which will be exacerbated by any new demands from both local and regional study area communities.

Child Care Services

The Project is not expected to have adverse effects on child care services; urban communities in the regional study area have sufficient capacity to manage the relatively low effects on population expected from the Project. In Gogama, the population is expected to decline over the operations phase even considering Project effects. In the Mattagami First Nation reserve there is an increase in population expected (amounting to 8 additional households) that could result in up to 13 more children, not all of whom, however, will be young children requiring child care. Since there are currently no formal child care services in the local study area communities, this may affect the ability for women or single parent households, to participate in the workforce and would put additional stress on community resources (friends and family support for child care).

Health Care Services

Timmins and Sudbury offer extensive health care services to residents in the regional study area and Côté Gold Project baseline study evidence suggests that they are operating at capacity. Local study area health clinics are located in both Gogama and Mattagami First Nation reserve which meet current demands. Increased demands on health infrastructure and services could occur as a result of:

- increases in regional study area population;
- increased demand for pre-employment medical examinations; and
- increases in Project-related accidents and health issues that require medical attention.

Given the low levels of population increases expected in Timmins, Sudbury and Gogama, the effect on the existing health care services and infrastructure is forecasted to be minimal and manageable within the current system.

Within the Mattagami First Nation reserve, increases in population are small and corresponding demands on health care services are not anticipated to require a management response.

3.2.10.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.10.2.

3.2.10.3 Effects Management Strategies

No additional effects management strategies are proposed outside of those undertaken during the construction phase, as detailed in Section 3.1.10.3.

3.2.10.4 Residual Effects

Any residual effects on community services in Timmins and Sudbury are expected to be distinguishable and within the normal range of variability and last throughout the life of the Project.

In local study area communities many of community services are obtained from Timmins and Sudbury and with small population increases expected in these communities (relative to the size of Timmins and Sudbury), the additional demands are not expected to be outside the normal range of variability. Demands in these communities for child care services will be addressed by discussing potential Project related effects on child care needs in the local study area communities and implementing appropriate management measures (which may include on-site child care, and shorter work shifts for women or single-parent families). Effects within the local study area are expected to be distinguishable but within the normal range of variability and last throughout the life of the Project.

3.2.11 Transportation

3.2.11.1 Potential Project Effects

During operations, the Project is likely to affect the transportation system within the local and regional study area through the transport of products, general goods and workers. Traffic volumes will decrease from those experienced during the construction phase as fewer heavy loads and less average annual workers (570 on average during operations compared with 1,433 in the construction phase) will be using the road system. Using the same assumptions as in the construction phase, the resulting traffic volumes will be higher than baseline levels, but still well within the current Highway 144 service capacities.

Project-related traffic volumes will marginally increase traffic on Highway 144 for the duration of the operations phase. These volumes are within the service capacities of the Highway in all sections evaluated.

3.2.11.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.11.2.

3.2.11.3 Effects Management Strategies

Effects management strategies proposed for the construction phase would also be applicable for operations.

3.2.11.4 Residual Effects

No residual effects on the highway transportation system are anticipated.

3.3 Closure and Post-Closure Phases

Closure is assumed to take two years (Years 16 and 17). This presumes that additional ore resources are not identified, which could potentially extend the mine production period. Closure costs are estimated to be proportional to construction costs for similar (open pit gold) projects, approximately $50 million. Closure is expected to be completed using contracted services from the region. During the closure phase, employment declines may result in social effects in local and regional study area communities if not managed effectively. Management of closure effects will start at the beginning of the Project and continue throughout the Project life. The results of these efforts are to ensure that employees and social systems do not receive a sudden shock during these final phases of the Project life and return to better or similar conditions as were found at Project initiation.

3.3.1 Labour Market

3.3.1.1 Potential Project Effects

Expected economic effects over the life of the Project within the Province of Ontario in terms of employment and labour income are detailed in Table 3-14. On average annually, the Project will create direct employment for about 143 people in Ontario. Annual indirect and induced employment in Ontario during this phase is expected to total approximately 77 and 54 jobs, respectively. When added to direct employment, total employment in Ontario as a result of closure is 275 jobs per year. Total labour compensation from direct employment is estimated to be $8.7 million and total labour compensation from direct, indirect and induced employment is $16.2 million. Following closure there is expected to be much fewer (related to ongoing monitoring or site maintenance) jobs associated with the Project.

Table 3-14: Employment and Income Effects from Closure Annual, Years 16 and 17

	Ontario		Regional Study Area	
	Jobs (person-years)	Income ($M)	Jobs (person-years)	Income ($M)
Direct	143	8.7	112	6.8
Indirect	77	4.8	50	3.1
Induced	54	2.7	22	1.1
Total	275	16.2	183	11.0

3.3.1.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.1.2.

3.3.1.3 Effects Management Strategies

During closure and post-closure, the Project contribution to the economy will gradually lessen, eventually returning the regional economy to pre-Project, baseline conditions. Implementing strategies to transition the workforce can help to lessen transition effects. Proposed strategies include:

- developing and implementing a procurement process that promotes suppliers from the local community (First Nations, Métis and Gogama).providing continuous, on the job safety training;
- facilitating access to external job placement or community services, etc. to transition laid-off or downsized employees into career opportunities, as available;
- developing an employment community relations program to provide all appropriate parties with plans and progress throughout the life of the Project;
- identifying and implementing basic skills and technical training for Aboriginal and local community members to upgrade their marketable skills and increase their capacity to find new employment;
- engaging and supporting local communities to develop specific strategies and actions as part of the closure plan that minimize potential adverse closure effects on the regional communities;
- engaging and supporting local and regional stakeholders in planning decisions for future use of the Project site that might benefit the regional economy or contribute to community pride, cohesiveness, and sense of place;
- supporting local communities and government efforts to connect workers to a local/regional job opportunities forum prior to Project closure; and
- informing workers about regional service agencies that support small business ventures and planning, if available.

3.3.1.4 Residual Effects

Annual indirect and induced employment in Ontario during closure is expected to total approximately 77 and 54 jobs, respectively. When added to direct employment, total employment in Ontario as a result of closure is 275 jobs per year. Total labour compensation from direct employment is estimated to be $12.0 million and total labour compensation from direct, indirect and induced employment is $24.4 million. Following closure there is expected to be much fewer (related to ongoing monitoring or site maintenance) jobs associated with the Project.

Effects management strategies (see Section 3.3.1.3) can minimize stresses from job losses associated with Project closure, but it cannot reverse the end of most employment effects from the Project. Workers who held jobs during the Project will retain human capital, in the form of

experience and training which can then be utilized in seeking employment on other mining projects. Despite these positive effects reductions in expenditures and employment relative to the operations phase are expected to have an overall negative effect on labour markets until they adjust and return to baseline conditions. The effect is distinguishable, and outside the normal range of variability (in terms of number of jobs during closure and in post-closure, rather than the difference in number of jobs to the operations phase) and predominantly negative even though increased human capital gained from overall Project employment is considered positive.

3.3.2 Business Opportunities

3.3.2.1 Potential Project Effects

Closure costs are estimated to be proportional to construction costs for similar (open pit gold) projects, approximately $50 million. Closure is expected to be completed using contracted services from the region, particularly construction services. During post-closure, there will be limited business opportunities associated with the Project (specific only to monitoring or ongoing maintenance of the Project site).

3.3.2.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.2.2.

3.3.2.3 Effects Management Strategies

During decommissioning, the Project's contribution to the economy will gradually lessen, eventually returning the regional economy to pre-Project, baseline conditions. This can be a challenge for businesses that need to leverage the capacity developed as a supplier for the Project to win new clients and open new markets to replace those lost with closure. Measures taken over the life of the Project to develop capacity and resilience in supplier businesses can lessen transition effects. Measures introduced would include:

- implementing a procurement process that encourages suppliers from local Aboriginal communities and Gogama;
- implementing a procurement policy that structures opportunities in terms of package size and bid evaluation to reflect Aboriginal and local capabilities, where practicable;
- communicating with affected businesses to prepare for the effects of contract termination;
- increasing capacity building for local businesses during the construction and operations phases to help them effectively bid for opportunities in the closure and post-closure phases; and
- supporting local entrepreneurial development for a diverse range of industries in order to lay foundations of post-operations economic diversification.

3.3.2.4 Residual Effects

Effects management strategies (see Section 3.3.2.3) can help businesses develop the capacity to serve new clients after Project closure, but it cannot reverse the end of most (but not all) procurement opportunities arising from the Project. Internal capacity, in the form of improved management and processes, will be retained by these companies and foster new business activity. However, reductions in expenditures relative to the operations phase are expected to have an overall negative effect on business opportunities until they adjust and return to baseline conditions. Overall the residual effect is considered negative, distinguishable, and outside the normal range of variability but is not expect to require a government response or investment in businesses since internal capacity development represents a return to long-term levels of economic activity.

3.3.3 Government Finances

3.3.3.1 Potential Project Effects

Based on comparable projects, the closure phase of the Project is estimated to generate $14.4 million in government revenues through direct economic activity and $17.8 million through direct, indirect and induced economic activity. This includes both direct taxes ($13.4 million) and indirect taxes on products and production ($1.0 million). Of these revenues, $5.4 million would go to the Federal government and $12.3 million to the Ontario government. Post-closure government finances are not noticeable since they would only result from direct taxes on post-closure monitoring workers, for example.

3.3.3.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.3.2.

3.3.3.3 Effects Management Strategies

During the closure phase, the Project contribution to the economy will gradually lessen, eventually returning the regional economy to pre-Project, baseline conditions. No effects management strategies are planned for this effect. However, previous effects management strategies should help the regional and local study areas prepare for other and new opportunities.

3.3.3.4 Residual Effects

Residual effects are to generate $14.4 million in government revenues through direct economic activity and $17.8 million through direct, indirect and induced economic activity during closure and to generate no government revenues in post-closure. If government revenues from the previous phases were used for investments with a positive rate of return government revenues would be expected to be higher in the long-term than those seen in baseline conditions, but since this is not within the control of the proponent this cannot be assumed. Although there is some tax revenues gained through the closure phase, overall the effect on government revenue

is a predictable decline relative to those seen in the operations phase which may be seen as a temporary negative effect as government revenues return to baseline conditions. Overall the negative effects of declining government revenues are considered within the normal range of variability.

3.3.4 Population and Demographics

3.3.4.1 Potential Project Effects

Activities associated with closure are expected to be contracted using a workforce combining regional workers with workers commuting from outside the region. As a consequence, the population is forecasted to decrease to baseline conditions. Population losses would be most noticeable in the local study area, amounting in Year 16 to 15 people in Gogama (6% of projected population) and 17 people in Mattagami First Nation (7% of projected population).

3.3.4.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.4.2.

3.3.4.3 Effects Management Strategies

With closure, the Project contribution to the economy will gradually lessen, eventually returning the regional economy to baseline conditions. The effects on population due to out-migration from this transition are ambiguous, since some workers may choose to commute to a different mine from the same home community, or may retire in the same home community, or may migrate to a new community in search of employment. While IAMGOLD can help implement strategies to ensure that former employees find new jobs (see Section 3.3.1.3), the decision to move or remain in any regional study area community reflects the preferences of the affected households. However, through effective socio-economic management and a strong community relations program, such as an Adjustment Committee, IAMGOLD can help communities develop, over the life of the Project, strategies to better position themselves to retain residents after Project closure.

3.3.4.4 Residual Effects

With Project closure community populations are expected to return to baseline conditions in closure and post-closure phases, although populations may be higher if workers choose to remain in the community either to commute to a different mine, to follow a different career or to retire. The residual effect is considered indistinguishable in Timmins and Sudbury but clearly distinguishable in the smaller local study area communities Gogama and the Mattagami First Nation reserve but not substantive enough to require an additional community response.

3.3.5 Community Health Conditions

3.3.5.1 Potential Project Effects

During Project closure, the direct employment from the Project will decline from 261 jobs in Year 15 to 143 jobs in Years 16 and 17, with negligible employment thereafter. The associated decrease in employment may negatively affect how people perceive their health due to diminished financial security and challenges associated with finding employment. Terminated employees may have to move or commute outside of the regional study area to find work, which may increase stress on family and friend relations.

The potential for reduced income and increased dependency on employment insurance in regional and local study area communities may increase rates of food insecurity, reduce the quality of housing, and increase overall stress. Risk associated to obesity and related health effects (diabetes) may increase due to substance abuse, and poor dietary choices. As a result additional stress may fall on social services to address these issues.

The degree to which these stresses are experienced and managed will depend on social service provision available in the local and regional study area communities at the time of closure and are therefore hard to predict. However, if service provision increased due to population increases experienced during operations, then they are expected to be adequate to address demands in the closure phase. Over time, these potential effects are expected to lessen as the population adjusts.

3.3.5.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.5.2.

3.3.5.3 Effects Management Strategies

Effects management strategies proposed during the operations phase (Section 3.1.5.3) would be continued in the closure phase.

3.3.5.4 Residual Effects

Decreased employment may lead to personal and family stresses during the transition to new jobs, and through loss of income. As a result additional demands may be imposed on social services to address these issues. Community health service provision available during the operations phase is expected to be adequate to address demands in closure and post-closure phases. Over time, these potential effects are expected to lessen as the population adjusts, are considered negative and measureable, but do not require additional community or government response. These effects are expected to diminish and become indistinguishable in the post-closure phase.

3.3.6 Housing and Temporary Accommodations

3.3.6.1 Potential Project Effects

With closure, the Project's contribution to the economy will gradually lessen, eventually returning the regional economy to pre-Project, baseline conditions. This would cause a negative effect on housing demand as workers leaving the area will likely sell their homes. The effect of this on the housing market and demand for social housing services is difficult to predict and will depend on various factors at the time, such as housing prices, availability of housing services, labour market trends, general demographic trends and characteristics of the communities in the study area. Generally, and if there are no other significant influencing factors, housing prices are expected to decline with closure and remain lower in the post-closure phase, although effects would differ among communities. In Sudbury and Timmins with large and liquid housing markets, the effect will be distinguishable but within the normal range of variability, particularly since workforce reductions are spread over many years.

A concern for Mattagami First Nation, however, is how unemployment interacts with the band's contingent liabilities relating to guaranteed mortgages. Historically, some First Nations have faced serious financial difficulties from simultaneous defaults, although in general the risk associated with these loans is low (AANDC, 2010). On the Mattagami First Nation reserve, the effect is reduced by the projected growth in the population, and housing sales among members may alleviate long-standing housing shortages.

The community most affected by the reduced housing demand would be Gogama. If the houses owned by employees leaving the area are viable as recreational properties this could allow for a resale market after closure and into the post-closure phase. If the homes are only viable as residential properties, the result could be a local over-supply of housing that may require additional measures to eliminate portions of the housing stock as part of the closure plan.

3.3.6.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.6.2.

3.3.6.3 Effects Management Strategies

Effects management strategies relating to housing implemented in the construction and operation phases (see Sections 3.1.6.3 and 3.2.6.3) will help reduce effects in the closure phase. In addition, IAMGOLD will work to support local economic diversification programs that could facilitate resident retention after Project closure.

3.3.6.4 Residual Effects

Housing prices would decline with closure and remain low through the post-closure phase, although effects would differ between communities. In the cities of Sudbury and Timmins with

large and liquid housing markets, the effect is expected to be distinguishable but within the normal range of variability, particularly since workforce reductions are spread over many years.

On the Mattagami First Nation reserve, the effect is reduced by the projected growth in the population, and housing sales between members may alleviate long-standing housing shortages. In Gogama, if an excessive additional supply of residential housing is developed to meet temporary demand over the operational life of the mine, the result could be local oversupply in the closure phase. In these communities the residual effect is considered clearly distinguishable but not substantive enough to require additional community response or investment. This effect is also expected to last throughout the closure and post-closure phases.

3.3.7 Public Utilities

3.3.7.1 Potential Project Effects

During the two year closure phase, direct employment from the Project will diminish from approximately 260 jobs in Year 15 to 140 jobs in Years 16 and 17. Population trends indicate a decline in Timmins, Gogama and Mattagami First Nation reserve and a relatively steady state for Sudbury. Reduced population size will decrease demands on public utilities as use decreases. Therefore, no anticipated adverse effects on water, wastewater, electricity and solid waste utilities are anticipated during closure or post-closure phases.

3.3.7.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.7.2.

3.3.7.3 Effects Management Strategies

No effects management strategies are recommended as no adverse effects are anticipated.

3.3.7.4 Residual Effects

No residual public utilities effects are anticipated.

3.3.8 Education

3.3.8.1 Potential Project Effects

Due to decreased employment, the population of the regional study area communities is expected to decline. If employees of IAMGOLD move out of the region, this would result in corresponding declines in primary, secondary and post-secondary school enrolment. These effects will be more pronounced for the primary schools in Gogama and the Mattagami First Nation reserve than in Timmins or Sudbury since any changes in smaller rural communities are more noticeable than in larger communities.

Through training efforts made throughout the life of the Project, workers residing in the regional study area will be better positioned to obtain and transition to similar employment in the mining sector. During closure and post-closure, demand for re-training may increase as workers transition to other employment opportunities. Since Project employment starts to decline well before closure (in Year 6), any new demands on the post secondary training institutions will not be sudden or unexpected.

With the application of effects management strategies to manage the eventual decline in school enrolment, the effects on the education systems in regional study area communities are likely to be noticeable, but not precipitous. If other employment opportunities are available in the regional study area at closure, workers and their families may stay in the region. Overall the resulting effect on education is not expected to be large, result (directly) in school closures or be unmanageable.

3.3.8.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.8.2.

3.3.8.3 Effects Management Strategies

Enhancement measures noted for post secondary education in the construction phase (see Section 3.1.8.3) are also appropriate in the closure phase.

3.3.8.4 Residual Effects

There will be a decline in primary school enrolment, and an increase in demands for post-secondary training to transition workers to other employment. The effects on the education systems in regional study area communities are likely to be clearly noticeable, but not significant enough to require a community or government response.

3.3.9 Emergency Services

3.3.9.1 Potential Project Effects

A decrease in employment and potential out-migration of workers to seek other job opportunities has the potential to create adverse social effects such as depression, substance abuse, and domestic violence that would require emergency and/or police response. Populations are expected to decline gradually (over a period beginning in Year 6), but declines are expected to be much sharper from Years 16 to 18 as workforce reductions return the regional study area population to baseline conditions. The largest effects are seen in the local study area where population declines over the period are expected to amount to 6% of the population. These effects, however, will not be sudden or unexpected and should be within the management capabilities of emergency and police services. This may be especially so, since less population and traffic would result in lower overall demands on emergency service providers.

3.3.9.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.9.2.

3.3.9.3 Effects Management Strategies

Effects management strategies for emergency services over the construction and operations phases (see Sections 3.1.9.3 and 3.2.9.3) would be continued in the closure phase. No additional measures are expected to be required.

3.3.9.4 Residual Effects

Efforts to avoid and mitigate the potential negative effects on emergency services of declining employment and population, particularly in local study area communities are expected to reduce effects to within the normal range of variability of established service levels. The effect is expected to last until the end of the closure phase and possibly into the first few years of the post-closure phase.

3.3.10 Other Community Services and Infrastructure

3.3.10.1 Potential Project Effects

During closure and post-closure, direct employment from the Project is expected to decline from approximately 260 jobs in Year 15 to 140 jobs in Years 16 and 17 with negligible employment thereafter. As a result of this and other factors included in population projections for the regional study area, populations are expected to continue to decline (declines in employment begin in the operations phase starting in Year 6) resulting in corresponding declines or, in some cases increases, in demands for other community services and infrastructure to pre-Project levels.

Loss of employment may increase demands for employment assistance. For the unemployed, a lack of financial stability may result in an increase of social issues and increase the demand for shelters and victims services or health care services in the regional study area. The need for child care may increase (although potentially unaffordable) as terminated employees may need these services so that they are able to search for other employment. Overall demands on fee-based recreational services in the regional study area may decrease due to lack of income. These effects are expected to be short term as new employment is found or workers move away through the post-closure period.

3.3.10.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.10.2.

3.3.10.3 Effects Management Strategies

IAMGOLD will inform employees of resources to help support employment training, provide financial assistance and career development in the closure phase.

3.3.10.4 Residual Effects

Decreased employment may lead to personal and family stresses during the transition to new jobs, and through loss of income that may result in an increase in demand for some community services. Community service provision available during the operations phase is expected to be adequate to address demands in closure and post-closure phases. Over time, these potential effects are expected to lessen as the population adjusts and are considered negative. These effects are measureable but do not require additional community or government response. These effects are expected to diminish and become indistinguishable in the post-closure phase.

3.3.11 Transportation

3.3.11.1 Potential Project Effects

During the closure phase of the Project, Highway 144 will be used to transport material and equipment from the Project site decommissioning after which (in post-closure) highway traffic volumes are expected to return to pre-Project volumes. Commuter-related traffic will continue, although it will be reduced from the operations phase as the number of workers required during the closure phase will decrease and decline even further in post-closure (to include only periodic travel to site by monitoring/maintenance workers). These volumes are, on average, manageable and within the service capacities of the Highway in all sections evaluated.

3.3.11.2 Government, Aboriginal and Public Comments and Concerns

Government, Aboriginal and public comments and concerns are discussed in Section 3.1.11.2.

3.3.11.3 Effects Management Strategies

Effects management strategies proposed to manage traffic during construction (see Section 3.1.11.3) are also applicable during closure. In post-closure, no effect is anticipated and therefore no effects management strategies are recommended.

3.3.11.4 Residual Effects

No residual effects are anticipated in the closure and post-closure phases.

4.0 CONCLUSIONS

Employment and income effects during the construction and operations phases of the Project are expected to be strong and positive. In Ontario, the effects amount to an annual average of 1,433 total (direct, indirect and induced) jobs over the construction phase (Years -2 to -1) and an annual average of 1,614 jobs over the operations phase (Years 1 to 15). These jobs would produce an average of $389 million in total (direct, indirect and induced) income annually over the construction phase and $148 million over the operations phase. Within the regional study area, the effects amount to an annual average of 2,637 jobs over the construction phase (Years -2 and -1) and an annual average of 1,047 jobs over the operations phase (Years 1 to 15). These jobs would produce an average of $258 million in income annually over the construction phase and $106 million over the operations phase. Effects during the closure and post-closure phases are likely to be of a much lower magnitude than those found in the construction and operations phases, although during the closure phase (Years 16 and 17) expenditures are expected to support 275 jobs and generate a total of $16 million in total (direct, indirect and induced) income.

IAMGOLD will enhance the benefits of the Project through a policy of hiring workers from Gogama and Mattagami First Nation, by investing in job training to help those workers develop new skills and capabilities and by monitoring the effects of these initiatives to ensure benefits for communities are realized.

Both Sudbury and Timmins have more than a century of history as mining centres and over the past decade, Sudbury has been shifting its focus from being a producer of metals to developing a cluster of mining supply and technology services capable of selling mining services around the globe. IAMGOLD is committed to an open and transparent bidding procurement process that includes consideration of local content in choosing suppliers. As a result, capacity exists for a variety of contract services, supplies and materials to be supplied from regional companies during construction, operation and closure of the Project. The biggest opportunity for regional businesses is in professional services, amounting to $74 million annually over the construction phase and $37 million annually over the operations phase. Another major industry is expected to be mineral support services, amounting to $16 million annually over the construction phase and $20 million annually over the operations phase. An estimated 1,092 professional services firms and 95 mineral support services firms operate in the regional study area, some of them with more than 200 employees. Although major procurement opportunities will be available in the provision of goods such as fuel, mineral products and energy, regional study area participation will likely be limited to distribution of goods produced outside the regional study area. Procurement opportunities are expected to shrink considerably in the closure phase and will be too small to be noticed in the post-closure phase. The extent to which businesses are able to take advantage of the opportunities presented by the Project will depend on their success selling their goods and services.

The Project is expected to produce substantial revenues for Federal and Provincial governments through corporate taxes and royalties, indirect taxes on products, indirect taxes on

production and direct taxes on income earned from economic activity. Taxes paid to municipalities and First Nation governments have yet to be determined. During construction, the Project is estimated to generate $240 million through direct, indirect and induced economic activity, of which $163 million would go to the Federal government and $76 million to the Ontario government. During the operations phase, the Project is estimated to generate $48 million annually in government revenue from the taxation of direct, indirect and induced activity, of which $32 million annually would go to the Federal government and $16 million to the Ontario government. Government revenues would decline in the closure phase to $9 million annually and are expected to be negligible in the post-closure phase.

Labour markets for skilled mining workers are tight, not only from the growth of the mining industry in the region over the past decade but also from the need to replace existing workers who are at, or near retirement age. As a result, hiring by the Project is expected to attract workers to the region since labour demand is expected to exceed the regional supply of skilled workers. The rate of change of these population effects are highest in the construction phase with the hiring of the pre-production operations workforce (472 people in Year -2 and a further 150 people in Year -1). These effects are not noticeable given a regional study area population projected to be 215,284 in Year -1. However, within the local study area by Year -1 the new residents amount to a 12% population increase in Gogama and a 20% increase in Mattagami First Nation reserve over baseline projections. In Gogama, this reverses a trend of population decline (between 2006 and 2011 the Census reports the population of the community had declined from 394 to 277). In the Mattagami First Nation reserve, the trend has been towards slow growth in population (rising from 189 in 2006 to 193 in 2011) and the influx would accelerate this growth during the operations phase.

During the operations phase, the Project's population effect is largely to sustain this new population until pre-closure workforce reductions begin after Year 6. During the closure and post-closure phases many of the migrants to the local study area could leave to pursue new job opportunities but the extent to which this occurs depends on other employment opportunities in the region, individual choices, and the effectiveness of each community’s socio-economic development strategy.

Baseline health conditions within the region's health units indicate lower levels of good health (examples of which include higher obesity and diabetes rates) than the provincial average. While in theory the employment and income generated by the Project could lead to better lifestyles, shift work can reduce health statuses as a result of being away from family and friends for extended periods of time. Shift work has been found to be correlated with negative short-term and long-term health effects. Shift work has also been linked to higher rates of teen pregnancy and sexually transmitted infections in nearby communities. In keeping with the high priority IAMGOLD gives the safety of its employees, strict occupational health and safety standards will be implemented to prevent workplace injuries. IAMGOLD is committed to strategies that manage these effects, including partnering with local public health organizations and providing transport to and from the site to reduce risk of accidents and negative interactions

in local study area communities. IAMGOLD also has a Zero Harm policy which emphasizes behavioural-based programs with a focus on prevention in order to reduce workplace risk.

The Project, through stimulating economic growth within the regional study area and bringing outside workers into the region, will stimulate the housing market, producing increased home sales, increased housing starts, and increase house and rental prices. These effects will be managed by the construction of a camp at the Project site capable of housing 1,500 employees during the construction phase and 750 employees during the operations phase. These effects are not expected to be noticeable in the regional study area as a whole, since for urban regional study area communities, the change in housing demand is estimated to amount to 0.2% of the 2011 housing stock at its peak in Year -2. Even in Timmins, which currently has a housing shortage, the combination of falling gold prices and the opening of 2,000 new lots for development by 2014 are expected to be enough to reduce housing as a bottleneck to in-migration. The most noticeable effects are seen in the local study area. Housing demand in Gogama in Year -2 is expected to amount to 6.1% of the existing occupied housing stock, although this may be accommodated within existing housing stock since 39% of the Unorganized North Sudbury Subdivision (which contains Gogama) is not occupied by usual residents. The largest challenge is faced in the Mattagami First Nation reserve, which already has a waiting list for band-owned housing, and is expected to face a demand for new housing in Year -2 equal to 12.4% of its existing housing stock. IAMGOLD is currently negotiating with Mattagami First Nation on an agreement which would help address these and other issues.

Population increases may place strains on existing infrastructure, particularly during the construction phase when the rate of change in population is highest. Gogama is seeking support for upgrading water treatment capacity. The Mattagami First Nation reserve does not have a solid waste facility or other waste diversion schemes and consequently may face issues expanding its housing stock to accommodate off-reserve members returning to the community for Project employment. Population effects are not noticeable in the regional study area's urban communities and, consequently in those communities, no potential effects are anticipated.

Education services in Gogama have been facing challenges in maintaining primary school enrolment owing to the aging of the population. This would be reversed, at least over the construction and operations phases of the Project as a result of an influx of migrants and their families. Population effects on primary and secondary education would not be noticeable in the regional study area's urban communities. Population effects on post-secondary education institutions are expected to increase slightly (which is considered a positive effect) as citizens (local or in-migrants) train for Project employment.

For other services, including emergency, health and social services, changes in population are within the capacity of regional study area communities to manage. Some issues concerning absent services within the local study area may be an issue to potential migrants: for example, Gogama and the Mattagami First Nation reserve do not have formal child care facilities or women's shelters. Medical facilities are currently operating at average capacity in the local study

area. IAMGOLD can help avoid potential adverse effects from additional service demand by working with community organizations to encourage the local provision of social services and by implementing a Zero Harm safety policy for workers. Since population increases are not noticeable in the regional study area's urban communities, no potential effects on other services are anticipated.

Traffic on Highway 144 has been identified by multiple stakeholder groups as an area of concern. The majority of the traffic generated by the Project will use Highway 144 as it connects the site with Timmins and Sudbury, which are expected to be the main transportation route of workers and contractors. During construction approximately 6,000 vehicles (or 16 vehicle trips per day) will travel to / from the Project site to transport workers, Project components, hazardous loads (fuels, explosives) and contractor service vehicles. This minor additional Project traffic could increase accident rates on the highway by less than one accident per year. Traffic volumes will also increase but by a very minor amount and in a portion of the Highway where the service levels are considered most favourable.

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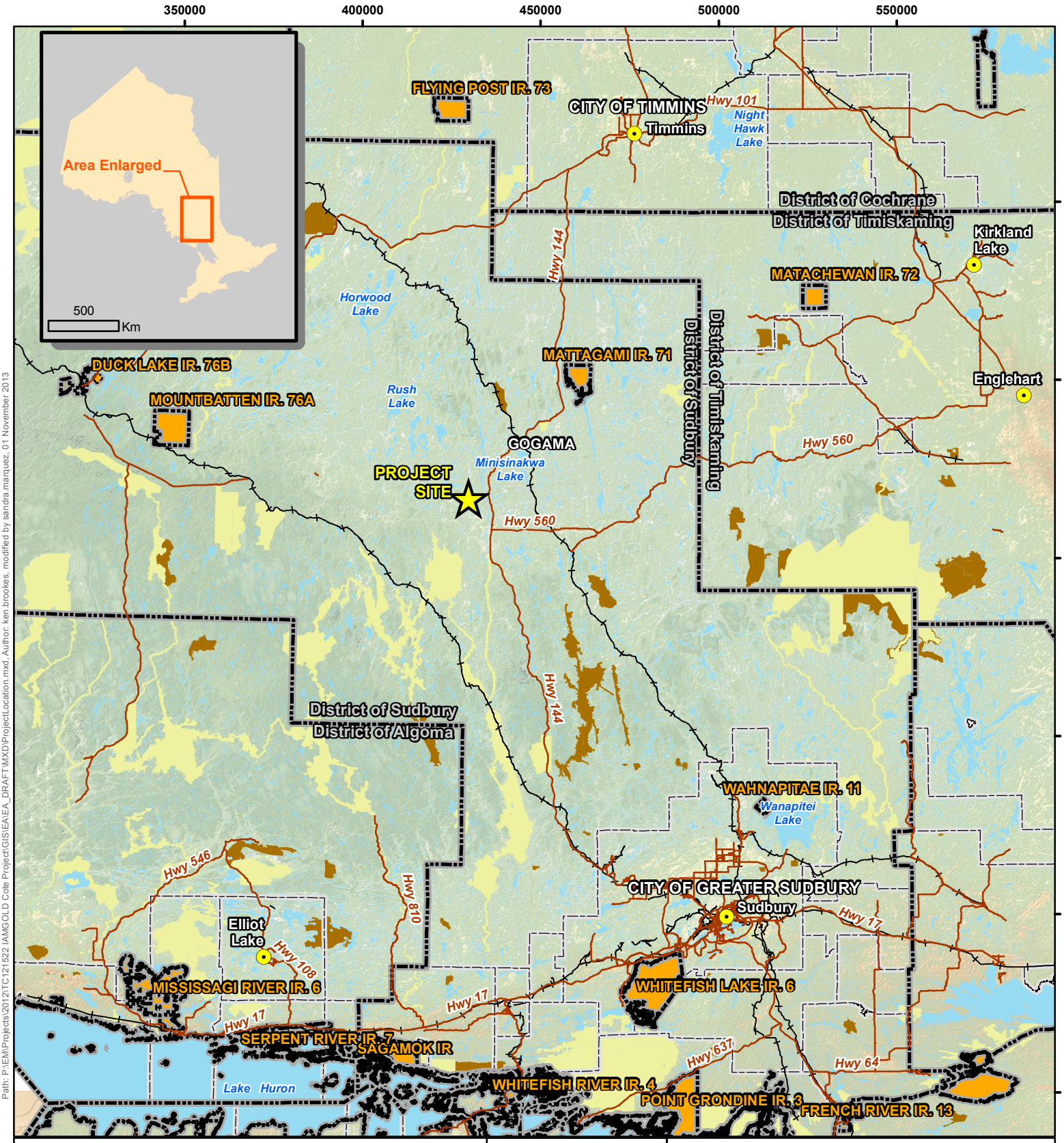
FIGURES



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LEGEND

- Project Site Location
- Regional Communities
- Major Roads
- Railway
- Lower Tier Municipality Boundary
- Upper Tier Municipality Boundary
- First Nation Reserve
- Conservation Reserve (Regulated)
- Provincial Park
- Waterbody / Large Watercourse
- Wooded Area

NOTES:
- All base data on this map was extacted from Land Information Ontario, MNDM, OBM Ontario Digital Geospatial Database and Ontario Road Network Database.

0 20 40 60 80 100 Kilometres

Datum: NAD83
Projection: UTM Zone 17N

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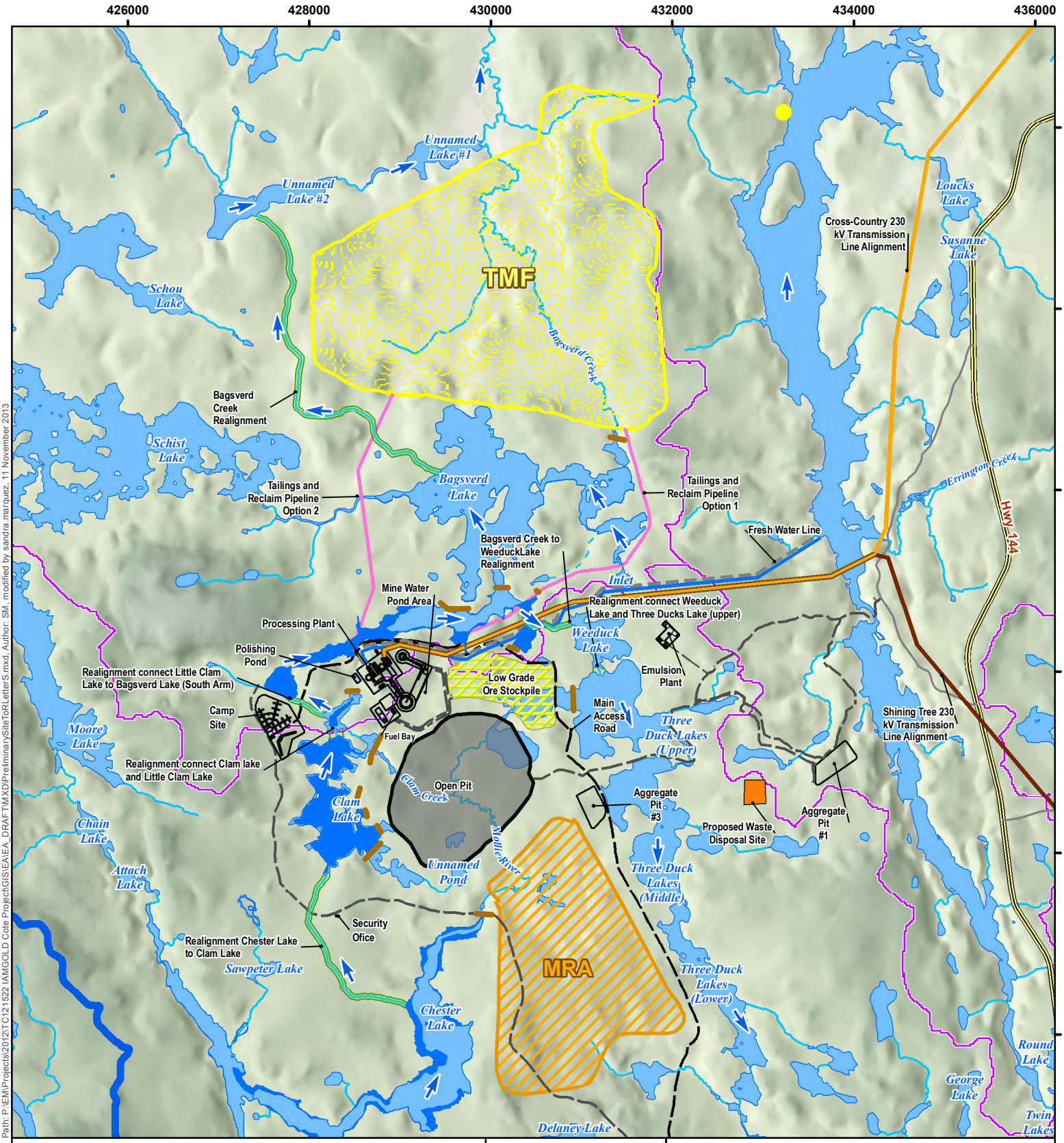
CÔTÉ GOLD PROJECT

Project Location

PROJECT N°: TC121522	FIGURE: 1
SCALE: 1:1,450,000	DATE: December 2013



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LEGEND

- Existing Intermittent Watercourse
- Existing Permanent Watercourse
- Existing Waterbodies
- Highway
- Local Road
- Subwatershed Boundary
- Wooded Area
- Open Pit
- Potential Discharge Location
- Facilities
- Dam
- Main Access Road
- Access Road
- Cross-Country 230 kV Transmission Line Alignment
- Shining Tree 230 kV Transmission Line Alignment
- Tailings and Reclaim Pipeline
- Fresh Water
- Water Realignment
- Proposed Water Flow Direction
- Proposed Lake Area
- Polishing Pond
- Low Grade Ore Stockpile
- Proposed Mine Rock Area (MRA)
- Proposed Tailings Management Facility (TMF)
- Proposed Landfill

NOTES:
- Ontario base data extracted from Land Information Ontario (MNR)
- TMF and subwatershed provided by Golder Associates.
- Watercourse realignment and proposed lake area provided by Calder Engineering.
- Surface infrastructure, open pit, landfill, MRA and transmission lines provided by IAMGOLD.
- Mesomikenda Lake is preferred discharge option, but others are being investigated.

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CÔTÉ GOLD PROJECT

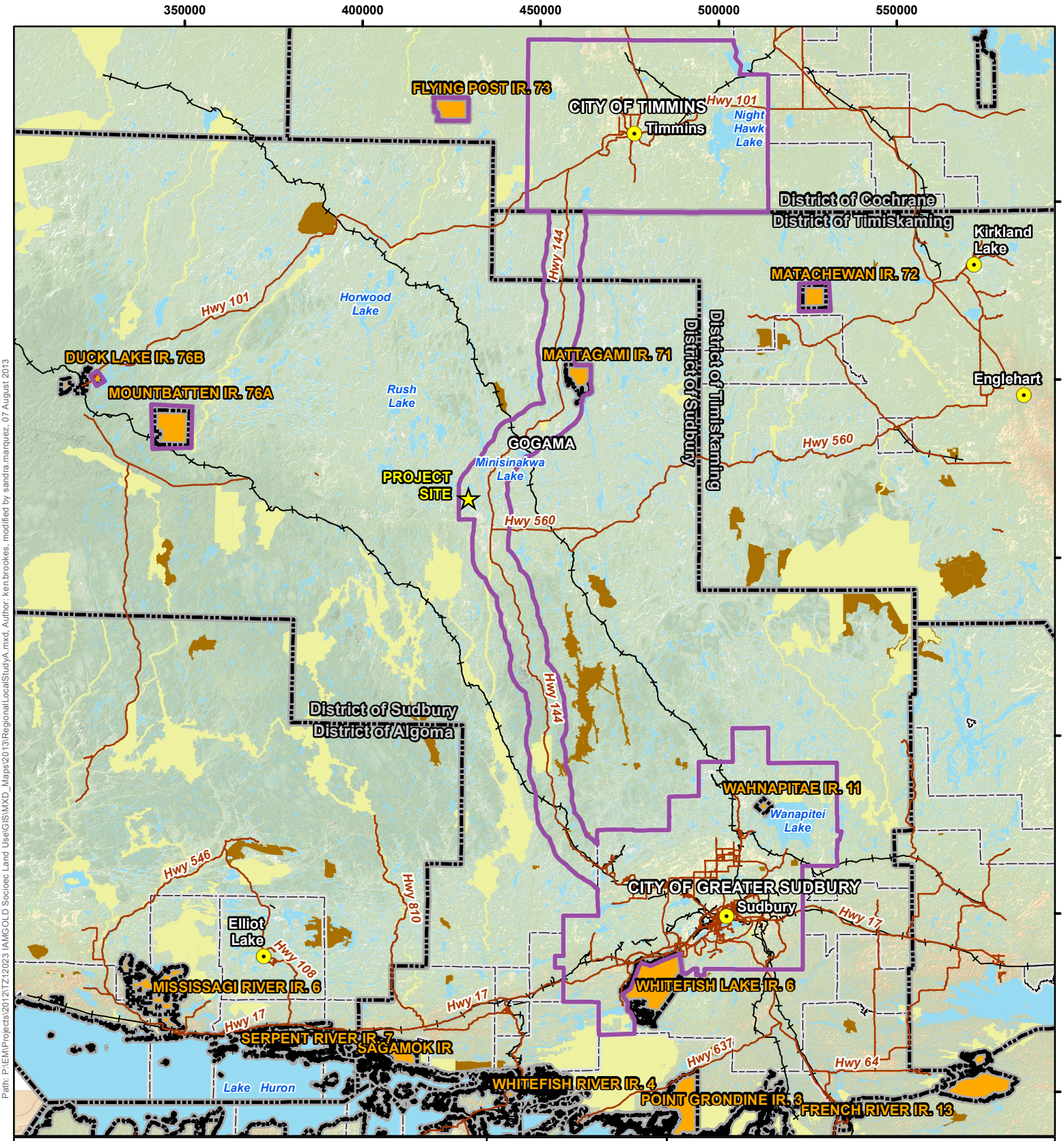
Preliminary Site Plan

Datum: NAD83
Projection: UTM Zone 17N

0 1 2 3 4 5 Kilometres

N W E S

PROJECT N°: TC121522	FIGURE: 2
SCALE:1:57,000	DATE: December 2013



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LEGEND

- Project Site Location
- Regional Study Area
- Regional Communities
- Major Roads
- Railway
- Lower Tier Municipality Boundary
- Upper Tier Municipality Boundary
- First Nation Reserve
- Conservation Reserve (Regulated)
- Provincial Park
- Waterbody / Large Watercourse
- Wooded Area

0 12.5 25 50 75 100 125 Kilometres

NOTES:
- All base data on this map was extacted from Land Information Ontario, MNDM, OBM Ontario Digital Geospatial Database and Ontario Road Network Database.

Datum: NAD83
Projection: UTM Zone 17N

IAMGOLD CORPORATION

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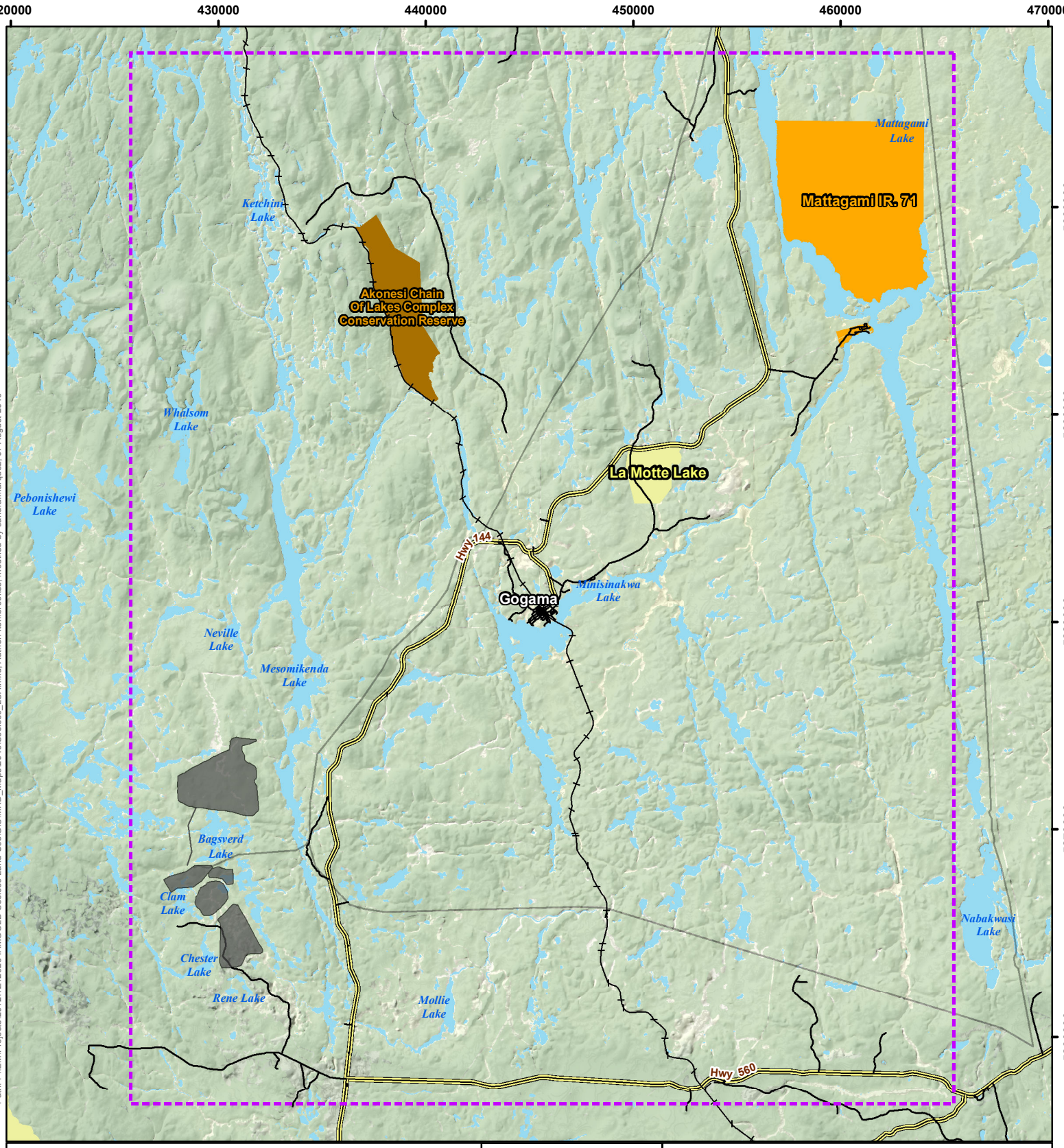
CÔTÉ GOLD PROJECT

Socio-Economic Study Regional Study Area

PROJECT N°: TZ12023	FIGURE: 3
SCALE: 1:1,450,000	DATE: August 2013



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LEGEND

- Proposed Site Facilities
- Local Study Area
- Waterbody / Large Watercourse
- Railway
- Highway/Expressway
- Local Road
- First Nation Reserve
- Conservation Reserve (Regulated)
- Provincial Park

NOTES:
- All base data on this map was extracted from Land Information Ontario, MNDM, OBM Ontario Digital Geospatial Database and Ontario Road Network Database.

Datum: NAD83
Projection: UTM Zone 17N

0 2.75 5.5 11 16.5 22 Kilometres

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CÔTÉ GOLD PROJECT

Socio-Economic Study
Local Study Area

PROJECT N°:TZ12023	FIGURE: 4
SCALE: 1:250,000	DATE: August 2013

Appendix I:

Socio-Economic Baseline Report

CÔTÉ GOLD PROJECT
SOCIO-ECONOMIC BASELINE STUDY REPORT

Submitted to:
IAMGOLD Corporation
401 Bay Street, Suite 3200
Toronto, Ontario
M5H 2Y4

Submitted by:
AMEC Environment & Infrastructure
a Division of AMEC Americas Limited
210 Colonnade Road South Unit 300
Ottawa, Ontario
K2E 7L5

October 2013

TZ12023

TABLE OF CONTENTS

PAGE

LIST OF TABLES

LIST OF GRAPHICS

LIST OF FIGURES

GLOSSARY

AADT	Annual Average Daily Traffic
AANDC	Aboriginal Affairs and Northern Development Canada
ACAATO	Association of Colleges of Applied Arts and Technology of Ontario
ASETS	Aboriginal Skills and Employment Training Strategy
CDSSAB	Cochrane District Social Services Administration Board
CIOC	Community Information Online Consortium
CMHC	Canadian Mortgage and Housing Corporation
EA	Environmental Assessment
GED	General Educational Development
GLSB	Gogama Local Services Board
ha	Hectare
IAMGOLD	IAMGOLD Corporation
km	Kilometer
kV	Kilovolt
MiHR	Mining Industry Human Resource Council
MLS	Multiple Listing Service
MMAH	Ministry of Municipal Affairs and Housing
MNDM	Ministry of Northern Development and Mines
MNO	Métis Nation of Ontario
MNR	Ministry of Natural Resources
MOE	Ministry of the Environment
MTO	Ontario Ministry of Transportation
NAN	Nishnawbe-Aski Nation
NAPS	Nishnawbe-Aski Police Service
OFSC	Ontario Federation of Snowmobile Clubs
OPP	Ontario Provincial Police
Project	Côté Gold Project
SC	Statistics Canada
SFL	Sustainable Forest License
T&DH	Timmins and District Hospital
TEDC	Timmins Economic Development Corporation
TMF	Tailings Management Facility
USD	United States Dollars
WMU	Wildlife Management Unit
WTP	Water Treatment Plant
WWTP	Waste Water Treatment Plant

1.0 INTRODUCTION

IAMGOLD Corporation (IAMGOLD) is planning to develop the Côté Gold Project (the Project) located approximately 20 kilometres (km) southwest of Gogama, 130 km southwest of Timmins, and 200 km northwest of Sudbury (see Figure 1).

This document is one of a series of physical, biological and human environment baseline reports to describe the current environmental conditions at the Project site. These baseline reports are written with the intent to support the Environmental Assessment (EA) process.

1.1 Overview of the Côté Gold Project

IAMGOLD is planning to construct, operate and eventually reclaim a new open pit gold mine at the Côté Gold Project site. The proposed site layout places the required mine-related facilities in close proximity to the open pit, to the extent practicable. The proposed site layout is presented in Figure 2 showing the approximate scale of the Côté Gold Project. The site plan will be refined further as a result of ongoing consultation activities, land purchase agreements and engineering studies.

As part of the proposed development of the Project, several water features will be fully or partially overprinted. These include Côté Lake, portions of Three Duck Lakes, Clam Lake, Mollie River/Chester Lake system and Bagsverd Creek. As a consequence, these water features will need to be realigned for safe development and operation of the open pit.

The major proposed Project components are expected to include:

- open pit;
- ore processing plant;
- maintenance garage, fuel and lube facility, warehouse and administration complex;
- construction and operations accommodations complex;
- explosives manufacturing and storage facility (emulsion plant);
- various stockpiles (low-grade ore, overburden and mine rock area) in close proximity to the open pit;
- aggregate extraction with crushing and screening plants;
- tailings management facility;
- on-site access roads and pipelines, power infrastructure and fuel storage facilities;
- potable and process water treatment facilities;
- domestic and industrial solid waste handling facilities (landfill);
- water management facilities and drainage works, including watercourse realignments; and
- transmission line and related infrastructure.

2.0 SCOPE OF WORK

This report describes the baseline socio-economic conditions in the area which will potentially be affected by the Project. The baseline characterization focuses on socio-economic components related to population and demographics, economy, labour, business, infrastructure and social services, and community well-being. These factors can be used to assess the effects of the Project on the socio-economic environment.

More detailed information is provided for socio-economic conditions in regional study area communities that are expected to be most influenced by the Project. If additional socio-economic information is shared through ongoing discussions with service providers, Aboriginal groups and community representatives, these will be documented and taken into account in the Environmental Assessment (EA) Report.

3.0 STUDY AREA

The Côté Gold Project is located in the District of Sudbury, outside of any incorporated municipality. The Project site is located within four geographic townships: Chester, Neville, Potier, and Yeo. The 230kV transmission line alternatives from Timmins to the site will intersect with 27 geographic townships: Tisdale, Ogden, Deloro, Thorneloe, Price, McKeown, Doyle, Hassard, Gouin, Emerald, Mattagami, Burrows, Cabot, Connaught, Miramichi, Garibaldi, Londonderry, Champagne, Benneweis, Chester, Roblin, Hazen, Stetham, Carter, Jack, St. Louis, and Neville; it also intersects with the City of Timmins. Nearby cottages are located on Mesomikenda Lake.

The socio-economic regional study area is defined as the area that could be influenced by the Project. The regional study area was defined using the following criteria:

- Aboriginal or non-Aboriginal communities within reasonable commuting distance to the Project (approximately 100 - 150 km), and therefore expected to experience socio-economic effects from the Project;
- communities likely to provide key services and/or benefit from business opportunities resulting from the Project;
- major travel and service corridors; and
- Statistics Canada reporting units.

Regional study area communities include: Gogama; City of Timmins; City of Greater Sudbury; Unorganized North Sudbury Subdivision; and Unorganized Timiskaming West. Highway 144 that connects the Project site with the City of Timmins to the north and City of Greater Sudbury to the south and the preferred transmission line alignment are also considered part of the regional study area. The regional study area is shown in Figure 3.

Aboriginal communities that may experience employment and economic benefits and/or social effects either due to their proximity to the Project, or through benefits received through agreements signed with IAMGOLD, include:

- Flying Post First Nation;
- Mattagami First Nation;
- Brunswick House First Nation;
- Matachewan First Nation; and
- Métis Nation of Ontario – Region 3.

The socio-economic local study area (see Figure 4) includes communities that are closest to the Project site and could therefore experience more direct socio-economic project effects. The local study area is comprised of Gogama and Mattagami First Nation (Mattagami Indian Reservation 71) and that portion of Highway 144 that connects these communities with the Project site.

4.0 METHODS

Data was collected initially through secondary sources such as statistical data, published reports, community and organization's websites and media reports. Additional information was collected through stakeholder interviews and from documents those stakeholders provided.

Data limitations pertinent to this report include limitations inherent in the 2011 and 2006 Census data available through Statistics Canada (SC). Not all data from the 2011 National Household Survey portion of the 2011 Census was available at the time of writing. When reporting census data that was based on a 20% sample of households, Statistics Canada rounds the data and may not report data for small populations to ensure confidentiality of the information. The rounding of data in small populations causes the calculated total of responses to appear inconsistent with the reported total. Moreover, the switch from a mandatory to voluntary long-form census between the 2006 and 2011 Censuses likely introduced selection bias into specialized data sets, particularly with respect to the Aboriginal population and visible minorities (Green and Milligan, 2010). This is also true for low-population areas where many datasets which had been available in 2006 have now been suppressed. Statistics Canada data for First Nation communities is limited for both 2006 and 2011.

Additional data on First Nations was incorporated from Aboriginal Affairs and Northern Development Canada's (AANDC) community profiles, which is maintained and updated by the communities themselves. However, not all First Nations publicize this information including communities in the regional study area.

Where data from Statistics Canada's 2011 Census was not yet available, data from the 2006 Census was used (where available). Some Census data for Gogama was not available, and was included as part of Unorganized North Sudbury Subdivision.

To address potential deficiencies, secondary sources obtained from the internet were used when and if available. The accuracy of non-published sources was verified through discussions/contacts with stakeholders and Aboriginal community representatives.

5.0 RESULTS

5.1 Overview of Communities

The following provides a brief overview of the regional study area communities. Locations of these communities relative to the Côté Gold Project are shown on Figure 3. Locations of all the First Nation reserves mentioned in this document are also shown in Figure 3.

5.1.1 Gogama

Gogama is the nearest community to the proposed Project. It is located on Highway 144, between Sudbury (to the south) and Timmins (to the north) and is located on Lake Minisinakwa 22 km northeast (cross country) from the proposed Project. Gogama is not an incorporated municipality, but it is managed by a local services board (GLSB) responsible for water supply, sewage, garbage collection, fire protection and recreation and library services (GLSB, 2013). The 2011 Census indicated a population of 277 (SC, 2012a).

Gogama is an Ojibwe word meaning "jumping fish", likely in reference to the many fish that abound the waters of Lake Minisinakwa. The Hudson Bay Company established a trading post in the area by in the early 18th century because the area was a traditional Aboriginal trade route. The post operated until the 1950s. After 1914 the construction of a railroad opened the area for settlement and Gogama was established in 1917. In 1919 the first post office and mill were established in the community (GLSB, 2013).

Gogama's economy has long been driven by forestry – currently EACOM Timber Corporation owns and operates the Gogama Sawmill in the community. Increasingly the community has been focusing on outdoor activities such as fishing, hunting, camping and hiking. Prospectors have come to the area since the 1930's (pers. comm., GLSB, May 2013).

5.1.2 City of Timmins

The City of Timmins is located on the Mattagami River 130 km northeast of the proposed Project site. The City was established for, and is sustained by, natural resource development industries, specifically, mining and forestry. Its population was 43,165 in 2011 (SC, 2012a). Two community colleges and a French-language university campus are located in Timmins (City of Timmins, 2011). Franco-Ontarian culture is a strong influence in Timmins; in 2011 more than half the city's residents were bilingual and 37% chose French as their mother tongue (SC, 2012a).

Timmins is a regional service centre providing a range of educational, health, business, recreation and government services. In 2010, it had the second-highest household income in Northern Ontario after Sudbury. Its economy is closely tied with the mining industry – the city estimates that 11.0% of Timmins jobs are directly in the mining sector and that indirectly 3.0% more are supported by the mining industry (City of Timmins, 2011).

Timmins' history can be traced to the early 20th century. In reaction to favourable provincial Geological Survey reports, major silver discoveries, and construction of the railway northward, to Cobalt in 1907, the region became a destination and home to dozens of prospectors eager to explore the area around Porcupine Lake. After several false starts, in 1909 two prospectors discovered the "Golden Staircase", a rich vein of gold that led to the establishment of Dome Mine. This was followed by a gold rush and the establishment of three other new mines (the Hollinger, MacIntyre, and Paymaster). The settlement of Timmins, named after the founder, Noah Timmins, expanded and in 2012 it became an incorporated town (City of Timmins, 2012a).

In 1973, the provincial government amalgamated all the municipal jurisdictions within a 3,200 km area, including the Town of Timmins, South Porcupine, Schumac and Porcupine (Whitney Township) (City of Timmins, 2012a).

5.1.3 City of Greater Sudbury

The City of Greater Sudbury, located 200 km southeast of the proposed Project site, was created in 2001 by merging the cities and towns of the former regional municipality of Sudbury with several previously unincorporated geographic townships. By land mass, Greater Sudbury is the largest city in Ontario and by population it is the largest city in northern Ontario with 160,770 residents (City of Greater Sudbury, 2013a).

Sudbury was founded on mining and forestry. During construction of the Canadian Pacific Railway in 1883, blasting and excavation revealed high concentrations of nickel-copper ore at what would become Murray Mine on the edge of the Sudbury Basin. Promise of wealth and jobs in the region attracted European settlers. Sudbury, named for Sudbury, Suffolk, in England, the hometown of Canadian Pacific Railway commissioner James Worthington's wife, was incorporated as a town in 1893. The region's Franco-Ontarian culture is based on the Jesuit mission established in the area in 1883. The parish, originally named Sainte-Anne-des-Pins ("St. Anne of the Pines"), Sudbury is home to Ontario's oldest francophone centre (Diocese of Sault Ste. Marie, 2013).

Thomas Edison visited the Sudbury area as a prospector in 1901, and is credited with the original discovery of the ore body at Falconbridge. Two major mining companies, Inco in 1902 and Falconbridge in 1928, were founded in Sudbury and went on to become two of the world's leading nickel producers. The surrounding forests were used as fuel for the open coke ovens, which were necessary for the production of nickel.

Throughout the 1900s, Sudbury experienced several boom-and-bust cycles caused by changes in mineral prices and resource depletion (Jewiss, 1983). In the past decade, the city has diversified and in addition to mining, it has become a regional service centre (e.g. health, education, recreation, retail) and now has the highest per capita income in Northern Ontario (Southcott, 2008).

Today, the City of Greater Sudbury focuses on six key sectors for economic development (City of Greater Sudbury, 2013a): mining; advanced education, research and innovation; tourism; healthcare expertise; retail and services; and arts and culture.

5.1.4 Unorganized North Sudbury Subdivision

Unorganized North Sudbury comprises all portions of the Sudbury District that are not organized into incorporated municipalities. This includes the community of Gogama and the communities of Benny, Biscotasing, Cartier, Estair, Foleyet, Mattagami, Metagama, Paget, Shining Tree, Sultan, West River, Westree, Whitefish Falls and Willisville. The population of the subdivision totalled 2,306 in the 2011 Census. Major industries of the area are forestry and other resource-based industries, business services and recreation (SC, 2007a; SC, 2012a).

5.1.5 Unorganized Timiskaming West

The District of Timiskaming is located south of Timmins and east of the proposed Project site. Only a small portion of the District of Timiskaming overlaps with the regional study area. Communities in the division include Boston Creek, Dane, Gowganda, Kenabeek, Kenogami Lake, King Kirkland, Lorrain Valley, Maisonville, Mowat Landing, Paradis Bay, Savard, Sesekinika, Tarzwell and Tomstown. The population of all these communities combined amounted to 2,925 in the 2011 Census. Resource-based industries are the major employer in the area including agriculture, forestry and mining and some manufacturing and business services (SC, 2007a; SC, 2012a).

5.1.6 Mattagami First Nation

Mattagami First Nation is an Anishnaabe community with one reserve (Mattagami 71) located about 20 km north east of Gogama on the northwest side of Mattagami Lake (see Figure 3). The Ojibwe word ‘Mattagami’ means ‘Meeting of the Waters’. Mattagami First Nation’s reserve is accessible by road from Highway 144. The on-reserve population of the First Nation was 193 people in the 2011 Census (SC, 2012a) and the band has 531 registered members as of June 2013 (AANDC, 2013a).

Before the arrival of Europeans, the local Ojibwe and Oji-Cree lived a nomadic life on the land hunting, fishing, trapping and gathering. Mattagami First Nation was established in 1906 with the signing of Treaty 9. In 1921 the building of a dam by a power company flooded a portion of the First Nation’s land base and eventually an additional 81 hectares of land was added to Mattagami 71 to build a new town site in 1952 (Mattagami First Nation, 2013). In 1962, Mattagami First Nation made history by electing the first all female Chief and Council. Leadership from the community also played an important role in the establishment of the Wabun Tribal Council, of which the community is still a member (Wabun Tribal Council, 2013). The relationship between Mattagami First Nation and Gogama is strong, with many family ties and some of their off-reserve membership living there (pers. comm., Mattagami First Nation, July 2013d).

Chief Walter Naveau, elected in 2007, serves with a four member Council. Mattagami has a developed economy including restaurants, a gas bar and a range of mining related business services. Three construction companies are owned or part-owned by members of the First Nation (pers. comm., Mattagami First Nation, July 2013c). Hydro development, forestry initiatives, value added businesses and tourism opportunities are areas of planned future growth for the community (Mattagami First Nation, 2013).

The community has increased its cultural role in the region, exemplified by the growth of the community's annual Beaverfest. Held in conjunction with the Gogama and Area Fur Harvester's Council, it has become a significant event for local trappers (Mattagami First Nation, 2013). The community hosts annual pow wows and fishing derbies. They also host one week visits of Korean Christians and Mennonites for activities and sharing. The community has traditional teachers who provide teachings, healings, and sweat lodges at various times throughout the year (pers. comm., Mattagami First Nation, July 2013d).

5.1.7 Flying Post First Nation

Flying Post First Nation, an Ojibwe-Cree First Nation, has a 5,957 hectare reserve, Flying Post 73, located northwest of Timmins, along the Ground Hog River about an hour north of Malette Road (see Figure 3). That reserve, however, is uninhabited. The band office is located in Nipigon, a town near Lake Nipigon. The membership is geographically dispersed, with 17 residing in the regional study area, 72 in Nipigon, 25 in Thunder Bay, 66 living in other parts of Ontario and 27 living outside of Ontario in other parts of Canada. The Band is administered by Chief Murray Ray and four Councillors.

Reserve lands were first established between the government and First Nation people in Northern Ontario through the signing of the Treaty 9 in 1905 and 1906 and later additional adhesions in 1929 and 1930. When the treaty was negotiated, the tribe, which was nomadic, was mistakenly given lands based on a temporary camping location near the Groundhog River. Flying Post First Nation was then given a tract of land near Timmins as part of the Treaty. Soon after the signing, most members discovered their newly designated treaty lands were in a poor location and many members of Flying Post First Nation (including even the signatory to Treaty, Chief Black Ice) decided in 1960s to become members of nearby First Nations (Wabun Tribal Council, 2013).

Later, when First Nation political organizations (e.g., Nishnawbe-Aski Nation (NAN) began to form, the Flying Post First Nation re-established themselves as a separate First Nation and elected a Chief and Council to represent their people in negotiations with government. Finally, Flying Post First Nation joined the Wabun Tribal Council in 2007 and is now a member First Nation represented by that organization (Wabun Tribal Council, 2013).

Currently the Chief and Council are negotiating with AANDC on a land claim with the intent of moving the First Nation's reserve closer to the City of Timmins Sites under consideration are the

junction of Malette Lumber Road and Highway 101 (Mishibinijima, 2010) and at Rush Lake, their ancestral territory (pers. comm., Flying Post First Nation, June 2013b).

Flying Post's membership has been severely affected by the loss of forestry-related jobs in the Nipigon area; the pulp and paper mill shut down and the Plywood Mill was completely destroyed by fire. Some families have had to relocate for employment and other families have one and sometimes two parents involved in fly in / fly out employment in distant locations. Flying Post First Nation has reported these arrangements are very difficult on family life (pers. comm., Flying Post First Nation, June 2013a).

Flying Post First Nation holds annual events for its members and their families and community fellowship, such as a Christmas gathering, family skates and curling events (pers. comm., Flying Post First Nation, June 2013b).

5.1.8 Brunswick House First Nation

Brunswick House First Nation is an Ojibwe-Cree First Nation located on Highway 101N, about 10km from the town of Chapleau (see Figure 3). It encompasses the 9,054 hectare Mountbatten 76A Indian Reserve and the 259.8 ha Duck Lake 76B Indian Reserve. The First Nation has been led since 2011 by Chief Andrew Neshawabin and three Councillors.

Brunswick House First Nation, created with the signature of Treaty 9 over 1905 and 1906, is based on their traditional territory in the area of the Hudson's Bay Company post called New Brunswick House on the northern end of Missinaibi Lake. In 1925, the 7,000 km^2 Chapleau Game Preserve was established around the reserve that prohibited traditional hunting and trapping. As a result, Brunswick House First Nation had to move to a new land base.

Over a 22-year period, three consecutive reserve sites were identified and then abandoned by the government. In 1947 the community was provided with the Mountbatten 76A Reserve, a section of mostly swamp land. In 1970 the community traded that land to gain the smaller Duck Lake 76B Indian Reserve, which had the advantages of being only 10 km from the town of Chapleau on Highway 101. This improved the Band's wellbeing by providing them with better access to essential health and education services (Wabun Tribal Council, 2013).

Today, Brunswick House First Nation has a membership of 754 people but less than a third of those members live on-reserve. The workforce, in 2006, was reported as being either in the Health Sector or the Other Services sector (which in 2006 included public administration and cultural workers). This First Nation has a partnership with Hydromega for the development of a water power project on the Kapuskasing River (Brunswick House First Nation, 2013).

5.1.9 Matachewan First Nation

Matachewan First Nation, a Cree First Nation located in Timiskaming District, is located about 60 km west of Kirkland Lake off Highway 66 (see Figure 3). Its reserve, the 4,158 ha Matachewan 72, was formed with the signature of Treaty 9 in 1906. The current Chief, Alex Batisse, was elected in 2011 (Wabun Tribal Council, 2013).

The community has been working to increase their involvement in mining, forestry and other regional business opportunities. They built the Endysian Camp, a facility to house transient mine workers for Northgate Minerals / AuRico Gold in 2011 and they have been actively negotiating agreements with other resource development companies (Matachewan First Nation, 2013).

5.1.10 Métis Nation of Ontario

The Métis are defined as people of mixed First Nation and European ancestry who identify themselves as a distinct from First Nations, Inuit or non-Aboriginal people. The Métis have a unique culture that draws on their diverse ancestral origins, such as Scottish, French, Ojibwe and Cree (AANDC, 2013b). Census data on the Métis population allows a broad, popular definition based on self-identification from mixed ancestry rather than necessarily implying membership in a historic community. A shift towards self-identification as Métis in this broader definition largely caused the Métis population to double between 1996 and 2006 (SC, 2011). The self-identified Métis population of Sudbury in the 2006 Census was 5,425 individuals and that of Timmins was 1,690 individuals (SC, 2007b).

The Métis Nation of Ontario (MNO) seeks to represent historic Métis peoples in Ontario, narrowly defined as people who not only identify as Métis but also have a Métis ancestor connected with the “Historic Métis Nation”. These are communities where a unique Métis culture was established and represent the traditional territory of the Métis. The MNO maintains a registry which requires members to undertake a formal process to prove ties to a historic Métis identity rather than relying on self-identification alone (MNO, 2009).

Historic Métis are represented at the local level by MNO Charter Community Councils located in Sudbury, Timmins and Chapleau. Roger Giroux is the President of the Sudbury Métis Council (MNO 2010); David Hamilton is the President of the Chapleau Council and Natalie Durocher is the President of the Timmins Council (MNO, 2011a; MNO, 2011b).

5.2 Population and Demographics

This section presents relevant data on population trends, composition and dynamics in the regional study area. Population information provides context for understanding how the local population may change in size or composition due to in-migration to the area related to the Project or the temporary or permanent relocation of people to the area to work on the Project.

Census data tend to be undercovered and historically Ontario has one of the highest net undercoverage rates among the provinces. For the 2001 and 2006 Census, Ontario's net undercoverage rate was 3.8% (Ontario Ministry of Finance, 2007) resulting in approximately 3,000 to 4,000 uncounted individuals of Aboriginal identity living in Timmins. This could be caused by workers at other mining operations in Ontario that stay in Timmins part-time and are neither counted in the Timmins nor their home community census.

For northeastern Ontario, the key population trends are:

- stabilization of the population while reducing its percentage of the provincial population. Both a relative decline in population compared to the rest of Ontario (4.2% in 2011 from 5.4% in 1996) and an absolute decline in population of 1.4% from 2006 (Ontario Ministry of Finance, 2012);
- high growth rates in most aboriginal communities;
- return of growth to many of the larger urban centres; and
- less marked declines in mining-dependent communities than in forestry-dependent communities.

The Ontario Ministry of Finance has published population projections for Ontario and its Census Divisions for the period 2011 to 2036. In this period the total Ontario population is forecasted to grow 32.7% while the population of the proximate census districts of Greater Sudbury, Sudbury and Cochrane (which contains Timmins) are projected to remain more or less stable, growing by 1.0% over 25 years. This overall stability hides local changes. The more rural districts of Sudbury and Cochrane are projected to shrink by 9.3% and 5.3% respectively over this period and the urban district of Greater Sudbury is projected to expand by 5.6% (Ontario Ministry of Finance, 2012).

5.2.1 Population Totals

At the time of the 2011 Census, Gogama reported a total population of 277, down 29.7% from the 2006 Census (Table 5-1). The Unorganized subdivisions of North Sudbury and Timiskaming West also lost population, falling 15.4% from 2001 to 2011. This reflects the pattern of declining rural populations in northeastern Ontario and consolidation in urban areas; the combined populations of Timmins and Greater Sudbury grew by 2.5% over the same period.

Table 5-1: Population in the Regional Study Area Communities, 2001 to 2011

Area	Population			% Change 2001 to 2011
	2011	2006	2001	
Gogama	277	394	475[1]	-29.7[2]
City of Timmins	43,165	42,997	43,686	-1.2
City of Greater Sudbury	160,770	157,857	155,219	3.6

Area	Population			% Change 2001 to 2011
	2011	2006	2001	
Unorganized North Sudbury Subdivision	2,306	2,415	2,910	-20.8
Unorganized Timiskaming West Subdivision	2,925	3,205	3,270	-10.6
Mattagami First Nation	193	189	166	16.3
Flying Post First Nation	0	40	0	0.0
Brunswick House First Nation [3]	189	82	107	76.6
Matachewan First Nation	83	72	61	36.1
Regional Study Area	209,548	206,785	205,358	2.0
Regional Study Area (Urban)	203,935	200,854	198,905	2.5
Regional Study Area (Rural)	5,231	5,620	6,180	-15.4
Regional Study Area (First Nation Reserve)	465	383	334	39.2
Ontario	12,851,821	12,160,282	11,410,046	12.6

Source: (SC, 2007a; SC, 2012a; AANDC, 2013a)

Notes:

[1] Estimated from Unorganized North Sudbury Subdivision trends; not reporting entity in 2001

[2] 2006 to 2011 change; 2001 to 2011 estimated to be 41.7%

[3] 2011 Census data not available; instead, membership counts reported to AANDC were used

Among the First Nation communities, Mattagami First Nation on-reserve population increased slightly by 2.1% from 189 in 2006 to 193 in 2011. Flying Post recorded 40 people living on-reserve in 2006, but according to the First Nation this was due to an error on the part of the Census (pers. comm., Flying Post First Nation, June 2013b). Flying Post's reserve has no infrastructure or municipal services and is uninhabited (despite this, AANDC reports a single resident, see Table 5-2). Census data for the on-reserve population was not available for Brunswick House First Nation from Statistics Canada, but AANDC estimates on-reserve population as part of their tracking of band membership (see Table 5-2). This count indicates a population of 189 people. Although this represents an increase of 130.5%, this large growth figure likely comes from methodological differences between how AANDC and Statistics Canada collect information (AANDC, 2005).

Table 5-2: First Nation Membership Counts for the Regional Study Area Communities as of June 2013

First Nation	Registered Males On Own Reserve	Registered Females On Own Reserve	Registered Males Off Reserve	Registered Females Off Reserve	Total Registered Population	On-Reserve Share (%)
Mattagami First Nation	91	77	165	198	531	31.6

First Nation	Registered Males On Own Reserve	Registered Females On Own Reserve	Registered Males Off Reserve	Registered Females Off Reserve	Total Registered Population	On-Reserve Share (%)
Flying Post First Nation	0	1	100	108	209	0.5
Brunswick House First Nation	101	91	280	282	754	25.5
Matachewan First Nation	28	13	318	352	711	5.8
Regional Study Area	220	182	863	940	2205	18.2

Source: (AANDC, 2013a)

First Nations in the regional study area have small on-reserve populations relative to the size of their overall membership. Matachewan First Nation, one of the largest in the regional study area by membership (711 members), has an on-reserve population of 41 people, or 5.8% of the overall membership. Brunswick House First Nation has a membership of 754 people and Mattagami First Nation has 531 people, but for both less than a third of those members live on-reserve. The proportion of First Nation membership living on-reserve in the regional study area is low by provincial standards, at 18.2%. In all of Ontario, the share of First Nations membership living on-reserve was 48.0% (AANDC, 2013a) although the 2011 Census estimated the figure at 37.0% (SC, 2013a).

5.2.2 Age-Sex Breakdown

According to the 2011 Census, the median age in non-First Nation communities in the regional study area is higher than the provincial average (see Table 5-3). This was particularly true in rural areas. For Gogama, the Unorganized North Sudbury Subdivision and the Unorganized Timiskaming West Subdivision median age was more than 10 years older than the provincial average of 40.4 years. The median age in Timmins and Sudbury was closer to the provincial median at 40.7 and 42.3 years respectively.

In rural areas that are not First Nations reserves there are less children and more elderly individuals. For example, in Gogama the proportion of the population aged 0 to 14 is half the Ontario average in this age cohort, while the proportion of the population over 65 is almost double the Ontario average. The community's leadership describe Gogama as a retirement community and that the true senior population is closer to 60.0% (pers. comm., GLSB, May 2013).

For First Nation reserves, populations are typically much younger than the provincial average. Age structure data from the 2011 Census was not available for the First Nation communities of Mattagami First Nation and Flying Post First Nation. Therefore, demographic information is constructed from the results of interviews with their leadership. These two First Nations both

have a higher share of their population of working age than the regional study area overall (68.9% for Mattagami and 67.1% for Flying Post compared to the regional study area average of 61.9%. Their share of the population below the age of 15, at 17.6% for Mattagami and 16.1% for Flying Post, is higher than the regional study area average of 15.9% but similar to those found in the City of Timmins (17.3%) and the City of Greater Sudbury (15.6%). By contrast, data from Brunswick House First Nation has 29.4% of the population below the age of 15, almost double the regional study area average. In addition, a much lower share of the population is 65 and over, 5.9% compared to the regional study area average of 15.7%. As a result, the community also has a much lower median age, 27.5, compared to a regional study area average of 42.2. Brunswick House First Nation also has a higher share of the population 15 and over, 70.6%; 13.6% lower than the regional study area average of 84.2%. These numbers fluctuate throughout the year (for example, Mattagami First Nation reports a 70.0% difference in the population of on-reserve members under the age of 19 between the winter, when people leave the reserve to attend school, and the summer, when they return for summer work (pers. comm., Mattagami First Nation, June 2013).

Table 5-3: Demographics of Regional Study Area Communities, 2011

Area	Years of Age (%)				Median Age	% Age 15+
	0-14	15-19	20-64	65+		
Gogama	8.9	5.4	57.1	28.6	53.2	93.6
City of Timmins	17.3	6.9	62.1	13.8	40.7	82.7
City of Greater Sudbury	15.6	6.6	61.8	16.1	42.3	84.4
Unorganized North Sudbury Subdivision	10.2	4.3	64.4	21.5	53.4	91.1
Unorganized Timiskaming West Subdivision	12.1	5.0	64.1	18.8	51.4	87.9
Mattagami First Nation	17.6	5.7	68.9	7.8	n/a	82.4
Flying Post First Nation*	16.1	6.7	67.1	10.1	n/a	84.0
Brunswick House First Nation	29.4	5.9	58.8	5.9	27.5	70.6
Matachewan First Nation	15.8	5.3	63.2	15.8	39.5	84.2
Regional Study Area Average	15.9	6.6	61.9	15.7	42.2	84.2
Regional Study Area (Urban)	16.0	6.6	61.8	15.6	42.0	84.0
Regional Study Area (Rural)	11.3	4.7	64.2	20.0	55.1	88.7
Regional Study Area (First Nation Reserve)	18.5	6.0	65.9	9.7	10.5	81.5
Ontario	17.0	6.7	61.7	14.6	40.4	83.0

Source: (SC, 2012a; pers.comm., Flying Post First Nation, June 2013b; pers.comm., Mattagami First Nation, July 2013b)
Notes:
n/a: not available
* off-reserve membership
** Mean of median values calculated from available data

For the Aboriginal Identity population (those identifying themselves as Aboriginal in the Census) not living on reserves, data is only available from the 2011 National Household Survey for Timmins and Sudbury (see Table 5-4). The urban Aboriginal population in these communities was much younger than that of the overall population: in Sudbury the share of the Aboriginal Identity population below the age of 15 was 23.3%, while it was 15.6% for the overall population. In Timmins the share of the Aboriginal Identity population below the age of 15 was 25.4%, 8.1 percentage points higher than for the community overall. The difference in age composition occurs not only in a higher proportion of those younger than 15 but also by a lower proportion of those 65 and over (for Sudbury 5.7% against 16.1% for the population as a whole). The elderly proportion of the Aboriginal population is lower in both communities than can be found in any First Nation community for which data exists in the regional study area.

Table 5-4: Demographics of Aboriginal Identity Population in Select Regional Study Area Communities, 2011

Area	Years of Age (%)				% Age 15+
	0-14	15-24	25-64	65+	
City of Timmins	25.4	18.8	50.1	5.7	74.6
City of Greater Sudbury	23.3	17.8	53.1	5.8	76.7

Source: (SC, 2013a)

5.2.3 Migration

Migration data from the 2011 Census was released in June 2013 but it is currently repressed for most census areas with small populations including Gogama, all First Nation reserves in the regional study area, and the unorganized subdivisions of North Sudbury and Timiskaming West. Data is available for the District of Sudbury, which includes Gogama, the Unorganized North Sudbury Subdivision and Mattagami First Nation but also many rural municipalities and townships outside of the regional study area (SC, 2013a). For comparative purposes, Table 5-5 includes data from both the 2006 Census and from the District of Sudbury.

The unorganized subdivisions of North Sudbury and Timiskaming West had higher than average populations that lived at the same address five years ago. Less mobility occurred in the unorganized subdivisions than in Ontario as a whole. In Timmins and Sudbury migration levels were similar to the provincial average (see Table 5-5). Timmins has started recording the number of newcomers in the City and has found that the tight labour market has attracted immigrants, nearly 200 people in 2012. Major sources of origin include Nigeria, Ukraine and Russia (pers. comm., TEDC, May 2013).

Residents of First Nation reserves in 2006 were less likely to have lived in the same municipality five years ago (73.0% compared to the regional study area average of 89.2%), particularly in Matachewan First Nation where only 57.1% had lived on the reserve five years before. Although data for Flying Post First Nation is not available, the membership of the community is geographically diverse (see Section 5.1.7) and therefore may be relatively mobile.

Table 5-5: Mobility Rates in Regional Study Area Communities, 2011 and 2006

Area	2011			2006		
	Lived in same municipality 5 years ago (%)	Lived in different municipality within Ontario 5 years ago (%)	Lived outside Ontario 5 years ago (%)	Lived in same municipality 5 years ago (%)	Lived in different municipality within Ontario 5 years ago (%)	Lived outside Ontario 5 years ago (%)
Gogama	n/a	n/a	n/a	n/a	n/a	n/a
City of Timmins	88.8	9.3	1.9	89.1	8.9	2.1
City of Greater Sudbury	90.7	7.2	2.1	89.5	8.3	2.2
Unorganized North Sudbury Subdivision	n/a	n/a	n/a	86.9	11.0	1.9
Unorganized Timiskaming West Subdivision	n/a	n/a	n/a	79.3	20.2	0.6
Mattagami First Nation	n/a	n/a	n/a	79.4	11.8	8.8
Flying Post First Nation	n/a	n/a	n/a	n/a	n/a	n/a
Brunswick House First Nation	n/a	n/a	n/a	73.3	26.7	0.0
Matachewan First Nation	n/a	n/a	n/a	57.1	42.9	0.0
Regional Study Area Average	n/a	n/a	n/a	89.2	8.7	2.1
Regional Study Area (Urban)	90.3	7.6	2.1	89.4	8.5	2.2
Regional Study Area (Rural)	n/a	n/a	n/a	82.6	16.2	1.2
Regional Study Area (First Nation Reserve)	n/a	n/a	n/a	73.0	22.2	4.8
District of Sudbury	78.2	17.3	0.9	82.0	16.9	1.1
Ontario	83.3	11.2	5.5	81.1	12.3	6.6

Source: (SC, 2007a;SC, 2013a)

Note:

n/a: not available

5.2.4 Aboriginal Identity and Linguistic Characteristics

Aboriginal population data from Statistics Canada is not available for rural communities and reserves from the 2011 Census. The share of the Aboriginal identity population in the regional study area's urban communities rose from 6.5% in 2006 to 8.2% in 2011. Data from the District of Sudbury suggest that this trend is also occurring in the rural areas, with their proportion of the Aboriginal population rising from 13.6% in 2006 to 15.9% in 2011. In 2006, the regional study area average proportion of Aboriginal identity population was 6.6%, higher than the provincial average of 2.0% (see Table 5-6). The proportion of the population who identified themselves as Aboriginal was highest, outside of reserves, in the North Sudbury Subdivision (7.9%) and Timmins (7.7%). In absolute numbers, however, most of the Aboriginal identity population lived in urban communities and Aboriginal people living on First Nations reserves only made up 2.8% of the regional study area's total Aboriginal population.

Table 5-6: Aboriginal Population of Regional Study Area Communities, 2006

Area	Aboriginal Identity %	
	2011	2006
Gogama	n/a	n/a
City of Timmins	8.0	7.7
City of Greater Sudbury	8.2	6.2
Unorganized North Sudbury Subdivision	n/a	7.9
Unorganized Timiskaming West Subdivision	n/a	6.5
Mattagami First Nation	n/a	94.7
Flying Post First Nation	n/a	n/a
Brunswick House First Nation	n/a	100.0
Matachewan First Nation	n/a	78.6
Regional Study Area	n/a	6.7
Regional Study Area (Urban)	8.2	6.5
Regional Study Area (Rural)	n/a	7.1
Regional Study Area (First Nation Reserve)	n/a	92.6
District of Sudbury	15.9	13.6
Ontario	2.4	2.0

Source: (SC, 2007a;SC, 2013a)
Note:
n/a: not available

Additional information is available in the census about the identity of self-identified Aboriginal people from census data for Timmins and Sudbury (see Table 5-7). Métis make up the largest group of those identifying as Aboriginal (49.8% in Sudbury, 55.1% in Timmins). There is no clear trend in terms of self-identification between these two groups: in Timmins, the share of the Aboriginal identity population who see themselves as Métis rose from 51.6% to 55.1% between 2006 and 2011, while it fell in Sudbury and the District of Sudbury from 56.6% to 49.8% and

from 49.6% to 40.2% respectively. In Ontario as a whole, the share of the Aboriginal identity population identifying as Métis fell from 30.4% in 2006 to 28.5% in 2011. This reflects a slower growth rate in the Métis population in comparison to the First Nations population, which grew by 27.0% over this period.

Most of the members of First Nations living in Timmins and Sudbury are not members of First Nations with reserves in the regional study area. As shown in Table 5-2, the number of off-reserve members of local First Nations was 1,803 in 2013 and there are 17 members of Flying Post First Nation living in the regional study area compared to an estimated 6,142 Registered Indians in Greater Sudbury and Timmins in 2011 (SC, 2013a).

According to the 2011 Census, across the regional study area, 57.5% of the population speaks English but not French (see Table 5-8) and there are more French and English speakers (40.9%) than Ontario as a whole (11.0%). In Gogama, most residents are French and English speakers (64.3%) and most named French as their mother tongue (56.1%). A sizeable proportion of the population (10.5%) named another language as their mother tongue, most commonly Polish (SC, 2012a). In none of the communities did the number of French-only speakers exceed 5%.

For the Aboriginal identity population (see Table 5-9) those with knowledge of Aboriginal languages are relatively few; 6.2% in the City of Timmins in 2011 (down from 11.3% in 2006) and 3.8% in Sudbury in 2011 (down from 4.3% in 2006). This trend is also seen in the District of Sudbury, for which the share fell from 5.9% in 2006 to 4.0% in 2011. Data from 2011 is not available for First Nation reserves; however, in 2006 knowledge of Aboriginal languages did not rise above 25% in any populated reserve.

Ojibwe is the Aboriginal language of those living on the Mattagami and Matachewan First Nation Reserves and Oji-Cree is the Aboriginal language for residents of Brunswick House (SC, 2007a) but not necessarily the Aboriginal language spoken by Aboriginal identity residents of the regional study area (see Table 5-9). In Timmins, 85.7% of those with knowledge of an Aboriginal language speak Cree and while most (66.7%) of those in Sudbury who have knowledge of an Aboriginal language speak Ojibwe, a third speak other languages. As subsets, this data is hampered by low sample sizes which increase their margins of error.

Table 5-7: Self-identification of Aboriginal Population, 2006 and 2011

Area	2011				2006			
	Aboriginal Identity %	Type of Aboriginal Identity Population			Aboriginal Identity %	Type of Aboriginal Identity Population		
		First Nation %	Métis %	Other or Multiple Identity %		First Nation %	Métis %	Other or Multiple Identity %
City of Timmins	8.0	42.8	55.1	2.1	7.7	44.6	51.6	3.8
City of Greater Sudbury	8.2	46.6	49.8	3.5	6.2	40.7	56.6	2.8
District of Sudbury	15.9	55.6	40.2	4.2	13.6	47.0	49.6	3.5
Ontario	2.4	66.7	28.5	2.1	2.0	65.3	30.4	1.6

Source: (SC, 2007a; SC, 2013a)

Table 5-8: Linguistic Profile of Regional Study Area Communities, 2011

Area	Speak English but not French (%)	Speak French but not English (%)	French and English Speakers (%)	English Mother Tongue (%)	French Mother Tongue (%)	Aboriginal Mother Tongue (%)	Other Mother Tongue (%)	Multiple Mother Tongues (%)
Gogama	32.1	3.6	64.3	29.8	56.1	0.0	10.5	0.0
City of Timmins	46.8	2.4	50.7	55.7	37.2	0.7	3.8	2.5
City of Greater Sudbury	61.3	1.0	37.4	64.5	25.4	0.2	7.7	2.2
Unorganized North Sudbury Subdivision	57.0	2.6	40.3	61.8	31.2	0.0	4.8	2.0
Unorganized Timiskaming West	76.1	0.7	23.2	80.9	14.9	0.0	3.4	0.7
Mattagami First Nation	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Flying Post First Nation	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Brunswick House First Nation	94.1	0.0	0.0	100.0	0.0	0.0	0.0	0.0
Matachewan First Nation	82.4	0.0	17.6	88.2	5.9	5.9	0.0	0.0

Area	Speak English but not French (%)	Speak French but not English (%)	French and English Speakers (%)	English Mother Tongue (%)	French Mother Tongue (%)	Aboriginal Mother Tongue (%)	Other Mother Tongue (%)	Multiple Mother Tongues (%)
Regional Study Area Average	57.5	1.4	40.9	62.3	28.5	0.4	6.5	2.2
Regional Study Area (Urban)	57.1	1.4	41.2	61.9	28.8	0.4	6.6	2.3
Regional Study Area (Rural)	67.7	1.5	30.8	72.5	22.1	0.0	4.0	1.2
Regional Study Area (First Nation Reserve)	88.2	0.0	8.8	94.1	2.9	2.9	0.0	0.0
Ontario	86.3	0.3	11.0	68.2	3.9	0.1	25.3	2.3

Source: SC, 2012a

Note:

n/a: not available

Table 5-9: Linguistic Profile of Aboriginal Identity Population in Regional Study Area Communities, 2006 and 2011

Area	2011					2006
	Knowledge of Aboriginal Language (%)	Proportion of those with knowledge of Aboriginal language				Knowledge of Aboriginal Language (%)
		Algonquin (%)	Cree (%)	Ojibwe (%)	Other (%)	
City of Timmins	6.2	0.0	85.7	0.0	0.0	11.3
City of Greater Sudbury	3.8	0.0	11.1	66.7	20.2	4.3
Mattagami First Nation	n/a	n/a	n/a	n/a	n/a	15.8
Flying Post First Nation	n/a	n/a	n/a	n/a	n/a	n/a
Brunswick House First Nation	n/a	n/a	n/a	n/a	n/a	25.0
Matachewan First Nation	n/a	n/a	n/a	n/a	n/a	13.3
District of Sudbury	4.0	7.4	0.0	88.9	0.0	5.9
Ontario	7.3	0.8	20.3	55.0	28.6	12.0

Source: (SC, 2007b; SC, 2013a)

Note:

n/a: not available

5.2.5 Education Attainment

Education attainment at the post secondary level can be challenging in northern Ontario due to a historic predominance of low-skilled employment in the resource sector that discouraged the pursuit of higher education and limited the development of educational institutions. This has changed with the increasing technological demands of the resource sector, the diversification of regional employment and the rise in participation of groups such as women and Aboriginal people in the wage economy. Nonetheless, education levels in northern Ontario continue to be lower than the averages for Ontario and the differences in attainment levels of education between northern Ontario and the rest of Ontario are continuing to widen (Southcott, 2008).

Data on educational attainment from the 2011 Census is not available for First Nation reserve and rural communities (see Table 5-10). Data from the District of Sudbury, which includes many rural and First Nation reserve communities outside the regional study area, is included for comparative purposes. In 2011, Sudbury had the highest proportion (15.7%) of the study area population with university certificates, diplomas or degrees. All regional study area communities for which data was available had a higher percentage of population without a certificate, diploma or degree, and lower percentage of university certificate, diploma or degree than the provincial averages, although the regional study area average for those with post-secondary education (including college diplomas and apprenticeships) but not a university degree is higher than the provincial average in Timmins, Sudbury, and District of Sudbury.

Aboriginal communities in 2006 across the regional study area have a lower education attainment than is found in the broader regional study area and the province as a whole. Mattagami, Brunswick House and Matachewan First Nations all had a majority of their population without high school diplomas, compared to a regional study area average of 27.1%, and an Ontario average of 22.2%. For those with education credentials, attainment in these communities focused on non-university diplomas; Mattagami and Brunswick House First Nations had 44.4% and 36.4% of the populations having a non-university post-secondary education respectively against a regional study area average of 35.9% and an Ontario average of 30.5%. Although no data exists showing that individuals in any of the First Nation communities had university degrees this may be the result of rounding policies with respect to the survey.

Table 5-10: Education Attainment (of people 15 years and older) in Regional Study Area Communities, 2011 and 2006[1]

Area	2011				2006			
	No certificate, diploma or degree (%)	High school certificate or equivalent (%)	Post-secondary education[2]	University certificate, diploma or degree (%)	No certificate, diploma or degree (%)	High school certificate or equivalent (%)	Post-secondary education[2]	University certificate, diploma or degree (%)
Gogama	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
City of Timmins	26.8	23.6	38.9	10.6	31.6	24.6	35.0	8.8
City of Greater Sudbury	21.2	24.6	38.6	15.7	25.7	25.0	36.1	13.2
Unorganized North Sudbury Subdivision	n/a	n/a	n/a	n/a	33.9	25.3	34.1	6.7
Unorganized Timiskaming West	n/a	n/a	n/a	n/a	34.0	19.5	40.8	5.7
Mattagami First Nation[3]	10.1	42.3	37.0	10.6	51.9	14.8	29.6	0.0
Flying Post First Nation	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Brunswick House First Nation	n/a	n/a	n/a	n/a	58.3	16.7	33.3	0.0
Matachewan First Nation	n/a	n/a	n/a	n/a	50.0	16.7	33.3	0.0
Regional Study Area Average	n/a	n/a	n/a	n/a	27.2	24.8	35.9	12.1
Regional Study Area (Urban)	22.4	24.4	38.7	14.6	27.0	24.9	35.9	12.3
Regional Study Area (Rural)	n/a	n/a	n/a	n/a	34.0	22.0	37.9	6.1
Regional Study Area (First Nation Reserve)	n/a	n/a	n/a	n/a	52.9	15.7	31.4	0.0
District of Sudbury	27.3	26.3	37.5	8.9	35.1	24.9	33.5	6.6
Ontario	18.7	26.8	31.2	23.4	22.2	26.8	30.5	20.5

Source: (SC, 2007a; SC, 2013a)
Notes:
n/a: not available
[1] Based on population 15 years and over
[2] Includes apprenticeship or trades certificate, college, CEGEP, or other non-university certificate or diploma, university certificate or diploma below bachelor level
[3] Not Statistics Canada data; 2013 data reported from the First Nation from interviews

In 2011, the urban Aboriginal population showed lower levels of educational attainment than the population of those communities as a whole, but considerably higher than is found in First Nation reserves in the regional study area. In Timmins, 40.1% of the Aboriginal population had no certificate, diploma or degree; 19.2% had a high school certificate or equivalent; 36.2% had some post-secondary education and 4.4% had a university degree. In Sudbury, 26.1% of the Aboriginal population had no certificate, diploma or degree; 23.6% had a high school certificate or equivalent; 41.9% had some post-secondary education and 8.4% had a university degree. These results reflect the youth of the Aboriginal identity population; looking only at those individuals between the ages of 24 and 65, the proportion of urban Aboriginal identity residents with no certificate, diploma or degree falls to 17.6%, of those with a high school degree or certificate is 23.5%, of those with a post secondary education rises to 49.6% and of those with a university degree rises to 9.4% (SC, 2013a).

Mattagami First Nation has reported that there has been a substantial improvement in educational attainment among the on-reserve population since 2006. They report the share of high school graduates at 42.3%, those with apprenticeships at 21.2%, those with college degrees at 15.9% and those with university degrees at 10.6%. Current school attendance is discussed in Section 5.4.10, but improvements are proven by the 11 members currently pursuing post-secondary education and the high school diploma success rate which is reported to be 80% (pers. comm., Mattagami First Nation, July 2013b).

5.2.6 Health Conditions

Health can be characterized as, “not only the absence of disease or injury but also physical, mental and social well being” (SC, 2013e). Indicators of health considered were chosen due to the potential for these to be influenced, directly or indirectly by the Project and include:

- self-rated health;
- obesity rates;
- incidence of diabetes;
- teen pregnancy rates;
- rate of sexually transmitted infections (STIs);
- unintentional injury rates;
- suicide rates; and
- food insecurity.

The regional study area communities are situated within the Porcupine Health Unit (PHU) and Sudbury & District Health Unit (SDHU) areas. Baseline health conditions, including basic health statistics, for the regional study area communities is presented in this section. Community-level health statistics are not publicly available; information is presented by Health Unit and for the Province of Ontario where available. It is important to note that the PHU and the SDHU provide

services for a broad geographic area within which the regional study area communities comprise approximately 74% of the total population. Table 5-11 contains a number of key health profile indicators. The information contained within the table is based upon the 2009/2010 Canadian Community Health Survey, a voluntary survey sampling the population 12 years of age and over. It is important to note that the Survey's coverage does not include people living on First Nation reserves.

Table 5-11: Health Profile Indicators, 2013

Indicator	Porcupine Health Unit	Sudbury & District Health Unit	Ontario
Life expectancy at birth (years)	77.7	79.0	81.5
Perceived health, very good or excellent (%)	53.3	62.1	61.0
Perceived mental health, very good or excellent (%)	71.9	74.8	74.3
Overweight or obese (%)	62.7	61.3	52.0
Diabetes (%)	7.1*	8.0	6.8
Heavy drinking (%)**	21.0	20.1	15.9
Injury hospitalization (per 100,000 population)	734	513	407
Unintentional injuries, deaths (per 100,000 population)	33.3	30.8	23.4
Suicides and self-inflicted injuries, deaths (per 100,000 population)	15.0	11.7	7.7

Source: SC, 2013e

Notes:

* use with caution

** population aged 12 and over who reported having five or more drinks, per occasion, at least once a month during the past year.

Self-perception of health is one indicator worthy of consideration when looking at the health of a population. The perception of one's health as "very good or excellent" was rated the lowest in the PHU with only 53.3% of respondents affirming this; the percentage of respondents in the SDHU who rated their health as very good or excellent (62.1%) was slightly higher than the percentage of Ontarians (61%) who believed this to be true (SC, 2013e). Similarly, the perception of one's mental health as "very good or excellent" was slightly lower in the PHU than it was in the SDHU region and Ontario.

Weight and obesity are considered risk factors for health as they can lead to other health issues such as diabetes. As illustrated in Table 5-11, the percentage of the population reported to be overweight or obese is roughly 10% greater in the PHU and SDHU regions than in the Province.

Diabetes, often characterized as more prevalent in northern Ontario, particularly within Aboriginal populations, is a chronic condition which can result in greater demands on health care services and negatively affect the quality of life of those affected by the disease (Hux et al., 2003). The incidence of diabetes in the regional study area communities captured within the PHU and SDHU are slightly higher than in Ontario as reported through Statistics Canada's 2009/2010 Canadian Community Health Survey.

Heavy drinking, characterized by "having five or more drinks, per occasion, at least once a month during the past year" was roughly five percent higher in the PHU and SDHU than the provincial average (SC, 2013e).

As illustrated in Table 5-11, the rate of injury hospitalization per 100,000 population is substantially higher in the PHU (734 persons) and the SDHU (513 persons) than the Ontario rate of 407 persons. Similarly, the rate of death resulting from unintentional injuries is highest in the PHU followed by the SDHU. Suicide rates for the PHU are approximately double the provincial average, with the SDHU rates roughly mid-way between the PHU and provincial averages.

Teenage pregnancy rates as defined by the Ministry of Health and Long Term Care (MOHLTC) (2009) include the "number of pregnancies (resulting in live births, still births and therapeutic abortions) per 1,000 females age 15 – 19 years". The rates of teenage pregnancy in the PHU (53.1) is roughly twice that of Ontario (25.7) and substantially higher than the rate in the SDHU (32.6).

Another population health indicator is the rate of sexually transmitted infections (STIs). The MOHLTC tracks rates of Chlamydia across Ontario's public health units. The rates of Chlamydia in the PHU and SDHU (303.2 and 292.6 per 100,000 population, respectively) are approximately 30% higher than the Ontario rate of 219.8 per 100,000 population (MOHLTC, 2009a). The SDHU has noted a nearly 10% increase in the number of confirmed cases of Chlamydia in the region between 2011 and 2012 and are helping to promote a campaign of awareness targeted at young adults and teens (SDHU, 2013c).

Food security "exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (Heart and Stroke Foundation, n.d.). In a provincial context, the Heart and Stroke Foundation purports this issue to be of greatest concern in Toronto and in Northern Ontario. The SDHU (2013b) reported that 10% of its households, "because of lack of money, either worried or did not have enough food to eat, or did not eat the quality or variety of foods they wanted to eat in the past 12 months." A 2008 report by the PHU noted that 6% of children within the PHU reported experiencing food insecurity "with moderate hunger" (Porcupine Health Unit, 2008). The PHU and SDHU work in partnership with other northern Ontario health units on

the Northern Healthy Eating Project, an initiative aimed to address food security issues (Nourishing Ontario, n.d.).

Based on the health indicators considered in this section, baseline health conditions within the PHU and SDHU indicate lower levels of health than the provincial average, with the greatest disparity occurring within the PHU region.

5.3 Regional Economy, Labour and Business

5.3.1 Regional Economy

The structure of employment in Northern Ontario changed markedly between the two decades preceding the 2006 Census and today (Alasia, 2010). Most importantly, the proportion of total employment in primary and manufacturing industries declined and the proportion of total employment in the service sectors increased. Given that economic development continues to be linked to the primary resource sector (notably mining and forestry), sustainability is an issue that all northern Ontario communities are facing.

Historically most communities were developed by large resource extraction companies based outside the region rather than by local entrepreneurs. This has meant that the social and economic structure of the region exhibits an overdependence on natural resource exploitation and a high degree of dependency on external forces (Southcott, 2008).

According to the most recent statistics, many northern communities have remained reliant on primary industry sectors, such as mining and forestry, and public sector jobs. The northern Ontario economy in 2006 had a higher share of its employment in mining and forestry than Ontario as a whole (3.9% versus 0.2%) as well as a higher share of public sector employment such as in public administration, education and health care (SC, 2007a). Employees in Northern Ontario were more unionized than employees across the province, which historically has exacerbated boom-bust economic cycles through the development of large-scale labour unrest when resource prices have fallen (Jewiss, 1983).

Positive signs of growth in the regional study area economy are occurring with mining continuing to be the dominant sector. Some of the projects include the following (HRSDC, 2012a; HRSDC, 2012b).

- Construction of the $1.8B ferrochrome smelter to process the chromite ore by Cliffs Natural Resources Inc. in Greater Sudbury from their Ring of Fire developments starting in 2014 (although this project has been suspended until regulatory issues have been resolved).
- Development of the Totten Mine, located west of Sudbury, and expansion Copper Cliff Smelter in Sudbury. However, both projects are currently delayed due to Vale's global hiring freeze announced in September 2012 – although the company still intends to move forward with their Victor-Capré project northeast of the city.

- Continued development of the Porcupine Gold Mines complex, including the Hollinger Open Pit Mine project near Timmins, already under construction.
- Planned re-opening by Xstrata Zinc of two properties in 2016 in the Sudbury area.
- General construction with the value of building permits in the Greater Sudbury Census Metropolitan Area totalling $301M in 2011. This represents an increase of 6.3% compared to the value of building permits in 2010. There were 595 housing starts in Greater Sudbury for the year 2011, compared to 575 in 2010.
- Public sector investments such as the expansion of Highway 69 and Highway 17 near Sudbury.
- Xstrata Copper's 3 year extension of mine life for a project near Timmins.
- Planned upgrade of the Timmins Mattagami Waste Treatment plant - a $74,000,000 project.
- Growth of the Sudbury-based engineering and software company BESTECH of its staff by 30% from 100 during 2012. The company employs engineers, designers, project managers and automation specialists in the mechanical, electrical and civil/structural disciplines.

5.3.2 Agriculture

Neither the soil nor the climate of northeastern Ontario makes the region advantageous for agricultural production, but some agricultural operations do operate in the broader region (see Table 5-12), particularly close to urban areas. Data on agriculture is drawn from the 2011 agricultural census, which uses different geographic boundaries than the household census. As a consequence, subdivisions containing regional study area communities are used as an approximation – for example, Gogama and the Unorganized North Sudbury subdivision are part of the Markstay-Warren subdivision. Other sub-districts with similar names to census divisions may reflect different geographies. Data specific to First Nation reserves are not available.

In the selected regional study area subdivisions, agriculture provided income for 445 operators and 312 employees, with total receipts amounting to $27 million in 2011. Nearly half (44.0%) of these farms specialized in raising livestock, particularly cattle (39.3% of livestock operations) and horses (31.2%). Greenhouse, nursery and floriculture production made up 6.8% of producers, 71.4% of them located in the Greater Sudbury area. Other crop farming, typically hay or trees, made up 34.5% of farms.

Table 5-12: Agricultural Production in Regions Including the Regional Study Area, 2011

Area	No. of Operators	No. of Employees	Total Wages And Salaries ($)	Total Receipts (Including Forest Products; $)
Markstay-Warren	40	12	n/a	1,261,399
Timmins	45	54	1,100,154	3,035,853
Greater Sudbury	200	153	2,279,032	10,140,464
Timiskaming, Unorganized, West Part	160	93	1,072,306	12,807,319
Total	445	312	4,451,492	27,245,035

Source: (SC, 2012b)
Note:
n/a: not available

In 2011, almost half (47.0%) of agricultural receipts came from the Unorganized Timiskaming region and more than a third (37.2%) from the Greater Sudbury Region. Timmins produced 11.1% of receipts and Markstay-Warren 4.6%.

5.3.3 Recreation and Tourism

Communities in the regional study area have worked to develop tourism as a source of revenue and as a driver for the development of local services and infrastructure. Tourism is an important part of Gogama's economy and existing campgrounds are at capacity with returning visitors (pers. comm., GLSB, May 2013).

The Ontario Ministry of Tourism provides data on regional tourism for Greater Sudbury and the Sudbury Regional Municipality, which encompasses and extends beyond the communities in the regional study area (see Table 5-13). It shows that visitor spending in the region reached a total of $245.4 million in 2010, of which $47.8 million was spent in Sudbury. Of this, $47.9 million was spent on accommodation, $54.4 million on transportation and $86.9 million on food and beverages.

Table 5-13: Tourism Receipts in Sudbury Region, 2010

Receipts	Greater Sudbury ($)	Sudbury Regional Municipality ($)	Total ($)
Total Visitor Spending	47,822,139	197,599,625	245,421,764
Transport (Total)	15,015,664	39,362,268	54,377,932
• Public Transport	366,404	4,378,725	4,745,129
• Vehicle Rental	454,272	359,762	814,034
• Vehicle Operations	14,041,316	32,845,036	46,886,352
• Local Transport	153,672	1,778,745	1,932,418

Receipts	Greater Sudbury ($)	Sudbury Regional Municipality ($)	Total ($)
Accommodation	8,890,147	39,048,120	47,938,267
Food and Beverage (Total)	14,870,090	71,992,541	86,862,632
• Food and Beverage at Stores	7,477,201	19,725,247	27,202,448
• Food and Beverage at Restaurants/Bars	7,392,889	52,267,294	59,660,184
Recreation/Entertainment (Total)	1,941,680	14,109,256	16,050,937
• Recreation	1,251,143	5,934,105	7,185,248
• Culture	690,538	8,175,151	8,865,689
Retail/Other (Total)	7,104,557	33,087,440	40,191,997
• Clothing	4,718,031	30,459,884	35,177,915
• Other Retail	2,386,527	2,627,556	5,014,083

Source: (Ontario Ministry of Tourism, Culture and Sport, 2012)

Most of the expenditures (80.5%) were made in the Sudbury Regional Municipality and not the City itself. Since the Sudbury Regional Municipality extends over an area including not only Gogama but other tourist destinations in the region, this figure overstates the impact of tourism in the regional study area. Ninety percent of visitors were from Canada, mostly from within Ontario, and 8% from the United States.

Sudbury has been able to establish itself as a tourism destination with 60.6% of visitors to the City identifying pleasure as the main purpose of trip; only 1.8% travelled there for business. In contrast over the Regional Municipality where only 35.6% of visitors came for pleasure but 9.5% travelled for business (business travellers are a sought-after demographic because of their tendency to spend money on hotels and services). One of the biggest drivers of the tourism industry is the ongoing out-migration of young people from the regional study area for opportunities elsewhere: 33.9% of visitors to Sudbury and 43.1% of visitors to the Sudbury Regional Municipality were travelling with the purpose of visiting friends and relatives, which suggests many tourists are originally from the place that they are visiting (Ontario Ministry of Tourism, Culture and Sport, 2012).

5.3.4 Economic Importance of Mining

In 2011, the production of and exploration for minerals in Ontario generated $10.7 billion, accounting for more than 1.6% of the total value of GDP in Ontario. Mining in Ontario accounted for 16,067 employees earning $1.7 billion in wages and salaries, of which the Sudbury region accounted for 35.8% of the jobs and 37.2% of the wages and salaries paid. Local taxes paid by mining companies amounted to $31.9 million in 2011, of which $18.9 million was paid in the Sudbury region alone (Dungan and Murphy, 2012).

Employment in mining and mining services has been growing over the last five years and the value created by these employees has continued to rise. Worker productivity in mining is exceptionally high in Ontario: the value of output per worker at metal mines in 2011 was almost $740,000. Output per worker in all mining in 2011 is a still impressive $680,000, roughly six times the provincial industrial average. Remuneration is in line with this exceptional productivity: the average weekly wage paid in the mining industry in 2011 was almost 60% more than the Ontario average industrial wage, while wages paid in the mining support sector were almost 95% higher (Dungan and Murphy, 2012).

Demand for these jobs are expected to continue; the Mining Industry Human Resource Council (MiHR) estimates that mining and mining support industries in Ontario will require about 15,810 workers by 2021 to meet anticipated industry growth, employee turnover, and retirements, or nearly 2,300 additional persons a year. The leading occupations by their analysis are expected to be production clerks, underground miners, processing labourers and millwrights/industrial mechanics (MiHR, 2011).

Both Sudbury and Timmins have a century of history as mining centres and over a dozen mines operating within their combined city limits. Over the past decade, Sudbury has been shifting its focus from being a producer of metals to developing a cluster of mining supply and technology services with a focus on underground hardrock mining technologies. The operations of two large mining majors—Vale and Glencore Xstrata—serve as anchors for the cluster and half of the firms in the cluster rely on sales to these two firms (Canadian Chamber of Commerce, 2013).

Sudbury is home to the public-private Centre for Excellence in Mining Innovation, the Canadian Mining Industry Research Organization, the Northern Centre for Advanced Technology and Mining and Laurentian University's School of Mining and its eight mining research centres. In addition, industry associations, like the Sudbury Area Mining Supply and Service Organization, and publications, like the Sudbury Mining Solutions Journal, seek to share information and strengthen the links among the cluster's participants. Despite the development of advanced technologies such as robotic processing systems and space drills, the cluster has not developed an international profile and 81% of cluster sales occur within Canada (Canadian Chamber of Commerce, 2013).

The Sudbury and Timmins regions continue to be areas of major mining development with numerous projects in advanced exploration (Farrow, et al., 2012; Bousquet, et al., 2012). Notable projects in development include:

- Cliff's Natural Resources plans to build a $1.8 billion chromite processing facility near Capreaol, north of Sudbury to process minerals produced by the company's Black Thor mine. The smelter would employ 450 people (CBC, 2012), although the company has announced it is temporarily suspending the project's environmental assessment until negotiations with Ontario and Aboriginal groups have resolved issues impeding the approval process (Cliffs Natural Resources, 2013).

- Xstrata Nickel's Fraser Morgan project in Sudbury is developing two zones in the existing Fraser mine to extend its life-of-mine by five years to 2025. Construction at the site began in 2012 and is expected to begin production in 2013. The estimated cost of the development is estimated at $119 million (Xstrata Nickel, 2011).
- Vale is making investments of an estimated $2.4 billion in their Sudbury assets to the end of 2015 aimed at reducing emissions, modernizing facilities, extending the life of existing mines and finding new sources of ore (Vale, 2011).
- Wallbridge Mining Company is currently securinging permits as well as processing and mining contracts for production in mid-2013 at their Broken Hammer site. The project is a copper and platinum mine located north of Capreol near Sudbury with an estimated extended mine life of 12 months and total costs of $25.9 million (Stradiotto, 2013).
- KGHM's Victoria Mine is located 30 km west of downtown Sudbury near the town of Worthington. One of Sudbury's oldest and most prolific mines, the company has plans to undertake a $750 million redevelopment of the property and employ a workforce of 200 full-time employees by the time the site is in full production in 2017 (Lamothe, 2012).
- Northern Graphite Corporation's Bissett Creek graphite project is located 100 km east of North Bay and the company is expected to complete the environmental and mine permitting process in the first quarter of 2013. Northern anticipates construction of the mine in 2013, with production in late 2014, subject to the availability of financing (Northern Graphite Corporation, 2012).
- Goldcorp Inc. is in the process of gaining permitting approval to return the Hollinger Mine in Tisdale Township close to Timmins to production through construction of an open-pit operation (Goldcorp, 2013). With sustained mining operations, the mine would support 250 direct jobs and over 570 indirect jobs with additional induced employment from annual expenditures in the range of $50 million during the operational life of the mine (PlanningAlliance, 2010).

5.3.5 Employment by Industry and Occupational Grouping

Employment by industry in 2011 is described in Table 5-14, which includes the District of Sudbury because data is not available for rural and reserve communities within the regional study area. This data reflects broad trends in the region: three of every four jobs in northeastern Ontario were in service industries such as trade, health, education and public administration (SC, 2013a). In the regional study area communities, agriculture and other resource based industries accounted for a significant portion of the basic industries labour force. In the District of Sudbury, agriculture, forestry, fishing and hunting employed 5.9% of the population compared to 1.5% in Ontario as a whole. Mining and quarrying employed 14.5% of the residents of Timmins and 8.6% of the residents of Sudbury compared to an Ontario average of 0.4%. Construction is also a major industry, employing 6.7% of the population of the District of Sudbury, 7.3% of the City of Timmins and 6.9% of the residents of Sudbury. Lower-than-average employment was seen in the goods-producing sectors of utilities and manufacturing.

Other basic industries are smaller in comparison to those reported above, but are also important as a proportion of the labour force in regional study area communities. In Sudbury, construction accounted for 6.4% of employment and manufacturing 6.0% in 2011. In Timmins, construction employed 7.0% of workers and manufacturing 5.1%. The regional study area communities as a whole had 6.6% and 5.9% of the labour force in construction and manufacturing respectively. In Ontario, construction accounts for 5.9% of the labour force and manufacturing represents 13.9% (SC, 2007a).

Labour force in service industries in the regional study area was concentrated in health care, retail trade and educational services. Sudbury and Timmins had the largest percentage working in health care and social services at 13.9% and 13.1% respectively compared to an Ontario average of 10.4%. Retail employed 13.1% of residents of Timmins and the District of Sudbury compared to the Ontario average of 11.2%. Educational services employed 9.2% of Sudbury residents and 8.1% of Timmins residents compared to an Ontario average of 7.5%. Employment in public administration was highest in the District of Sudbury (9.9%) and the City of Timmins (8.7%) compared to 6.9% in Ontario as a whole. Relatively low shares of employment were seen in a range of services including wholesale trade, finance and insurance, professional services and cultural industries.

Table 5-14: Employment by Industry in Regional Study Area Communities and LQ Ratios[1], 2011

Industry	District of Sudbury % (LQ)	City of Timmins % (LQ)	City of Greater Sudbury % (LQ)	Ontario %
Goods-producing industries	27.8 (1.4)	26.3 (1.3)	20.4 (1.0)	19.5
• Agriculture; forestry; fishing and hunting	5.9 (3.9)	1.2 (0.8)	0.3 (0.2)	1.5
• Mining; quarrying; and oil and gas extraction	4.3 (9.6)	14.5 (32.3)	8.6 (19.1)	0.4
• Construction	6.7 (7.8)	7.3 (8.6)	6.9 (8.1)	0.9
• Utilities	0.4 (0.0)	1.0 (0.1)	0.6 (0.1)	10.4
• Manufacturing	10.5 (1.7)	2.3 (0.4)	4.0 (0.6)	6.3
Service Industries	83.0 (0.9)	77.0 (0.8)	84.2 (0.9)	97.2
• Wholesale trade	2.0 (0.4)	2.4 (0.5)	3.7 (0.8)	4.6
• Retail trade	13.1 (1.2)	13.1 (1.2)	12.6 (1.1)	11.2
• Transportation and warehousing	7.3 (1.6)	4.4 (1.0)	4.3 (0.9)	4.6
• Information and cultural industries	1.0 (0.4)	1.5 (0.6)	1.6 (0.6)	2.7
• Finance and insurance	2.3 (0.4)	1.8 (0.3)	2.8 (0.5)	5.5
• Real estate and rental and leasing	1.4 (0.7)	1.2 (0.6)	1.8 (0.9)	2.0
• Professional; scientific and technical services	2.9 (0.4)	3.2 (0.4)	4.9 (0.6)	7.6

Industry	District of Sudbury % (LQ)	City of Timmins % (LQ)	City of Greater Sudbury % (LQ)	Ontario %
• Management of companies and enterprises	0.0 (0.0)	0.0 (0.0)	0.0 (0.3)	0.1
• Administrative and support; waste management and remediation services	3.6 (0.8)	5.2 (1.1)	3.1 (0.7)	4.6
• Educational services	7.0 (0.9)	8.1 (1.1)	9.2 (1.2)	7.5
• Health care and social assistance	9.2 (0.9)	13.1 (1.3)	13.9 (1.3)	10.4
• Arts; entertainment and recreation	1.4 (0.7)	1.3 (0.6)	1.9 (0.9)	2.2
• Accommodation and food services	7.3 (1.2)	6.9 (1.1)	6.6 (1.1)	6.3
• Other services (except public administration)	3.7 (0.8)	4.9 (1.1)	4.5 (1.0)	4.4
• Public administration	9.9 (1.4)	6.6 (1.0)	8.7 (1.3)	6.9
Service/Goods-producing Employment Ratio	3.0:1	2.9:1	4.1:1	5.0:1

Source: (SC, 2013a)

Note:

[1] LQ ratios (in parenthesis) calculated against Ontario averages

Among the First Nations, employment was highly concentrated in specific sectors. In 2006, all of the reported employment in Brunswick House First Nation, for example, was in either the Health Sector or the Other Services sector (which in 2006 included public administration and cultural workers). Mattagami First Nation shows the widest dispersion of employment of all First Nations in the Regional Study Area, with leading industries in Construction (21.4% of employment), Other Services (28.6% of employment) as well as Business Services, Educational Services, and Resource-based Industries (all 14.3% of employment). To some degree this is an artefact of the small size of the communities – Statistics Canada represses sample sizes of below 10 and this eliminates much of the data for Brunswick House and Matachewan First Nations whose sampled workforce are 30 and 35 individuals respectively. It also reflects the unbalanced development of economies on First Nations – no community reported employment in Retail Trade, Wholesale Trade, or Finance and Real Estate (SC, 2007a).

In interviews, First Nations in the local study area reported industry employment for on- and off-reserve members for 2013 (see Table 5-15). In Mattagami First Nation, the leading industry is mining, with 42.3% of the on-reserve workforce and 61.9% of the off-reserve workforce employed in that industry. The next largest employer is education, which employed 21.3% of the total membership, and health and social services, which employed 14.9%. For Flying Post First Nation the leading industries are health and social services (31.4%), administration (14.3%), mining (14.3%). Mining is a leading employer of members living outside of Nipigon but no Nipigon residents worked in mining, with forestry and recreation having more prominence.

Table 5-15: On and Off Reserve Employment in Industries for Local Study Area First Nation Reserves, 2013

Industry	Mattagami First Nation			Flying Post First Nation		
	On-Reserve	Off-Reserve	Total	Nipigon	Outside of Nipigon	Total
Construction	7.7	4.8	6.4	0.0	0.0	0.0
Utilities	0.0	0.0	0.0	5.3	6.3	5.7
Forestry	0.0	0.0	0.0	10.5	0.0	5.7
Mining	42.3	61.9	51.1	0.0	31.3	14.3
Transportation	3.8	0.0	2.1	0.0	25.0	11.4
Manufacturing	0.0	0.0	0.0	0.0	0.0	0.0
Agriculture	0.0	0.0	0.0	0.0	0.0	0.0
Administration	7.7	0.0	4.3	26.3	0.0	14.3
Tourism and Hospitality	0.0	0.0	0.0	15.8	0.0	8.6
Health and Social Services	19.2	9.5	14.9	31.6	31.3	31.4
Education	19.2	23.8	21.3	10.5	6.3	8.6

Source: (pers. comm., Flying Post First Nation, June 2013a; pers. comm., Mattagami First Nation, July 2013b)

Local and regional economies can be characterized by the ratio of goods-producing to service employment which helps determine the extent to which new employment may create spin-off employment (indirect and induced employment). The amount of employment in service industries is often dependent on employment in goods-producing industries, and that expanding employment in goods-producing industries can generate increased employment and diversity in the service industries. Typically, large population centres have more diversified economies with more employment in the non-basic industries, so they have high service to goods-producing employment ratios. The ratios tend to be lower in smaller communities that have limited development of their service sectors. The same pattern is evident in the ratios for population segments in the regional study area.

The service to goods-producing employment ratios for the urban communities and the District of Sudbury are shown in Table 5-16. Sudbury is the largest community in the regional study area, and as such, is a service provider in the immediate region. Sudbury has a service to goods-producing employment ratio of 4.1:1, nearing the Ontario ratio of 5.0:1. Timmins and the District of Sudbury have a lower service to goods-producing ratio of 2.9:1 and 3.0:1 respectively. First Nation community data is not available, although other comparable communities have been characterized by relatively low goods-producing to service ratios.

Although more recent data is not available for the regional study area as a whole, Statistics Canada compiles monthly data for Sudbury as recent as November 2012. Table 5-16 shows the

composition of the workforce in 2006 and 2012, which illustrates the structural changes seen in the region over the period.

Table 5-16: Greater Sudbury Workforce, 2006 to 2012 (Thousands)

Industry	2011 Census	2006	2012	Change (%)	Change (N)
Total employed, all industries	85.7	78.7	81.7	3.8	3.0
Goods-producing sector	16.7	18.2	19.1	4.8	0.9
Agriculture and other resource-based industries	7.8	9.5	9.5	0.5	0.1
• Agriculture [1]	0.2	0.4	0.4	0.0	0.0
• Forestry, fishing, mining, quarrying, oil and gas	7.0	8.8	8.9	1.7	0.2
• Utilities [2]	0.5	0.3	0.2	-19.1	-0.1
Construction	5.7	5.6	6	7.1	0.4
Manufacturing	3.3	3.2	3.6	11.6	0.4
Services-producing sector	68.9	60.5	62.6	3.5	2.1
Trade	13.4	12.8	11.9	-7.3	-0.9
Transportation and warehousing	3.5	3.7	3.1	-15.1	-0.6
Finance, insurance, real estate and leasing	3.7	3.4	3.3	-4.1	-0.1
Business Services	6.6	6.9	6.7	-3.5	-0.2
• Professional, scientific and technical services	4.0	3.5	4.1	17.1	0.6
• Business, building and other support services	2.6	3.4	2.6	-24.5	-0.8
Educational services	7.5	6.7	7.3	9.6	0.6
Health care and social assistance	11.4	9.4	12.6	33.5	3.2
Other services	17.5	17.5	17.7	1.1	0.2
• Information, culture and recreation	1.3	3.0	2.8	-7.2	-0.2
• Accommodation and food services	5.4	4.9	5.2	7.2	0.4
• Other services	3.6	3.7	3.8	3.4	0.1
• Public administration	7.1	6.0	5.9	-1.1	-0.1
Services/Good-producing Ratio	4.1:1	3.3:1	3.3:1	—	—

Source: (SC, 2012a; SC, 2013b)

Notes:

[1] numbers suppressed from report and so are constructed from agricultural survey

[2] numbers suppressed from report and so are constructed as residual

Data from the Labour Force Survey indicates that employment in the mining industry has been relatively stable, increasing from 2006 to 2012 by only 200 jobs (or 1.7%) while the overall employed workforce increased by 3,000 or 3.8%. The Labour Force Survey indicates that the workforce in professional, scientific and technical services grew by a larger amount of 600 jobs

or 17.1%, in keeping with the Sudbury's strategy for developing the city as a mining services hub, but even both sectors together account for a shrinking share of the overall economy.

The largest driver of employment in Sudbury over the last six years has, in fact, had less to do with mining than with the City becoming a major regional service centre: the health care and social assistance sector has increased by 3,200 or 33.5% over the period. Even within the goods-producing sectors, roughly 80% of employment growth has been from construction and manufacturing (which may or may not be associated with mining activities), which both expanded by 400 jobs over the period (growth of 7.1% and 11.6% respectively). The largest declines were seen in the business, building and other support services, which shrank by 800 jobs or 24.5%, and in transportation and warehousing which shrank by 600 jobs or 15.1%.

Table 5-17 shows the distribution of occupations for urban regional study area communities and the District of Sudbury from the 2011 Census. A relatively large share of employment in these areas is in trades, 21.6% for the District of Sudbury and 16.3% for the urban regional study area communities compared to 12.7% for Ontario as a whole. Occupations in education, government and social science employ 12.2% of the urban regional study area population compared to 11.7% for Ontario as a whole. Natural resources-base occupations employ 4.8% for the District of Sudbury and 5.0% for the urban regional study area communities compared to 1.6% for Ontario as a whole. Less prominent occupations are those in manufacturing and utilities, arts and culture, natural sciences and management.

Table 5-17: Occupations for Regional Study Area Communities, 2011

Occupation	District of Sudbury	City of Timmins	City of Greater Sudbury	Regional Study Area (urban)	Ontario
Total experienced labour force 15 years and over	10,110	22,835	83,630	106,465	6,864,985
Management occupations	10.9	8.1	8.2	8.2	11.2
Business; finance and administration occupations	10.4	14.1	16.6	16.1	16.6
Natural and applied sciences and related occupations	2.9	6.2	5.7	5.8	7.2
Health occupations	4.5	6.9	7.3	7.2	5.7
Occupations in social science; education; government service and religion	10.7	11.9	12.3	12.2	11.7
Occupations in art; culture; recreation and sport	1.7	1.7	1.9	1.9	3.0
Sales and service occupations	24.4	23.7	23.2	23.3	22.6

Occupation	District of Sudbury	City of Timmins	City of Greater Sudbury	Regional Study Area (urban)	Ontario
Trades; transport and equipment operators and related occupations	21.6	16.9	16.1	16.3	12.7
Natural resources; agriculture and related production occupations	4.8	6.7	4.5	5.0	1.6
Occupations in manufacturing and utilities	5.5	2.6	1.9	2.1	5.1

Source: (SC, 2013a)

The urban Aboriginal population show an employment profile similar to that of the cities in which they live. Where employment profiles differ from the non-Aboriginal population, the differences are often inconsistent between the communities of Timmins and Sudbury. This suggests that no strong systemic differences exist between participation on an industry level, although (as shown in Section 5.3.7) earnings differences occur within these industries. One possible exception to this observation may be finance and real estate sectors and retail trade, both of which show relatively low participation by the Aboriginal population across Ontario (SC, 2013a).

The top employers in the public sector in Timmins are the City of Timmins (940 employees), the Timmins and District Hospital (850 employees), Northern College (573 employees), Northeastern Catholic District School Board (450 employees), Northeastern Ontario Family and Children's Services (408 employees), and the District School Board Ontario Northeast (405 employees). Four out of six of these employers have a service area that extends beyond the municipal borders, reflecting the City's position as a regional centre for education and health services, among other areas.

With respect to the private sector, the top private employers for Timmins are Xstrata (1,246 employees), Dumas Mining (1,000 employees), PGM (700 employees), Lake Shore Gold (500 employees), Chartrand Equipment (450 employees), and Wal-Mart Supercentre (360 employees). Five out of six of these employers are mining or mining service companies (pers. comm., TEDC, May 2013).

The top employers in the public sector in Sudbury are Health Sciences North (3,200 employees), the City of Greater Sudbury (1,833 employees), the Sudbury Tax Services Office (2,000 employees), Rainbow District School Board (1,428 employees), Laurentian University (677 employees), Sudbury Catholic District School Board (617 employees), and Extendicare (475 employees).

With respect to the private sector, the top private employers for Sudbury are Vale (5,300 employees), Xstrata (2,000 employees), KGHM International (875 employees), Sears Canada Inc. (400 employees), Canadian Blood Services (381 employees), and William Day Construction (300 employees), Loeb Canada (300 employees), Canadian Tire (300 employees). The top three of these employers are mining or mining service companies (Ministry of Economic Development and Innovation, 2011).

5.3.6 Labour Force Participation and Unemployment

The urban communities of the regional study area have seen strong labour markets over the past decade (see Table 5-18). 2011 Census data is not available for rural and First Nation reserve communities, so the table includes District of Sudbury data for 2006 and 2011. In 2011, urban communities in the regional study area had a labour force of 106,465 persons. The labour force represents the number of people (aged 15 years and older) who are either employed, actively seeking work, or willing to work. The labour force participation for these communities was 63.6%, which is lower than for Ontario as a whole, which is 65.5%. Sudbury is the largest labour force contributor in the regional study area, contributing about 77% of the labour force in 2006. It has a participation rate of 63.1%. In 2011 the District of Sudbury had a participation rate of 56.4%, 7.2 percentage points lower than the average for urban regional study area communities. In 2006, its rate was 56.6%, similar to the rural regional study area rate of 56.2% but lower than that of reserve communities of 60.3%. Timmins had the highest participation rate of regional study area communities for which data is available at 65.2%, almost unchanged from the 2006 rate of 65.5%.

While overall participation rates have changed very little between 2006 and 2011, there has been some shift between genders in the regional study area. The participation rate for men in urban communities fell from 68.7% in 2006 to 67.1% in 2011, while that of women rose from 59.0% in 2006 to 60.2% in 2011. Unemployment rates for women fell from 7.7% in 2006 to 7.2% in 2011 while that for men rose from 7.8% to 8.3%. The unemployment rate for men and women across Ontario was 8.3% in 2011. These trends were more pronounced in the District of Sudbury, where participation rates for men fell from 61.9% to 58.5% and women rose from 51.1% to 54.3% over the same period. Unemployment rates for men and women both fell, for women from 11.9% to 9.2% and for men from 11.4% to 10.4%.

The unemployment rate for urban communities in the regional study area was 7.7% in 2011, lower than the Ontario rate of 8.3%. The unemployment rates for these communities averaged 7.6% in 2006. The regional study area was 7.7% in 2006, which was higher than the Provincial unemployment rate of 6.4% at that time. The unemployment rate for rural communities in 2006 was 10.6% and for First Nation reserves was 23.4%. Although data for 2011 is not available for these communities, the unemployment rate for the District of Sudbury fell from 11.6% in 2006 to 9.8% in 2011.

Table 5-18: Labour Force Participation for Regional Study Area Communities, 2006 and 2011

Area	2011						2006					
	Participation Rate (%)			Unemployment Rate (%)			Participation Rate (%)			Unemployment Rate (%)		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Gogama	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
City of Timmins	65.2	68.4	62.0	7.3	8.5	6.0	65.5	71.0	59.9	7.1	7.0	7.6
City of Greater Sudbury	63.1	66.7	59.7	7.8	8.2	7.5	63.0	68.0	58.8	7.8	8.0	7.7
Unorganized North Sudbury Subdivision	n/a	n/a	n/a	n/a	n/a	n/a	54.6	61.0	47.8	13.1	15.0	10.3
Unorganized Timiskaming West	n/a	n/a	n/a	n/a	n/a	n/a	57.4	60.0	54.0	8.7	14.0	2.1
Mattagami First Nation	n/a	n/a	n/a	n/a	n/a	n/a	59.3	64.0	50.0	18.8	22.0	28.6
Flying Post First Nation	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Brunswick House First Nation	n/a	n/a	n/a	n/a	n/a	n/a	54.5	50.0	60.0	33.3	67.0	0.0
Matachewan First Nation	n/a	n/a	n/a	n/a	n/a	n/a	66.7	83.0	60.0	25.0	0.0	66.7
Regional Study Area Average	n/a	n/a	n/a	n/a	n/a	n/a	63.3	68.4	58.9	7.7	8.0	7.7
Regional Study Area (Urban)	63.6	67.1	60.2	7.7	8.3	7.2	63.5	68.7	59.0	7.6	7.8	7.7
Regional Study Area (Rural)	n/a	n/a	n/a	n/a	n/a	n/a	56.2	60.4	51.5	10.6	14.4	5.4
Regional Study Area (First Nation Reserve)	n/a	n/a	n/a	n/a	n/a	n/a	60.3	67.1	54.6	23.4	23.5	30.8
District of Sudbury	56.4	58.5	54.3	9.8	10.4	9.2	56.6	61.9	51.1	11.6	11.4	11.9
Ontario	65.5	69.9	61.4	8.3	8.3	8.3	67.1	68.1	62.1	6.4	6.0	6.8

Source: (SC, 2007a; SC, 2013a)

Note:

n/a: not available

Mattagami First Nation reports that, as of June 2013, the on-reserve unemployment rate was approximately 20%. Three-quarters of the unemployed were estimated to be female and a quarter male. The unemployment rate of off-reserve membership was not known, but they estimate that about 75% of off-reserve membership would return to the First Nation should employment opportunities become available (Mattagami First Nation, 2013c). Economic data for the Flying Post First Nation is limited by the lack of an inhabited land base. The Township of Nipigon, where many members reside, is a local centre for manufacturing and business services. The unemployment rate in that community in 2006 was 8.5% in 2006 and the median household income was $68,123 (SC, 2007a). The Flying Post First Nation estimates the unemployment rate of its members to be lower than this, at around 5% (pers. comm., Flying Post First Nation, June 2013a).

Data on labour participation and unemployment for the Aboriginal population of Timmins and Sudbury is available for 2011 (see Table 5-19). Although historically the Aboriginal identity population had shown much lower participation and much higher unemployment rates (in Timmins in 2006, 18.5% versus 7.1% for the population as a whole) the most recent Census shows a considerable convergence, at least in Timmins. The unemployment rate in Timmins for the Aboriginal identity population at 7.4% was close to that of the population as a whole (7.3%). In Sudbury, although the unemployment rate for the Aboriginal identity population at 11.8% was four percentage points higher than that of the total population, and almost identical to that in 2006, it was lower than their unemployment rate across Ontario of 13.9%.

Table 5-19: Labour Force Participation for Aboriginal Identity Population in Selected Regional Study Area Communities, 2011

	City of Timmins	City of Greater Sudbury	Ontario
Total population 15 years and over (no.)	2,705	10,585	227,235
In the labour force (no.)	1,620	6,795	140,680
Participation rate (%)	59.9	64.2	61.9
Unemployment rate (%)	7.4	11.8	13.9
Male Population 15+			
Total population 15 years and over (no.)	1,340	5,110	107,425
In the labour force (no.)	820	3,360	69,925
Participation rate (%)	61.2	65.8	65.1
Unemployment rate (%)	7.3	13.7	15.3
Female Population 15+			
Total population 15 years and over (no.)	1,370	5,480	119,805
In the labour force (no.)	800	3,440	70,760
Participation rate (%)	58.4	62.8	59.1
Unemployment rate (%)	7.5	10.0	12.5

Source: (SC, 2013a)

Statistics Canada's Labour Force Survey for Sudbury provides the most recent picture of the labour market. Labour force activity from 2006 to 2012 for Sudbury is detailed in Table 5-20. It shows a stable labour market with the participation rate unchanged over the period, the employment rate increasing by 0.3% and the unemployment rate falling by 0.4 percentage points. The share of full-time employment in overall employment increased marginally, by about 0.9% over the period.

Table 5-20: Labour Force Survey, Greater Sudbury, 2006-2012

	2006	2012	Change (%)	Change
Population (x 1,000)	134.9	139.0	3.0	4.1
Labour force (x 1,000)	85.2	87.8	3.1	2.6
Full-time employment (x 1,000)	63.8	66.5	4.2	2.7
Part-time employment (x 1,000)	15.3	15.2	-0.7	-0.1
Unemployment rate (%)	7.3	6.9	-5.5	-0.4
Participation rate (%)	63.2	63.2	0.0	0.0
Employment rate (%)	58.6	58.8	0.3	0.2

Source: (SC, 2013b)

5.3.7 Income Levels and Distribution

The Northern Ontario economy is highly resource-dependent and the regional study area economy shows many characteristics that come from that dependence (Southcott, 2008). Key features of income levels and the distribution of income in the area include:

- incomes (both mean and median) lower than the provincial average for both full-time and part-time workers, although these differences are decreasing;
- resource dependent communities and suburb communities have the highest levels of income in northern Ontario, led by Sudbury and Thunder Bay;
- Northern Ontario has a higher dependence on government transfer payments than Ontario as a whole and differences in levels of dependence on government transfer payments between northern Ontario and Ontario have increased since 1996; and
- Northern Ontario consistently has a lower percentage of high income earners than Ontario as a whole.

Median personal income and median household income reported within the regional study area in the 2006 census data varied greatly between rural and urban areas (no data was available for incomes on First Nation reserves). Median income of individuals across rural communities in the regional study area averaged $22,871 but averaged $27,114 in urban communities, closer than the rural communities to the Ontario median of $27,258. Median household incomes averaged $48,342 in rural communities and averaged $55,147 in urban communities compared to the Ontario median of $60,455. Government transfers provided 15.1% of income in rural regional

study area communities and 12.7% in urban communities compared to the Ontario average of 9.8%. Earnings made up only 67.2% of income in rural communities and 73.7% in urban communities compared to 77.4% across Ontario, reflecting in part the older demographic composition of rural areas (and therefore retired) and the regional study area in general (SC, 2007a).

Earnings in the regional study area were relatively high for Northern Ontario, particularly for full-time workers (see Table 5-21), although these earnings differed noticeably between men and women. Median earnings in the City of Timmins for all of those with earnings were $19,377 less for women than men, falling slightly to $18,840 when only considering those working full-time all year-round. For comparison, the difference between men and women working full-time is $11,143 across the whole of Ontario. Averaging results from across the regional study area, median earnings for men working full-time year-round was $53,659 a year, $3,602 above the provincial average. However, considering both men and women and including all those with earnings has an average of median earnings across the regional study area of $26,891, $2,444 lower than the provincial average. This suggests that in these communities the distribution of earnings is more unequal than the provincial average and more concentrated among employed men than would be the case in the province as a whole. This is to some degree due to the predominance of men in the high-income mining industry - in 2011, 91.5% of workers in natural resource occupations in Timmins were male (SC, 2013a).

Table 5-21: Median Earnings for Regional Study Area Communities, 2006

Area	Median earnings - Persons 15 years and over ($) - All Those With Earnings			Median earnings - Persons 15 years and over ($) - Full-Time All-Year Workers		
	Total	Male	Female	Total	Male	Female
Gogama	n/a	n/a	n/a	n/a	n/a	n/a
City of Timmins	28,428	40,013	20,636	44,818	53,698	34,858
City of Greater Sudbury	26,815	35,895	20,618	45,128	53,964	36,688
Unorganized North Sudbury Subdivision	23,831	28,875	20,058	50,935	58,534	32,515
Unorganized Timiskaming West Subdivision	18,260	28,253	13,954	42,926	46,243	37,656
*Regional Study Area**	26,891	36,427	20,442	44,944	53,659	36,150
Ontario	29,335	35,702	23,755	44,748	50,057	38,914

Source: (SC, 2007a)

Notes:

n/a: not available

* mean value calculated from average of available median values

Data on earnings and income are not available for First Nation communities. However, 2006 median earnings data for the off-reserve Aboriginal population are available for Sudbury and

Timmins (see Table 5-22). These show that median earnings for all those with earnings were much lower for the urban Aboriginal population than for the population of those Cities as a whole: 24.5% lower in Sudbury and 30.0% lower in Timmins. This difference is less pronounced for individuals with full-time work all-year round; earnings for this group were 11% lower in Sudbury and 1.1% higher in Timmins. Part of the latter result comes from a difference in gender full-time employment ratios between the Aboriginal and overall populations, since median earnings in Timmins are lower for both men (lower by 5.7%) and women (lower by 1.2%). All other things being equal, earnings can be expected to be lower in the Aboriginal population since, as shown in Table 5-4 the Aboriginal population skews much younger than the population of the community as a whole.

Table 5-22: Median Earnings of Aboriginal Population in Selected Regional Study Area Communities, 2006

Area	Median earnings - Persons 15 years and over ($) - All Those With Earnings			Median earnings - Persons 15 years and over ($) - Full-Time All-Year Workers		
	Total	Male	Female	Total	Male	Female
City of Timmins	21,534	29,965	16,091	40,651	48,372	34,851
City of Greater Sudbury	21,871	29,308	17,013	45,302	50,791	34,433

Source: (SC, 2007b)

5.4 Infrastructure and Social Services

5.4.1 Official Community Plans

The Ontario *Planning Act (1990)* requires municipalities to prepare and adopt an Official Plan to establish general planning goals and policies that guide the use of land in the community. In accordance with the requirements of the *Planning Act* an Official Plan needs to be reviewed every five years (Ministry of Municipal Affairs and Housing, 2012). The Unorganized subdivisions of North Sudbury and Timiskaming West do not have Official Plans including Gogama which is part of the unorganized subdivision of North Sudbury. Planning in these regions is guided by the Ministry of Natural Resources (MNR) for crown land use.

5.4.1.1 Gogama/Mattagami First Nation

Services and infrastructure in Gogama is administrated by the Gogama Local Services Board comprised of five publically elected board members. The GLSB is governed as a local services board under the *Northern Services Board Act*. Within Gogama, some lots are owned by the MNR and are managed like any other land within their jurisdiction: for the management of wildlife or fish. Gogama works directly with the MNR for any land use planning requirements. Gogama worked with the MNR to prepare a lot development document which would assist in outlining future lot development. This plan is on hold and no new lots are being sold until the

community can address the need for sewage system capacity (pers. comm., Gogama Local Services Board, July 2013).

Mattagami First Nation does not have any land use planning policies (pers. comm., Mattagami First Nation, July 2013a).

5.4.1.2 City of Timmins

The City of Timmins Official Plan (updated in 2008; approved by the Ministry of Municipal Affairs and Housing in 2010) provides the community's vision for growth and guides physical development and redevelopment within the city boundaries from 2008 – 2028. The Official Plan notes that to sustain the role of Timmins as a regional service center supported primarily by the natural resource sector it must be sustainable through, amongst other things, adequate infrastructure and public service facilities to accommodate future growth and an adequate supply of serviced land to meet immediate and long-term requirements for all forms and types of land uses. The Official Plan provides policy direction for a wide range of community infrastructure and services including housing, water and sewer systems, transportation, parks, recreation and open spaces, solid waste, social infrastructure, and natural resources (City of Timmins, 2008).

5.4.1.3 City of Greater Sudbury

The City of Greater Sudbury adopted its most recent Official Plan in 2006 and finalized it in 2008. The Official Plan includes the amalgamation of the 13 previous planning documents covering the former regional municipality of Sudbury. The city covers a large area, and as such the Official Plan covers rural areas beyond the city centre as well as the downtown core. There are four key principles of the Official Plan: healthy community, economic development, sustainable development and a focus on opportunities. The City's economic development strategy mentioned in the Official Plan notes that one of the main engines of growth is to provide the best mining and supply services in the world. The Official Plan recognizes that while population growth patterns are uncertain, there will be changing demands on housing due to decreasing household sizes, changing demographics (aging population), and shifts in housing preferences. There is a recognized need to make strategic upgrades to water, waste water and transportation systems to accommodate growth for the foreseeable future. To meet Official Plan objectives, it includes policy direction for living areas, employment areas, rural areas, agriculture, and parks and open space as well as for investment in utility and transportation infrastructure (City of Greater Sudbury, 2011c).

5.4.2 Transportation

5.4.2.1 Gogama/Rural

Gogama, the closest community to the proposed mine site, is accessible by road, from Highway 144, a route that connects Sudbury with Timmins. Highway 144 is a 271 km, two-lane, paved road and is maintained by the provincial Ministry of Transportation. In 2010, a resurfacing

project was completed on the access road from the Highway 144 into Gogama. Approximately 85 km of resurfacing has been planned on Highway 144 from 2012 to 2014.

An environmental assessment study is taking place for Highway 144 from approximately six kilometres south of Chelmsford to approximately eight kilometres north of Dowling (part of Greater Sudbury), a distance of approximately 27 km. This study seeks improvements that will address the short- and long-term traffic needs on the section of Highway 144 through the communities of Chelmsford and Dowling (Ontario Ministry of Transportation, 2013).

Gogama is also accessible by Ontario Northland bus service daily and by passenger rail (Via).

Maintenance of local roads in Gogama is overseen by the Gogama local roads board. This board collects a road tax based on property assessment to pay for the maintenance of the roads (Gogama, 2012).

5.4.2.2 Timmins / Sudbury

As important service hubs in northern Ontario, Sudbury and Timmins have airports which connect the region to major urban centres in Ontario as well as other northern Ontario communities. The Sudbury airport is serviced by Air Canada, Porter, Bearskin Airlines and Sunwing. The Timmins airport is serviced by Air Canada, Air Creebec, Bearskin Airlines and Porter. Timmins and Sudbury airports offer charter, helicopter, and freight services.

Timmins and Sudbury have daily Greyhound and Ontario Northland passenger bus service. Via Rail has a scheduled stop in Sudbury on the route from Toronto to Winnipeg. Timmins and Sudbury both have comprehensive transit and taxi services within their urban centres.

5.4.2.3 First Nation Communities

Mattagami First Nation reserve is accessed by road from Highway 144. Flying Post First Nation (at Nipigon) is accessible from Highway 17. Brunswick House First Nation is accessible by road, from Highway 101, approximately seven kilometers from the town of Chapleau.

Chapleau's Handi-Transit Bus Service provides door-to-door service for people with disabilities, and seniors within the Township of Chapleau boundaries, Fox Lake Reserve, Memegos Reserve and Brunswick House First Nations.

5.4.2.4 Regional Study Area Service Levels and Accident Rates

The Ontario Ministry of Transportation Northern Highways Program (2012 to 2016) Northern Ontario Expansion Plan indicates no rehabilitation or expansions planned in the next three years within the regional study area (Ontario Ministry of Transportation, 2012). Annual Average Daily Traffic (AADT) counts for Highway 144 are highest near Sudbury and lower near Timmins

(see Table 5-23). From August 27, 2012 to August 27 2013 the South Porcupine Ontario Provincial Police (OPP) reported 76 motor vehicle collisions on Highway 144 north of Marquette Township (pers. comm., OPP, South Porcupine, September 2013) and Sudbury's OPP reported 139 motor vehicle collisions from the Highway 144 bypass (at Highway 17) up to and including Marquette township (pers. comm., OPP, Sudbury, September 2013). About a fifth of accidents result in personal injury; three-quarters result in property damage.

The MTO assesses highway level of service using a qualitative measure that describes operational conditions within a traffic stream, and their perception by the motorist. A level of service definition generally describes these conditions in terms of such factors as speed and travel time, freedom to manoeuvre, traffic interruptions, comfort and convenience, and safety. Six levels of service are defined for each type of facility (highway) for which analysis procedures is available. They are given letter designations from A – F, with level of service "A" representing the best operating conditions and level of service "F" the worst. Level of service ratings for portions of Highway 144 are poorest from Regional Road 15 at Regional Road 35 to Sudbury Road 8 with ratings of D-E (these also have the highest AADT counts) and are best in the portions between the Cartier East Entrance to the junction with Highway 101 where there are the lowest AADT counts (see Table 5-23).

Table 5-23: Average Annual Daily Traffic on Highway 144 (2008)

From	To	Distance (km)	AADT	Level of Service
Sudbury Regional Road 24(E)	Regional Road 15 (N) at Regional Road 35 (E)	13.6	3,500	C
Regional Road 15 (N) at Regional Road 35 (E)	St. Albert St. (W) at Charette St. (E)	1.1	21,700	D-E
St. Albert St. (W) at Charette St. (E)	Regional Rd 13 at Vermilion Lake Road (W)	5.4	12,500	
Regional Rd 13 at Vermilion Lake Road (W)	Larchwood Avenue at Onaping Falls	4.1	8,400	
Larchwood Avenue at Onaping Falls	Sudbury Road 8	12.7	6,750	
Sudbury Road 8	Onaping Falls W LTS	3.0	3,600	C
Onaping Falls W LTS	Cartier East Entrance	13.1	3,600	C
Cartier East Entrance	Onaping Lake Rd (E)	16.9	1,650	A
Onaping Lake Rd (E)	Sudbury – New Liskeard District Boundary	45.2	1,050	
Sudbury – New Liskeard District Boundary	Highway 560	34.9	1,050	
Highway 560	Highway 661 – Gogama road	32.0	1,050	
Highway 661 – Gogama road	Hassard/Doyle Township Boundary	53.3	1,050	

From	To	Distance (km)	AADT	Level of Service
Hassard/Doyle Township Boundary	Timmins – Cochrane District Boundary	20.6	1,350	
Timmins – Cochrane District Boundary	End of highway 144	11.8	1,350	

Source: (Ontario Ministry of Transportation, 2009; pers. comm., July 2013)
Note:
AADT = average annual daily traffic

5.4.3 Housing and Accommodation

Data for housing and accommodations in the regional study area were gathered from the 2001, 2006 and 2011 Censuses, the Canadian Mortgage and Housing Corporation (CMHC) and Multiple Listing Service (MLS). Data from the 2011 Census is incomplete; detailed housing data is scheduled for release in August 2013.

The 2006 Census found that the average value of housing was greatest in Sudbury ($164,900) and the Unorganized North Sudbury census subdivision ($142,921). Unorganized Timiskaming West had the lowest value of housing in the regional study area, with an average of $108,639 in 2006. The average house values in the regional study area were much lower in 2006 than the provincial average of $324,252 (SC, 2007a). Data on First Nation reserves was not available, but ownership and sale restrictions generally make it difficult to set a market value for on-reserve housing stock.

In 2006, the unorganized districts of Timiskaming West and North Sudbury had high percentages of homes requiring major repairs for defective plumbing, electrical wiring, or structural issues such as walls and floors. Unorganized Timiskaming West subdivision had 12.1% of homes requiring repairs, almost double the provincial average of 6.6% (see Table 5-24). Housing in the unorganized districts was, on average, newer than those of urban communities in the regional study area (70.3% and 73.7% in North Sudbury and Timiskaming West compared to a regional study area average of 80.1%) but this may be reflective of the rural real estate market. The percentage of dwellings requiring major repairs was closer to the provincial average in Timmins (7.9%) and Sudbury (7.8%).

Table 5-24: Housing Conditions in Regional Study Area Communities, 2006 and 2011

Area	2011		2006					
	Total Dwellings[1]	Change in Dwellings 2006-2011 (%)	Total Dwellings[1]	Dwellings constructed before 1986	Dwellings constructed before 1986 (%)	Dwellings constructed between 1986-2006	Dwellings constructed between 1986-2006 (%)	Dwellings requiring major repair (%)
Gogama	131	0.0	131	n/a	n/a	n/a	n/a	n/a
City of Timmins	17,811	2.5	17,381	14,685	84.5	2,705	15.6	7.9
City of Greater Sudbury Subdivision	67,767	4.4	64,940	51,635	79.5	13,305	20.5	7.8
Unorganized North Sudbury Subdivision	1,059	1.2	1,046	735	70.3	310	29.6	11.5
Unorganized Timiskaming West Subdivision	1,256	-7.4	1,357	1,000	73.7	360	26.5	12.1
Mattagami First Nation	80	33.3	60	n/a	25	n/a	40	33.3
Flying Post First Nation	0	0.0	0	n/a	n/a	n/a	n/a	n/a
Brunswick House	29	-12.1	33	10	30.3	25	75.8	42.9
Matachewan First Nation	32	14.3	28	n/a	n/a	n/a	n/a	n/a
Regional Study Area	88,034	3.8	84,845	68,065	80.2	16,705	19.7	7.9
Regional Study Area (Urban)	85,578	4.0	82,321	66,320	80.6	16,010	19.4	6.3
Regional Study Area (Rural)	2,315	-3.7	2,403	1,735	72.2	670	27.9	11.8
Regional Study Area (First Nation Reserve)	141	16.5	121	10	8.3	25	20.7	28.2
Ontario	4,887,508	7.3	4,554,251	3,124,010	68.6	1,431,020	31.4	6.6

Source:(SC, 2007a; SC, 2012a)

Notes:

n/a: not available

[1] Occupied by usual residents.

Mattagami First Nation provided a list of the housing stock in the community (as of July, 2013): 7 apartments, 13 townhouses or duplexes and 55 single family homes. At one time, homes were built with funding from the federal government and were given to First Nation members. Many changes have occurred over the past 20 years, and home owners are now responsible to obtain a mortgage through the Ministerial Loan Guarantee Plan should they wish to own their dwelling. The average amount of an outstanding mortgage is $150,000. A share of the housing stock is band-owned and is rented to tenants. If members fall behind on their rent or mortgages they are given an allotted time to pay arrears and if they do not, they may be given a notice of eviction depending on circumstances. There is a waiting list for housing and crowding is an issue in the community (pers. comm., Mattagami First Nation, July 2013a).

On-reserve housing age and conditions are available for Brunswick House and Mattagami First Nations from the 2006 Census. Dwellings requiring major repair in the Mattagami First Nation reserve were 33.3% in 2006, approximately 20 of 60 houses on-reserve, higher than the provincial percentage of 6.6%. Similarly high rates were found in Brunswick House First Nation (42.9%).

In the regional study area, data on sales of existing homes in Timmins and Sudbury is maintained by CMHC to the year 2012 (see Table 5-25). Prices of homes have been rising in Timmins, by 11.3% in 2011 and 8.1% in 2012. However, the number of sales and listings fell by 5.5% in 2012. Falling sales and rising prices may be evidence of a supply bottleneck and this may have been a driving factor in the 38.1% increase in the number of new homes constructed that year. Sudbury has not seen as rapid a rise in housing prices (3.5% in 2011 and 4.7% in 2012) and CMHC forecasts that housing prices in that city will only increase by 1.7% in 2013. Still, average home prices in 2012 were $89,187 higher in Sudbury than Timmins, making Timmins relatively more affordable.

MLS data for Gogama or the communities within the unorganized North Sudbury and Timiskaming West subdivisions are not available. Searches of MLS listings for these communities show the number of listings is small, typically 1-2 at any given time for each area (MLS, 2012).

Table 5-25: MLS Listings for Selected Regional Study Area Communities

Community	Year	Number of Sales	Annual change (%)	No. of New Listings	Average Price ($)	Annual change (%)
Timmins	2012	1,096	-5.5	1,730	151,125	8.1
	2011	1,160	7.2	1,803	139,864	11.3
Greater Sudbury	2013	2,500	0.9	4,250	244,500	1.7
	2012	2,478	-1.2	4,177	240,312	4.7
	2011	2,507	11.7	4,354	229,485	3.5
	2010	2,244	13.5	4,673	221,699	10.3
	2009	1,977	n/a	4,307	200,947	n/a

Source: CMHC, 2012a

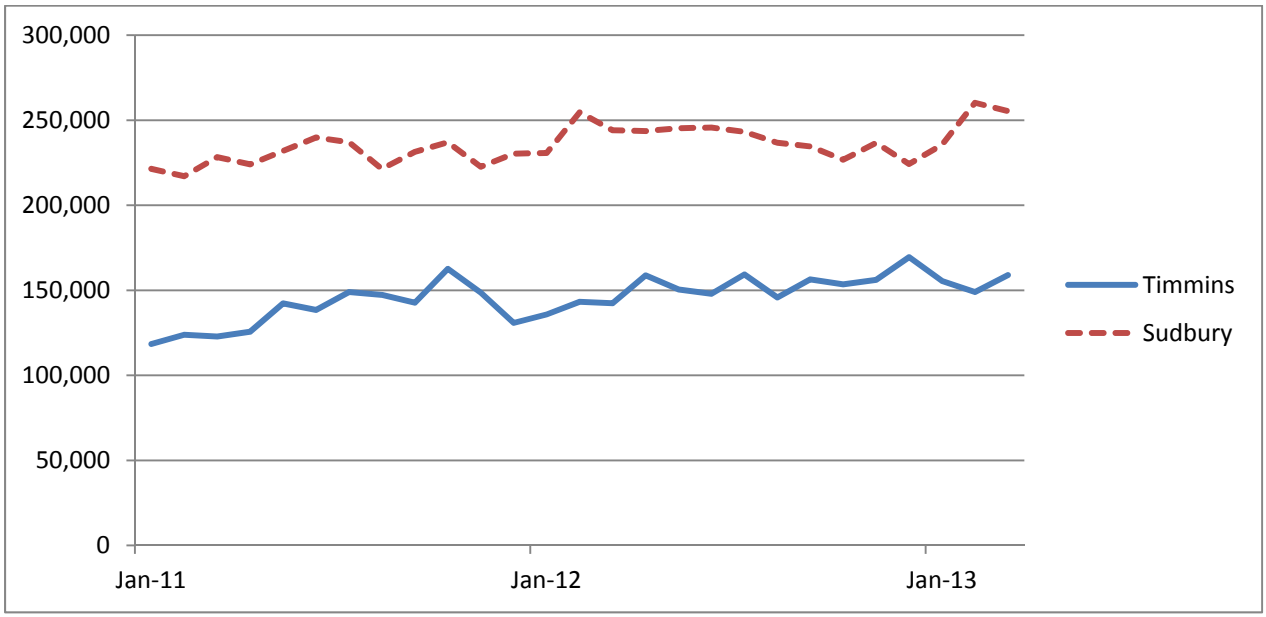
Note:

n/a: not available

The tightness of the real estate market has become an issue in Timmins, particularly for mining companies. The City intends to expand the water capacity in the northern part of the city which will open 2,000 lots by 2014. Even with these changes, housing prices in Timmins are expected to remain more expensive than other communities such as Cochrane (pers. comm., City of Timmins, May 2013).

Graphic 5-1 shows the trajectory of residential house prices in Timmins and Sudbury from the period of January 2011 to March 2013. While real estate prices rose faster in Timmins than in Sudbury during this time period, the difference in price between the two communities continued to be substantial, averaging $89,801 for the same period.

Graphic 5-1: MLS Sale Prices for Timmins and Sudbury, 2011 to 2013



Source: (CMHC 2012a, CMHC 2013)

Prices for new homes are only available for Sudbury. These are shown in Table 5-26. Most new single-detached homes are targeted at one of two market segments: 40.4% of them are priced above $400,000 and 30.3% are priced between $300,000 and $350,000. The median price of a new single-detached home in Sudbury was $369,900 in 2012.

Table 5-26: Absorbed Single-detached Units by Price Range for Greater Sudbury, 2011-2012

Price Range	2012	2011	Annual Change (%)
Less than $250,000	7	3	133.3
$250,001 - $300,000	18	25	-28.0
$300,001 - $350,000	54	54	0.0
$350,001 - $400,000	27	48	-43.8
$400,000 and more	72	54	33.3
Total	178	184	-3.3
Median Price ($)	369,900	366,900	0.8
Average Price ($)	383,665	372,831	2.9

Source: (CMHC 2013)

The rental market in Timmins and Sudbury tightened from 2012 to 2013, with vacancy rates in Timmins falling from 1.5% in 2012 to 1.1% in 2013 and Sudbury from 3.1% in 2012 to 2.9% in 2013. Average monthly rents for Sudbury averaged $567 for Bachelor apartments, $744 for 1 Bedroom apartments, $925 for 2 Bedroom apartments and $999 for 3+ Bedroom apartments. Still, completion of rental units in Greater Sudbury declined by 37.0% in 2012 to 148 units and no rental units were completed in Timmins in 2012. Most (73.0%) of these units were built in Sudbury, as were all new condominium units. The only other significant areas for rental property development were within Greater Sudbury in Valley East Town (16.2%) and Rayside-Balfour Town (8.1%; CMHC, 2013).

Housing completions in Timmins and Sudbury are shown in Table 5-27. All residential construction in Timmins since 2011 has been in the form of single detached dwellings. Of the residential completions in Sudbury, 52.9% were built in Sudbury. The closest community within Greater Sudbury to the Project, Onaping Falls Town, was the site of less than 1% of completions. Rayside-Balfour Town, also in the Northwest of Greater Sudbury, attracted 13.2% of housing completions including some row housing and apartment construction in 2011.

Table 5-27: Housing Completions by Market and Submarket, 2013 to 2011

Area	Single			Semi			Row			Apt and Other			Total		
	Q1 2013	2012	2011	Q1 2013	2012	2011	Q1 2013	2012	2011	Q1 2013	2012	2011	Q1 2013	2012	2011
Timmins	15	58	34	0	0	0	0	0	4	0	0	4	15	58	42
Greater Sudbury CMA	59	307	327	4	40	14	0	53	63	0	114	189	63	514	593
Capreol Town	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
Nickel Centre Town	9	41	37	0	2	0	0	0	34	0	4	0	9	47	71
Onaping Falls Town	2	5	6	0	0	0	0	0	0	0	0	4	2	5	10
Rayside-Balfour Town	13	56	41	0	0	0	0	12	12	0	0	58	13	68	111
Sudbury City	19	111	128	4	34	14	0	17	13	0	110	123	23	272	278
Valley East Town	10	66	82	0	4	0	0	24	4	0	0	4	10	94	90
Walden Town	6	28	30	0	0	0	0	0	0	0	0	0	6	28	30

Source: (CMHC 2013)

5.4.3.1 Household Size

The average household size for regional study area communities remained stable between the 2006 and 2011 Censuses. The average household size in the regional study area Unorganized subdivisions decreased slightly since the 2006 Census (see Table 5-28). In general, household sizes in First Nation reserves are larger than the overall Ontario average (the exception is Matachewan First Nation). This is in contrast to household sizes in non-First Nation communities in the regional study area which are smaller than the Ontario average.

Table 5-28: Average Household Size for Regional Study Area Communities and Ontario, 2006 and 2011

Community	2011	2006
Gogama	2.2	n/a
City of Timmins	2.4	2.4
City of Greater Sudbury	2.3	2.4
Unorganized North Sudbury Subdivision	2.2	2.3
Unorganized Timiskaming West Subdivision	2.3	2.4
Mattagami First Nation	n/a	3.1
Flying Post First Nation	n/a	n/a
Brunswick House	2.8	2.8
Matachewan First Nation	2.4	2.3
Ontario	2.6	2.6

Source: (SC, 2007a; SC, 2012a)
Note:
n/a: not available

5.4.3.2 Non-profit Housing

Sudbury and Timmins are the only regional study area communities with non-profit housing. The Greater Sudbury Housing Corporation operates 27 buildings/building complexes designed for low income families. Subsidized housing includes single family homes, townhouse complexes and apartment buildings with over 250 units. These units are for families, single persons, persons with disabilities, and seniors (Greater Sudbury Housing Corporation, 2012). CMHC sets the overall number of seniors' housing spaces in Greater Sudbury at 659 with a vacancy rate of 1.8% in 2012. This establishes the capture rate of seniors over 75 at 5.8%, above the Ontario average of 5.2% (CMHC, 2012b).

The Cochrane District Social Services Administration Board (CDSSAB) oversees social housing for the Cochrane District which includes Timmins (CDSSAB, 2012). The CDSSAB offers a mix of family and seniors units provided by:

- City of Timmins;
- Kenneth Crescent non-profit homes;

- Timmins Finish seniors homes;
- Tisdal Whitney housing co-op;
- Le Foyer des Aines Francophones de Timmins;
- Les Maisons Co-operative des Pins Gris Inc.;
- Kaleiodoscope Co-operative homes inc.; and
- Access Better Living Inc.

Homelessness is a significant issue in the regional study area. The Homelessness in Timmins Report (2011) and the Report on Homelessness in Sudbury (2003) indicate that on a per capita basis, poverty, housing need, and homelessness are as acute in northern communities as in the southern regions of Canada and they have been persistent problems through times of economic boom and bust (Kauppi et al., 2012; Kauppi et al., 2003). Unemployment, lack of access to social assistance, poverty, and lack of affordable housing are noted in these reports to be the primary causes of absolute homelessness.

Sudbury's homelessness statistics remained unchanged between 2000 and 2009 however the quality of non-profit housing decreased due to low vacancy rates, strong rental demand and increases in rents (Kauppi et al., 2012). Accessing affordable housing was among the top three causes for homelessness in Subdury among employment and social assistance (Kauppi et al, 2003).

Sudburys' conditions are similar to Timmins' as the city's rental market vacancy rate fell to 1.1% in 2013 and has high rents and increasing housing prices (pers. comm., Timmins Real Estate Board, June 2013). Housing is considered the biggest concern for the CDSSAB. Significant waitlists in social housing has initiated a new housing and homelessness taskforce (pers. comm., CDSSAB, May 2013).

It is clear that there is currently insufficient non-profit housing and that homelessness poses a great challenge for northern communities in the regional study area. Future capacity is unclear, however, efforts are being made by Sudbury through its Community Strategy to Reduce Poverty plan and the CDSSAB's housing taskforce.

5.4.3.3 Temporary Accommodation

Tourism plays an important role in the economy. The availability of temporary accommodations helps increase tourism and supports local economies.

Temporary Accommodations data in the regional study area is available for Gogama, City of Timmins, and City of Greater Sudbury for the years ranging between 2004 and 2013 but not for Unorganized North Sudbury Subdivision and Unorganized Timiskaming West Subdivision. A total of 37 hotels/motels/inns are located in the regional study area, making them the most

abundant form of temporary accommodation. There are 22 Lodges/resorts/cottages, 21 campgrounds, and 17 bed and breakfasts.

A breakdown by community (see Table 5-29) shows that Sudbury offers the greatest number of hotels/motels/inns (26), followed by bed and breakfasts (16), and campgrounds (12). Gogama provides lodges/resorts/cottages (13), including 2 hotels/motels/inns, and campgrounds (4). Timmins offers Hotels/Motels and Inns (9), campgrounds (2), lodges/resorts/cottages (2), and a bed and breakfast (1).

Hotel statistics for Ontario, as of April 2013, indicate hotel occupancy rate for 2012/2013 for north eastern Ontario at 57.5 % and for Sudbury higher at 67.8 %. There is sufficient capacity to accommodate greater demands (PKF Consulting, 2013).

Table 5-29: Temporary Accommodation in Regional Study Area Communities

Community	Hotels / Motels / Inns (units)	Lodges / Resorts / Cottages (units)	Bed and Breakfasts	Campgrounds
Gogama	1(11)	5 (35)	n/a	2
City of Timmins	12	2	1	5
City of Greater Sudbury	26	7	16	12
Unorganized North Sudbury Subdivision	n/a	n/a	n/a	n/a
Unorganized Timiskaming West Subdivision	n/a	n/a	n/a	n/a
Total	37	22	17	21

Source: (City of Greater Sudbury, 2004; City of Timmins, 2013b; GLSB, 2013; pers. comm., GLSB, September 2012)
Note:
n/a: not available

5.4.4 Public Utilities

5.4.4.1 Water and Waste Water

Gogama

Drinking water for Gogama is supplied from a municipal groundwater well with a second well as back-up. The water is treated by the Green Wilderness Lodge Water Treatment Plant (Mattagami Region Conservation Authority, 2010). Approximately 400 users consume on average 190m^3/day of water. The system's total capacity is estimated to be able to support up to 1,000 users before requiring new investments (pers. comm. GLSB, July 2013).

The Gogama Local Service Board manages a sewage lagoon approved to treat an average daily flow of 300 m^3/day. Treated waste water is discharged into the Timmins municipal wastewater facilities. Emergency overflows are designed to discharge to the Makami River.

According to the Ministry of Environment (MOE), daily wastewater usage reaches close to capacity and decisions have been made to restrict any new sewer connections to the community system. Gogama is seeking financial assistance for a sewer expansion project to increase capacity from 300 m^3/day to 460 m^3/day (pers. comm., GLSB, May, 2013). To address this issue, IAMGOLD has offered to pay for an engineering study to determine the maximum allowable flow (m^3/day) for the lagoon.

Timmins

Three wastewater treatment facilities and three sewage lagoons are located in the Mattagami Region Source Protection area. Five of these are located in Timmins and one in Gogama.

The City of Timmins Water Filtration Plant services the municipality drawing water from the Mattagami River with a rated capacity of 54,500 m^3/day and services a population of 43,000. The plant has five separate sites used to store treated water, with a combined capacity of 33,500 m^3. With an annual average flow of 9,995,579m^3 (measured from January 2005 to December 2008), the Mattagami River provides sufficient flow for existing drinking water purposes and could support an increase in population (Mattagami Region Conservation Authority, 2010).

The City has two waste water treatment plants (WWTP). The Mattagami River Waste Water Treatment Plant provides level II primary treatment and services the communities of Timmins, Mountjoy, and Schumacher. It treats approximately 20,000 m^3/day, has a capacity of 34,000 m^3/day and currently serves a population of approximately 35,250. The plant is fed by gravity sewers from the surrounding areas and 11 pumping stations from the Timmins, Schumacher and Mountjoy areas. There is sufficient capacity to service an increase in population.

The Whitney and Tisdale WWTP, a level II secondary treatment plant, services the communities of Porcupine and South Porcupine and treats approximately 3,200 m^3 of waste water per day and has a design capacity of 6,800 m^3/day. Treated waste water is discharged into the Porcupine River and the sludge is taken to a private landfill.

Bob's Lake Lagoon is operated and maintained under the Whitney and Tisdale WWTP. It services 54 houses in the Bob's Lake subdivision. The treated waste water goes to Porcupine Lake via Bobs Creek. The rectangular pond has a volume of 9100m^3, 1.5 meters deep, and a retention line of 102 days (City of Timmins, 2013a)

Planned urban development areas are fully serviced by municipal sanitary sewer and the water main system. Communal services use shared systems of more than five residential units/lots which treat and distribute the water, collect and treat sewage (Mattagami Region Conservation Authority, 2010; City of Timmins, 2013a).

Sudbury

The City's water and wastewater infrastructure consists of two primary water and ten waste water treatment facilities. The distribution network consists of approximately 1,700 km of water and wastewater mains, 14 booster stations (water), 69 lift stations (wastewater), one water reservoir and eight elevated water storage tanks. Overall, water and waste water assets are estimated to represent a quarter of the City's investment infrastructure (City of Greater Sudbury, 2011b). In a recent news release, the City approved a user-pay model for financing water and wastewater services and a sustainable capital asset management policy which will see capital funding for these services increase over 10 years.

The City's water treatment infrastructure consists of two primary plants. The Wanapitei Water Treatment Plant (WTP) draws from the Wanapitei River and supplies approximately 60% of the drinking water for Sudbury, where most of the water produced is delivered to New Sudbury, Coniston, Wahnapitae, Markstay, and parts of downtown. The maximum flow capacity is 54,000 m^3/day with an average daily use of 29,006 m^3/day. Since the original construction in 1970's, the plant has undergone upgrading to enhance treatment efficiency, increase production, and to reduce energy costs.

The David Street WTP is a surface water plant, which draws water from Ramsey Lake and services the remaining 40% of Sudbury, where most of the water produced is normally delivered to the south, west and downtown areas of Sudbury. In 2011, average daily use reached 12,615 m^3/day, falling well below its total capacity of 40,000 m^3/day. The development around Ramsey Lake has shown to have compromised the security of the water source and efforts are being made by City staff and the Provincial Source Water Protection Committee to improve source water quality (City of Greater Sudbury, 2011a).

Since 2006, the City of Sudbury has experienced an 8% decrease in water consumption volumes, with commercial consumption decreasing at a faster rate (11%) than residential consumption (7%). This is believed to be caused by price elasticity, water saving technologies, water meter tampering, and increased rainfall during summer months. Overall, residential customers account for two-thirds of water consumption in Greater Sudbury (City of Greater Sudbury, 2011a). With an average daily water usage of 29,000 m^3/day (53% of total capacity), Sudbury has sufficient capacity to deal with a population increase. Table 5-30 provides an overview of the various water sources and systems for Sudbury.

Table 5-30: Summary of Water Treatment Systems for the City of Greater Sudbury

Name	Owner	Type of Facility	Source of Water	Community Serviced
Sudbury Drinking Water System - Wanapitei	City of Greater Sudbury	Surface water conventional treatment plant, Fluoridation, Corrosion control added, Distribution system	Wanapitei River	Sudbury, Coniston, Wanapitei, Markstay, Garson
Sudbury Drinking Water System - David Street	City of Greater Sudbury	Surface water Membrane Filtration and Ultraviolet irradiation, Fluoridation, Corrosion control added, Distribution system	Ramsey Lake	Sudbury
Sudbury Drinking Water System - Garson	City of Greater Sudbury	Wells with disinfection, Fluoridation, Distribution system	Groundwater	Garson
Dowling Drinking Water System	City of Greater Sudbury	Wells with disinfection and Ultraviolet irradiation, Fluoridation, Distribution system	Groundwater	Dowling
Blezard Valley/ Capreol Drinking Water System	City of Greater Sudbury	Wells with disinfection and Ultraviolet irradiation, Fluoridation, Corrosion control added for supply to Capreol, Distribution system	Groundwater	Valley East, Azilda, Chelmsford and Capreol
Falconbridge Drinking Water System	City of Greater Sudbury	Wells with disinfection, Fluoridation, Corrosion control added, Distribution system	Groundwater	Falconbridge
Onaping /Levack Drinking Water System	City of Greater Sudbury	Wells with disinfection, Fluoridation, Corrosion control added, Distribution system	Groundwater	Onaping and Levack

Name	Owner	Type of Facility	Source of Water	Community Serviced
Vermillion River Water Treatment Plant	Vale	Surface water conventional treatment plant, Fluoridation	River	Vermillion Distribution System
Vermillion Distribution System	City of Greater Sudbury	Distribution System	Vermillion River WTP	Lively, Naughton, Whitefish, Copper Cliff, Walden Industrial Park

Source: (City of Greater Sudbury, 2011a)

In Unorganized north Sudbury subdivision and Unorganized Timiskaming west subdivision, water and wastewater is privately managed on individual lots. Outside the urban centre of Sudbury, most rural areas are also on private water and wastewater systems (City of Greater Sudbury, 2001).

First Nation Communities

On reserves, First Nations are owners of their water and wastewater systems and are responsible for their daily operation and management. AANDC provides funding and advice to assist in design, construction, training and maintenance of these facilities. On June 19, 2013 Bill S-8, *Safe Drinking Water for First Nations Act* was passed into law, allowing the Government, in partnership with First Nations, to develop enforceable federal regulations to ensure access to safe, clean and reliable drinking water (AANDC, 2013b).

The Mattagami First Nation is serviced by a groundwater supply system consisting of two wells disinfection equipment, and a water distribution system constructed in 1995. The rated capacity is 60 m^3/d. There is a water reservoir on-site with a capacity of 60 m^3. In 2011, the water plant was upgraded to meet current demand. The water is treated with chlorine and septic tanks are used to store the waste (Wabun Tribal Council, 2002). Currently, the groundwater system sits at average capacity and could manage an increase in population to an unknown degree (pers. comm., Flying Post First Nation, June 2013b).

Brunswick House and Matachewan First Nation water and wastewater use and capacity information was unavailable at the time of writing.

Table 5-31 summarizes the water and wastewater capacity and usage in regional study area communities.

Capacity to support an increase in population varies within the regional study area. From 2001 to 2011, Sudbury's population increased by 3.6% and since 2006 the city has experienced an 8% decrease in water consumption volumes, with commercial consumption decreasing at a faster rate (11%) than residential consumption (7%). This indicates that the city is well suited to

accommodate future population growth. Timmins waste water usage is well below capacity and could manage future increases in demands if needed.

From 2001 to 2011, Timmins' population decreased by 1.2%. Current water facilities supply the demand and if population trends continue there will not be future capacity issues. Gogama's water capacity is sufficient for current demand and could support additional users. Wastewater infrastructure has the capacity to support current demand but would require upgrading to service additional users.

Table 5-31: Water and Wastewater Capacity and Usage in the Regional Study Area

Area	Water Source	Water Capacity and Usage		Wastewater Capacity and Usage		Concerns
		Average Use (m^3/day)	Total Capacity (m^3/day)	Average Use (m^3/day)	Total Capacity (m^3/day)	
Gogama	Municipal groundwater wells	190	n/a	Near Capacity	300	Daily capacity nearly reaches total capacity. Additional stress on current sewer system may be unsustainable
City of Timmins	Mattagami River	n/a	54,500	23,000	40,800	None
City of Greater Sudbury	Wanapitei River, Ramsey Lake, Vermilion River, groundwater wells	29,006 (Wanapitei)12,615 (David Street)	54,000(Wanapitei) 40,000 (David Street)	n/a	n/a	Compromised security of David Street water source
Unorganized North Sudbury Subdivision	Private well water	n/a	n/a	n/a	n/a	n/a
Unorganized Timiskaming West Subdivision	Private well water	n/a	n/a	n/a	n/a	n/a
Mattagami First Nation	Serviced by a groundwater supply system consisting of two wells	n/a	60	Septic Tanks – emptied every 1.5 to 2 years.		2011 upgrades to water plant to meet current demands. No concerns.

Source: (City of Timmins, 2010; City of Greater Sudbury, 2011a; GLSB, 2013; Mattagami Region Conservation Authority, 2010)

Note:

n/a: not available

5.4.4.2 Electricity

Electricity in Timmins, Gogama, Mattagami First Nation and unorganized regional study area communities is provided by Hydro One Networks Inc. In Sudbury, the Greater Sudbury Hydro Inc. services the needs of 48,000 customers within the City of Greater Sudbury. Natural gas is provided by Union Gas in Sudbury, Timmins.

Brunswick House First Nation has partnered with the Hydromega waterpower project on the Kapuskasing River which is currently in the construction phase. In 2010, the reserve received approval to install solar panels on the rooftop of the community center to connect to the Ontario power grid. This project will connect Brunswick House First Nation reserve to the Ontario power grid and a power purchase agreement will be made over 20 years between Hydromega Services Inc. and the First Nation (Brunswick House, 2009).

5.4.4.3 Solid Waste

Gogama

The Gogama Local Services Board offers garbage collection services on a fee for service basis (pers. comm., GLSB, May 2013). There is a recycling program and the landfill is expected to have capacity to meet demands for many years (pers. comm., GLSB, September 2012).

Timmins

The City of Timmins operates six landfill sites. Household solid waste and recycling is collected once a week. In 2011, the City generated a total of 11,393 tonnes of waste material of which 30.6% is recycled material. Timmins' blue box recycling program holds a processing agreement with the City of Greater Sudbury for single stream processing capacity that is renewed annually. The curbside recyclables are tipped at the City main Transfer Station located at the City's landfill site Deloro, an area of 63.5 ha 5 km south of downtown Timmins. This landfill site has sufficient capacity to manage the City's material for the next 50 to 60 years based on the current fill rate (City of Timmins, 2012b).

Sudbury

In Sudbury, solid waste and recycling is collected weekly. Leaf and yard trimmings are collected during the non-winter months. Sudbury operates four landfill sites. The estimated remaining lifespan is more than 25 years. The City also operates waste diversion projects for electronic waste and restrictions on landfill disposal to conserve landfill space. For example, as of November 2012, the industrial, commercial and institutional sector is restricted from disposing recyclable materials and a blue box recycling program is in place (City of Greater Sudbury, 2013a).

First Nation Communities

Mattagami First Nation has no solid waste facility or other waste diversion initiatives such as garbage pickup, recycling, and composting. Waste management information for all other First Nation reserves in the regional study area was unavailable at the time of writing this report.

Table 5-32 provides a summary of the waste management services available in regional study area communities.

Table 5-32: Summary of Waste Management in Regional Study Area Communities

Area	Solid Waste Collection	Recycling Collection	Organic Collection	Landfill Lifespan/ Capacity Concerns
Gogama	Y	n/a	n/a	No concerns
City of Timmins	Y	Y	N	50 to 60 years
City of Greater Sudbury	Y	Y	Y	+25 years[1]
Unorganized North Sudbury Subdivision	n/a	n/a	n/a	n/a
Unorganized Timiskaming West Subdivision	n/a	n/a	n/a	n/a
Mattagami First Nation[2]	N	N	N	n/a

Source: (City of Timmins, 2012b, City of Greater Sudbury, 2013a, GLSB, 2013)

Notes:

n/a: not available

[1] 2007 data (City of Greater Sudbury, 2013a)

[2] 2001 data (Wabun Tribal Council , 2002)

The City of Timmins, the City of Greater Sudbury and Gogama have no future landfill capacity issues. Information on First Nations in the regional study area was not available at the time of writing this report but will be added in addendum in the EA.

5.4.5 Social, Recreational and Community Services and Infrastructure

5.4.5.1 Gogama

Gogama provides local services such as a public playground, community centre, ice rink, baseball field, library, heritage museum, two community restaurants, a lodge, and snowmobile club. Situated on the shores of Minisinakwa Lake and access to many other lakes and wilderness areas (accessible by road or air) in the region create opportunities for recreational fishing, hunting and snowmobiling (GLSB, 2013). The community seeks to upgrade recreational services but the demand for additional development is insufficient as there are not enough children in the community (pers. comm., GLSB, July 2013).

5.4.5.2 Timmins

Timmins offers a range of social, recreational and community services. The following list demonstrates services covering learning and adult education upgrading, public safety, Aboriginal needs, and children health and well-being. Below is a description of a few representative service organizations.

The Timmins Learning Centre helps individuals and families by providing learner-centered literacy, numeracy and essential skills programs to adults and children.

The Timmins Community Safety Committee is a charitable organization providing programs such as anti-bullying campaigns, drug awareness, and neighborhood watch directed at enhancing the safety and security. Mothers Against Drunk Driving advocates against drunk driving, runs educational campaigns and provides services for victims.

There are several Aboriginal support organizations such as The Timmins Native Friendship Centre which offers services focused on supporting urban Aboriginal people and bridging understanding among Aboriginal and non-Aboriginal people (Timmins Native Friendship Centre, 2012). The Kunuwanimano Child and Family Services is a non-profit society offering a range of services in family support and prevention, advocacy, band representative function, and foster care (Kunuwanimano Child and Family Services, 2013).

Child and Family Services of Timmins and District is a children's services organization providing a broad spectrum of children's mental health and child protection services to children, youth and their families in the District of South Cochrane and Timmins area.

Timmins has four public skating arenas, one indoor swimming pool arena, public library, several baseball diamonds and soccer fields, golf courses, public playgrounds, tennis courts, mountain bike trails, and much green space allowing for relaxing (e.g. camping) or extreme (ATV, dirt biking) activities. The Mattagami River runs through the City and is a popular location for summer water activities. Several marinas and boat-launches provide hundreds of lakes and rivers for fishers. The City hosts several festivals and community events including the Golden Trails Festival Half Marathon and the Great Canadian Kayak Challenge. It is also home to the Timmins Symphony Orchestra, and Timmins Museum: National Exhibition Centre. Hockey is a very popular activity and the City is proud of its hockey heritage (City of Timmins, 2013a).

5.4.5.3 Sudbury

Sudbury provides numerous social and community services for addiction, Aboriginal well-being, and Children’s and Adult health. Below is a description of a few representative service organizations.

Alcoholics Anonymous Sudbury Intergroup offers services to help support alcoholics in sustaining a sober lifestyle through meetings and discussion groups.

Since 1967, the N'Swakamok Native Friendship Centre in Sudbury runs programs committed to preserving language and culture, enhancing quality of life and empowering family and community by providing supports, services and partnerships for the Aboriginal community in urban setting. Supports programs include, courtwork, alternative schooling (N'Swakamok Alternative School), employment and training, translation, healing and wellness, and many more (Sudbury Native Friendship Centre, 2013).

The Ten Rainbows Children's Foundation is a locally founded and operated Canadian registered charity. The organization helps families to cope with economic, physical or medical challenges by filling the gap where individuals may not qualify for other Federal/Provincial Government assistance or Municipal Programs. They've raised funds for numerous projects in the City of Greater Sudbury including skate exchange program, send-a-kid-to-camp, and purchase of educational tools for children with learning disabilities (Ten Rainbows Children's Foundation, 2011).

Sudbury is the home of the Big Nickel, Science North, northern Ontario's most popular tourist attraction, and Dynamic Earth, two of Canada's largest and most innovative science centres. These centres offer IMAX 3D, live science shows, and interactive exhibits. Sudbury's downtown hosts a mix of shops, boutiques, restaurants and cafés. Numerous heritage museums on farming, cooper, flour, railroad, and police offer cultural heritage outings. The City hosts a long list of festivals aimed at celebrating Aboriginal, Francophone, music, food, and ethnic heritage. Examples of festivals include Cinéfest Sudbury International Film Festival, Laugh Out Loud Comedy Festival, Northern Lights Festival Boréal, Jazz Sudbury Festival, and Northern Aboriginal Festival. Other recreational centres and activities include Sudbury Downs OLG slots gaming facility, Art Gallery of Sudbury, Sudbury Symphony Orchestra, and Le théâtre du nouvel-Ontario.

Green space is readily available from surrounding 330 lakes and hundreds of outdoor recreation areas for biking, hiking, skateboarding, fishing, canoeing, and swimming. Sudbury is also home to the Sudbury Wolves OHL hockey team and takes pride in its hockey traditions (Sudbury Tourism, 2013).

5.4.5.4 First Nation Communities

Mattagami First Nation supports a group of community members who organize and promote local activities, events and gatherings (Mattagami First Nation 2013). There is a multi-use facility such as the First Nation gymnasium that is used to house events, bingo's, children/youth activities and programs. There is a baseball diamond and covered outdoor rink that is used seasonally. Capacities for the recreational facilities are average (pers. comm., Mattagami First Nation, June 2013). Social issues are addressed by several social services that provide a

variety of programs such as the Community Youth Summer Sustainability Employment Program (ages 14-18), the Right to Play Program (ages 4-18) providing training to youth and mentorship. There is also community programming in health and family services, a crisis team and volunteer workers (pers. comm., Mattagami First Nation, June 2013c).

Flying Post First Nation provides social services to Elders and disabled members age 65 and older such as snowplowing, grass cutting, seasonal yard clean-up, light housekeeping, and firewood (limited to 5 cords a year). The Brighter Futures, Building Healthy Communities subsidy program is accessible to all members regardless of residency. The program supports recreation, sports and fitness programs, health/medical needs, stop smoking programs, eye glasses and some non post-secondary education training such as General Educational Development (GED), driver's education, Hunter's Safety Courses, First Aid/CPR, youth swimming lessons, and tutoring (pers. comm., Flying Post First Nation, June 2013b)

Brunswick House First Nation runs a community centre which hosts and helps organize workshops and events (Brunswick House First Nation, 2013). Social services information for Matachewan First Nation was unavailable at the time of writing.

5.4.6 Employment Assistance Programs

5.4.6.1 Gogama / Timmins / Sudbury

In Gogama, employment assistance is paid in full by the federal government to residents. Gogama does not pay a portion of the payments. There is no local employment assistance office. All correspondences are done by phone (pers. comm., GLSB, July 2013).

Employment support is available through Ontario Works in Sudbury and Timmins. In Sudbury the services of the Employment Resource Centre assist people with skills to write cover letters and resumes and apply for work. Employment counsellors are also available to assist with accessing training opportunities and preparing for employment interviews (City of Greater Sudbury, 2013a).

In Timmins, Northern College offers community employment services to link employers with employees. Both employers and employees can receive assistance in recruiting and training at the service centre. The Far Northeast Training Board promotes networking and planning training programs through the publication of local labour market research (TEDC, 2010).

The Timmins (2011) and Sudbury (2003) Homelessness Reports identified challenges with social assistance as a primary cause of absolute homelessness and recommend that meaningful changes need to be undertaken (Kauppi et al., 2012; Kauppi et al, 2003). Due to the homeless issues in these Cities it is likely that employment assistance programs are not meeting current demand.

5.4.6.2 First Nation Communities

Gezhtoojig Employment and Training in Sudbury offers employment, business, and training services to all Anishnabek people (Gezhtoojig Employment and Training, 2013).

Centered on the Ontario Works program, the Wabun Tribal Council provides employment and training through the Aboriginal Skills and Employment Training Strategy (ASETS) to its First Nations members in Brunswick House, Flying Post, Mattagami, Chapleau Odjibwe, and Matachewan First Nation communities. ASETS links training to labour market demand and ensures that Canada's Aboriginals can fully participate in economic opportunities (Wabun Tribal Council, 2013).

5.4.7 Child Care

5.4.7.1 Gogama

There is no child care in Gogama. Parents who require child care services often seek help from family members or close friends. There are no plans to build a child care facility as the demand for the service is insufficient (pers. comm., Gogama, July 2013).

5.4.7.2 Timmins

The City of Timmins offers numerous child care options. The YMCA of Timmins offers before and after school child care services in four distinct centres around town. The YMCA is currently seeking to add more early childhood educators to their staff as well as volunteers. This indicates that demand is at, or exceeding, capacity and additional support is needed (Timmins YMCA, 2013). The Timmins Transition Services provides a list of 13 local daycare centres and offers additional information on other child services and resources (Timmins Transition Services, 2013).

5.4.7.3 Sudbury

Greater Sudbury has a number of services available to residents to help them find appropriate child care. Sudbury operates a centralised child care registry to match parents with child care services. Sudbury also operates a child care facility, Junior Citizens Day Care, which offers child care for children 18 months to 12 years. Programs such as Best Start connect Sudbury families to information, services and programs (City of Greater Sudbury, 2013a). The YMCA, partnered with the Rainbow District School Board which services the most students within The Greater Sudbury Area (over 14,000 students), is currently seeking additional staff in early childhood education, human resources, health and fitness, and in employment placement. This may indicate that demands are at, or near, capacity and additional support may be required (Sudbury YMCA, 2013).

5.4.7.4 First Nation Communities

The Timmins Native Friendship Centre and Kunuwanimano Child and Family Services offer daycare services for Aboriginal people (Timmins Native Friendship Centre, 2012).

Sudbury's Child and Community Resources Inclusion Support Program provides assistance to include children with special needs in licensed early learning and child care programs in the City of Greater Sudbury and First Nations of Manitoulin. The M' Chigeeng Binoojiinh Gamgoonhs First Nations Day Care is licensed for a total of 70 children. Priority is given to those living within the reserve (City of Greater Sudbury, 2013a).

No child care services are provided on the Mattagami First Nation reserve. Access to child care is a significant barrier to families and single parents who are workforce ready or are available for training (pers. comm., Mattagami First Nation, June 2013).

Brunswick House First Nation, Social Services, Ontario Works programs all offer child care support services (211 Ontario North, 2013).

5.4.8 Shelters and Victims' Services

5.4.8.1 Gogama

Gogama does not have any women's shelters or offer other services to victims of abuse. Those in need of these services go to Timmins or Sudbury (pers. comm., GLSB, July 2013).

5.4.8.2 Timmins

Timmins and Area Women in Crisis operates three women's shelters in Timmins and offers services to victims of abuse. The women's shelters operate at capacity and expansion is needed (Timmins Daily Press, 2010). In 2008, the Centre Passerelle pour femmes du Nord de l'Ontario opened the first and only French language speaking shelter in Northern Ontario (Government of Ontario, 2008).The Good Samaritan Inn Homelessness Shelter houses up to 52 men and women in separate wings. Since opening, 12,000 people have made use of these services. Expansions are underway in 2013 as Goldcorp Canada Ltd. purchased an old church for the Good Samaritan Inn to use to help increase the number of available beds from 28 to 48 (GoodSamaritanInn, 2012; Timmins Daily Press, 2013). The Homelessness in Timmins, 2011 report, concluded that Aboriginal people are over-represented at 39% of homeless people in Timmins, and that the most used source of income was the Ontario Disabilities Support Program. The report recommends additional funding for shelters and beds for homeless people to ensure that adequate shelter beds are available, as well as transitional housing and youth housing (Kauppi et al., 2012).

5.4.8.3 Sudbury

In Sudbury, several local agencies have formed the Homelessness Network, including the Réseau des sans-abri, and En dass gwa uk Maan we nod ma geh win. The Network is led by the Centre de santé communautaire de Sudbury, and is comprised of eight community agencies: Corner Clinic, Canadian Red Cross - Sudbury Branch, Canadian Mental Health Association, Elizabeth Fry Society, John Howard Society, L'association des jeunes de la rue, N'Swakamok Native Friendship Centre, Sudbury Action Centre for Youth. The Network's

mandate includes prevention of homelessness and implementation of the Housing First strategy, which was adopted by Greater Sudbury City Council in November 2006. The City provided $417,050 in 2007 to help support the program (City of Greater Sudbury, 2013a).

Access to shelters is insufficient in the regional study area. Participants in the 2003 Homelessness in Sudbury Report placed building more shelters as one of the most important strategies for addressing homelessness. It was listed third, behind more government funding for health, mental health, and social programs and job creation and assistance (Kauppi et al, 2003).

Victim Crises Assistance and Referral Service are available in both Timmins and Sudbury. The service provides immediate short-term assistance to victims and their families (Greater Sudbury Police, 2012).

5.4.8.4 First Nation Communities

Kunuwanimano Child and Family Services provide social services to help eliminate all forms of abuse to First Nations. It offers services in family support and prevention, advocacy, band representative function, and foster care. The Kunuwanimano catchment area encompasses a broad region in northeastern Ontario that ranges from Hornepayne to Matachewan First Nation and includes eleven First Nation communities. The Kunuwanimano head office is located on Wahgoshig First Nation with the main office located in Timmins (Kunuwanimano Child and Family Services, 2013). Service locations include:

- Beaverhouse First Nation, Brunswick House First Nation;
- Chapleau Cree First Nation;
- Chapleau Ojibwe First Nation;
- Constance Lake First Nation;
- Hornepayne Native Community;
- Matachewan First Nation;
- Mattagami First Nation;
- Missanabie Cree First Nation;
- Taykwa Tagamou (New Post First Nation);
- Wahgoshig First Nation; and
- Timmins (Head Office).

Participants of the Timmins Aboriginal Services and Programs Gap Analysis (2011) indicated that addictions counseling (56%), shelters/half-way houses (54%) and crisis beds (53%) were key social service needs of Aboriginal's in Timmins. The third most pressing service gap is related to crisis beds and addiction services (8%). Career-counseling and in-school culturally

relevant education was the most important (12%) followed by housing and health programs (10%; Carrière, 2011).

There is a lack of accessible shelters within Timmins. The shelters that exist are often beyond capacity, and are not suitable options for families or those with children (Carrière, 2011).

5.4.9 Religious Services and Spirituality

5.4.9.1 Gogama

Gogama has two parishes, the Notre Dame du Rosaire Church (Roman Catholic) and the Gogama Community Church. The Gogama Community Church holds services at Gogama Public School (GLSB, 2013).

5.4.9.2 Timmins / Sudbury

The 2011 National Household Survey included questions on religion. The most prominent religion in Timmins and Sudbury is Catholic (Timmins 62%; Sudbury 59%) reflecting the large French-Canadian population. Sudbury also has a high Protestant (21%) population among its residents (SC, 2013c, 2013d).

5.4.9.3 First Nation Communities

Mattagami First Nation hosts religious services which are mainly gospel and Christian. There are no future plans to have other church groups and or services in the community (pers. comm., Mattagami First Nation, July 2013).

Religious services information was unavailable at the time of writing this report for Flying Post, Brunswick house and Matachewan First Nations.

5.4.10 Education

Enrolment in Ontario's publicly funded schools has been in decline since the 2002-2003 school year. In 2009, Northern Ontario was expected to have the largest rate of decline in public school enrolment at over 13% (Declining Enrolment Working Group, 2009). There are nearly 120,000 fewer students in elementary and secondary schools in Ontario than there were ten years ago, largely as a result of the decline in birth rate (People for Education, 2012; Ontario Ministry of Education, 2012).

5.4.10.1 Gogama

Gogama has one French Catholic school operated by the Gogama Roman Catholic Separate School Board, which had five students in the 2012-2013 school year and is expected to have 11 students in the 2013-2014 school year. The school's seating capacity is approximately 200 students. The Gogama Public School closed in 2012. The school offers instruction from

Junior Kindergarten to Grade 8. Students attend high school in Timmins (Gogama, 2013; pers. comm., GLSB, May 2013).

5.4.10.2 Timmins

In Timmins, the following boards operate schools (Ontario Ministry of Education, 2012):

- Conseil scolaire de district catholique des Grandes Rivières (Catholic, French);
- District School Board Ontario North East (Public, English); and
- Northeastern Catholic District School Board (Catholic, English).

Enrollment statistics for these school boards are listed in Table 5-33 and show a slight increase in enrolment from the 2010/2011 to the 2011/2012 school years.

Table 5-33: Timmins School Boards Enrolment Statistics 2010-2012

School Boards	2010/2011	2011/2012	% Difference
CSP du Nord-Est de l'Ontario[1]	1,845	1,942	5
CSCD des Grandes Rivières	n/a	6,495[3]	n/a
DSB Ontario North East[2]	7,692 (2009-2010)	8,086[3]	5
Northeastern CDSB	n/a	2,380[3]	n/a

Source: [1]Conseil scolaire publique du Nord-est de L'Ontario, 2013; [2]District School Board Ontario North East, 2013; [3]TEDC, 2012)

Note:

n/a: not available

5.4.10.3 Sudbury

The following boards operate schools in Sudbury (Ontario Ministry of Education 2012):

- Conseil scolaire de district catholique du Nouvel-Ontario (Catholic, French);
- Conseil scolaire de district du Grand Nord de l'Ontario (Public, French);
- Rainbow District School Board (Public, English); and
- Sudbury Catholic District School Board (Catholic, English).

The enrolment trends (see Table 5-34) are stable or declining slightly.

Table 5-34: Sudbury School Boards Enrolment Trends 2012-2013

School Boards	2010-2011			2011-2012			% Difference
	Elementary	Secondary	Total	Elementary	Secondary	Total	
Conseil scolaire de district catholique du Nouvel-Ontario (Catholic, French[1]	5,202	2,067	7,269	5,079	2,018	7,097	-2.4
Conseil scolaire publique du Grand Nord de l'Ontario (Public, French)[2]	1,540	712	2,253	1,602	689	2,291	1.7
Rainbow District School Board (Public, English)[3]	8,748	5,618	14,366	8,625	5,442	14,067	-2.1
Sudbury Catholic District School Board[4]	n/a	n/a	n/a	4,174	2,143	6,317	n/a

Sources: [1] (Conseil scolaire catholique du Nouvel-Ontario, 2013; [2] Conseil scolaire publique de district du Grand Nord de l'Ontario , 2013; [3] Rainbow District School Board, 2013; [4] Sudbury Catholic District School Board, 2013)`

Note:

n/a: not available

5.4.10.4 First Nation Communities

Mattagami First Nation provides elementary schooling from Junior Kindergarten to Grade 8 for 34 students at the Mary Jane Naveau Memorial School which has capacity for 120 students. Eleven Secondary school students attend schools in Timmins and travel there by bus (pers. comm., Mattagami First Nation, June 2013).

Ten youths from the Flying Post First Nation are attending high school and are supported by band office counseling services if needed. Students attend school in their own home towns (pers. comm., Flying Post First Nation, June 2013b).

Brunswick House First Nation provides bus transportation for elementary and high school students attending school in Chapleau (211Ontario North, 2012).

Matachewan First Nation does not have educational facilities for local students on their reserve and bus to area elementary and secondary schools (Matachewan First Nation, 2013).

5.4.11 Post-Secondary Education

5.4.11.1 Gogama

Gogama does not offer post-secondary education programs. Students attend high school in Timmins and advanced education institutions outside the community.

5.4.11.2 Timmins / Sudbury

Timmins and Sudbury have a wide range of post-secondary education institutions. Table 5-35 lists the schools available in Sudbury and Timmins and the range of programs available. Several post-secondary education programs in Sudbury are aimed at building capacity for mining related work. The following programs are currently offered:

- Mining Innovation, Rehabilitation and Applied Research Corporation;
- The Centre for Excellence in Mining Innovation;
- The Centre for Integrated Monitoring Technology; and
- The Northern Centre for Research and Advanced Technology (City of Greater Sudbury, 2013b).

Table 5-35: Post-Secondary Education in Regional Study Area Communities

Regional Study Area Community	Name of School	Type of Education Offered	Capacity for Increased Enrolment
Timmins	Northern College of Applied Arts and Technology Porcupine Campus	Diplomas, apprentice programs and university preparation programs.	Strong Capacity
	Collège Boréal	Francophone college, diploma's and degree entry programs	n/a
	Université de Hearst à Timmins	Francophone university, undergraduate and graduate programs.	n/a
Sudbury	Academy of Learning	Career and Business College	n/a
	Cambrian College	Over 90 full-time programs, more than 800 part-time continuing education programs	Strong Capacity
	Collège Boréal	Francophone college, diploma's and degree entry programs	n/a
	Canadian Career College	Private career college	n/a
	Laurentian University	Undergraduate programs.	Secured a $20 million endowment to create a School of Mines to accommodate demand.
	Northern Ontario School of Medicine	Joint initiative with Lakehead University and Laurentian University. Offers a four year MD program.	n/a

Regional Study Area Community	Name of School	Type of Education Offered	Capacity for Increased Enrolment
	Northern Centre for Advanced Technology (NORCAT).[1]	Offers a series of world class training and development programs to serve the mining, manufacturing, oil/gas, healthcare, and construction sectors with an array of top-tier supervisory, productivity, and health and safety programs and services.	Strong Capacity

Source: (TEDC, 2010); [1] (pers. comm., City of Greater Sudbury, May 2013)
Note:
n/a: not available

The Council of Ontario Universities Inventory of Physical Facilities of Ontario Universities (2010-2011) indicates that teaching and research in Ontario's universities currently are impacted by a lack of sufficient space and facilities that are inadequate to meet the needs of students and faculty. It is predicted that the expansion of graduate enrolment will put greater pressure on the facilities. In 2009, the federal Government committed $2 billion for Canadian universities and colleges to upgrade and retrofit facilities and the province of Ontario invested $335 million in 2007-2008 for campus renewal (Council of Ontario Universities, 2013).

Laurentian has secured a $20 million endowment to create a School of Mines (SoM) responding to significant interest amongst Laurentian students in open pit mining (Laurentian University, 2012). In 2013, the Bharti School of Engineering at Laurentian University established Canada's first Research Chair in Open-Pit Mining, with significant support ($1.25 million) from IAMGOLD Corporation. The investment is expected to enhance the research capacity of the school and provide cutting-edge knowledge to mining engineering programs. The Chair will provide leadership for national and international collaborative research into open-pit mining, including open-pit design and slope stability, resource estimation, optimization of drilling and blasting, and practical application of grade simulation (Laurentian University, 2013).

Ontario colleges overall faces challenges with stable capital funding. In Canada, average spending on college education is over $9,000 per student. In Ontario, it is about $7,500 per student (ACAATO, 2006; ECS, 2007). Northern College has the capacity to support training in the mining sector but recruitment is challenging. Efforts in 2012 to increase enrolment were successful in some areas, with a significant increase of 10% in Welding clusters (Northern College, 2013). In 2011, Cambrian College Action Plans included efforts to increase overall enrolment by 4% but managed to increase by 2.58%. In 2010, Cambrian was the first in Ontario to mobilize the Skilled Trades Mobile Trailer, a state-of-the-art lab that will expand trades and apprenticeship training into remote, rural and Aboriginal communities (Cambrian College, 2011). There is no current capacity issue for Northern and Cambrian College and future enrolment increases are welcomed.

5.4.11.3 First Nation Communities

First Nation communities offer federally funded assistance, through education officers, in accessing information and financial support for First Nations interested in post-secondary education. Examples include AANDC's Post-Secondary Student Support Program which provides financial assistance to Status Indian and Inuit students who are enrolled in eligible post-secondary programs, and the Wabun Tribal Council Scholarship Fund which provides scholarships for post-secondary education to all First Nations in the regional study area (Wabun Tribal Council, 2013).

There are 11 Mattagami First Nation members pursuing a post-secondary education. Approximately 30 members have a college, CEGEP, or other non-university certificate or diploma. There are approximately 20 members living on-reserve with university certificate, diploma or degrees (pers. comm., Mattagami First Nation, July 2013c).

In Flying Post First Nation, 27 students are currently pursuing a post-secondary education, 14 of them in college programs and 13 in university programs. Five of these students are pursuing degrees in the regional study area (three at Laurentian University, one at Cambrian College and one at Northern College). No students are studying topics directly applicable to mining or have expressed an interest in pursuing a career in mining, although some students are pursuing education relating to trades and engineering (pers. comm., Flying Post First Nation, June 2013b).

5.4.12 Health Infrastructure and Services

5.4.12.1 Gogama

The Timmins District Hospital is Gogama's district hospital (pers. comm., CDSSAB, May 2013). A nursing station operates in Gogama as a satellite facility sponsored by the Centre de Santé *Communautaire de Sudbury,* and is part of The North East Local Health Integration Network (North East LHIN). The station is staffed by a full time bilingual nurse practitioner specialising in primary care from Monday to Thursday. Physicians visit the nursing station on an as-needed basis (GLSB, 2013). To enhance the quality of services, the community would like to have a physician regularly visit on a weekly basis. Demands are currently being met and services would need to be reassessed to accommodate additional cases (pers. comm., GLSB, July 2013).

5.4.12.2 Timmins

The Timmins and District Hospital (T&DH) hosts a level C, fully accredited (Accreditation Canada) referral and teaching hospital serving the residents of Timmins and Cochrane District as well as the adjoining areas of the Temiskaming, Sudbury and Algoma Districts. The hospital offers a full range of medical, surgical, critical care, maternity, newborn, pediatric, long-term care and mental health services as well extensive health education and district services. T&DH provides 161 beds hospital wide and has approximately 850 frontline staff and 70 physicians (T&DH, 2013).

Timmins is home to the following health professionals (TEDC, 2010; T&DH, 2013):

- dentists – 9;
- optometrists – 8;
- physicians and surgeons – 70;
- chiropractors – 11;
- physiotherapists – 6; and
- chiropodists – 1.

Several job postings are available in various health service departments indicating that services are at, or near, capacity and that additional support may be needed (T&DH, 2013).

5.4.12.3 Sudbury

Sudbury offers a wide range of health services. Sudbury's Health Sciences North offers programs and services that meet patient care needs, with leading regional programs in the areas of cardiac care, oncology, nephrology, trauma and rehabilitation. It has 3,900 employees, a medical staff of more than 250, 600 volunteers and a diverse range of services across the following core programs (Health Sciences North, 2011) including:

- Medicine and Rehabilitation;
- Diagnostic Services;
- Critical Care;
- Family and Child;
- Emergency and Ambulatory Care;
- Surgical Program;
- Mental Health and Addictions; and
- Northeast Cancer Center.

The Sudbury and District Health Unit is part of a provincial network of 36 non-profit public health agencies, funded jointly by local and provincial governments (SDHU, 2013a).

Numerous job postings in various service departments are posted on the Sudbury's Health Sciences North website indicating that demand is at, or near, capacity and additional support may be needed (Sudbury Health Services North, 2013).

5.4.12.4 First Nation Communities

Mattagami First Nation has a nursing station. Capacity is average and there are no future plans for development (pers. comm., Mattagami First Nation, July 2013).

Flying Post First Nation Health Services administer an Aboriginal Healthy Babies Healthy Children program which delivers a parenting support program and promotes healthy child development (Flying Post First Nation, 2013; 211Ontario North, 2012).

Brunswick House First Nation offers a health centre with the services of a visiting registered nurse three days per week and a visiting hygienist every three months. It provides health awareness, education and prevention workshops and seminars, coordinates clinics in areas including blood pressure, immunization, sexual health and communicable diseases, diabetes education and management counselling, and mental health counselling.

It also provides the following programs (ThunderBay.CIOC, 2012):

- Community Health;
- Healthy Babies Healthy Children;
- Home and Community Care;
- Medical Transportation; and
- National Native Alcohol and Drug Abuse Program.

Matachewan First Nation manages several health care programs for its First Nation members in the community. The First Nation works with Wabun Health Services, part of the Wabun Tribal Council to deliver these services for the community (Matachewan First Nation, 2013).

5.4.13 Emergency and Policing Services

5.4.13.1 Fire Protection

Fire protection in Gogama is delivered through the Gogama Volunteer Fire Protection Team (GLSB, 2013).

The Timmins Fire Department services the City of Timmins, including Mountjoy, South Porcupine, Schumacher, Whitney, Connaught and Timmins. The City of Timmins currently employs 28 full time firefighters for suppression. They are based out of the Timmins Fire Department. In conjunction with the career force, there are a total of 21 volunteers or 43% of the workforce (Timmins Fire Department, 2009).

Sudbury's fire services are provided by The Fire Services Division comprised of career and volunteer fire fighters. Approximately 107 career staff and 350 volunteer fire fighters respond to about 4,600 emergency responses per year (City of Greater Sudbury, 2013a).

Fire services within the Mattagami First Nation are provided within the reserve by community volunteers. External services are requested only in extreme case, most of the events are handled locally. There are continued plans to work with Chief and Council to lobby for funding for emergency equipment (pers. comm., Mattagami First Nation, June 2013).

5.4.13.2 Police Services

Gogama Ontario Provincial Police (OPP) detachment reports to the South Porcupine Detachment and its jurisdiction extends as far south as Marquette Township and as far north as the Sudbury District line (OPP). The detachment's full-time staff includes one Sergeant, six Constables, and a new recruit. Administration is based in Timmins. Efforts of the Gogama detachment are oriented towards both the provincial highways (mostly Highway 144) and to the large unorganized area's trails, lakes, cottages and communities (Gogama). Community needs are met with existing resources. Crime levels are down in 2013 in Gogama, with property crimes falling between 15 and 20% in the South Porcupine cluster. The OPP can accommodate additional demands on their services (OPP, May 2013).

Timmins and Sudbury are fully serviced with police services. The Timmins Police Service responded to a total of 55,225 calls in 2011 with total reported criminal offence occurrences at 4,458 and total non-criminal occurrences at 23,635. Most common offences reported are theft (890), assault (526), mischief (372), break and enter (366), and drug offences (166). Mischief reports (372) were much lower than the average 2008-2011 (474) while all other incident types demonstrated similar rates to 2008-2011 averages. Future concerns arise from the Courts demanding a higher quality standard for all cases and not just those which meet the major case threshold. The labour intensive Major Case Management Protocol is resulting in more staff hours required to complete an investigation. The required hours of training to meet the standards add additional strain on the staffing resources of the section. Also, specialized equipment and training are being required to retrieve information from technological devices, adding additional time and costs to the workforce (Timmins Police Service, 2011).

Sudbury's Greater Sudbury Police staffs 264 uniformed personnel, 107 civilian, 160 volunteers, 33 auxiliary, 29 summer student members, and sustains a fleet of 152 vehicles and trucks. The ratio of population to police officer is 605:1. In 2011, there were 62,422 calls for service, representing an increase of 2% since 2010. Incidents of violent crime (1,710) and crimes against property (5,630) dropped below 2007 to 2010 rates. Clearance incident rates, except for solved theft cases, surpassed 2010 results (Greater Sudbury Police Service, 2011).

The Nishnawbe-Aski Police Service (NAPS) is the largest First Nations police service in Canada, policing an area encompassing almost two-thirds of Ontario. The service is 52% funded by the federal government and 48% by the province (NAPS, 2012). NAPS employs approximately 134 uniform officers and 30 civilians and polices 35 communities across Northern Ontario. NAPS faces a number of challenges: in a 2011/2012 Annual Report, the Chief of Police raised concerns related to the abuse of prescription drugs in communities, mental health of NAPS officers, underfunding, and recruitment and retention challenges (NAPS, 2012). In

particular, prescription drug use has created an epidemic in many communities and the Nishnawbe Aski Nation has declared a state of emergency for their communities including the communities in the regional study area affiliated with the Wabun Tribal Council (Bell, 2012). Cuts in funding from the conclusion of the Federal Police Officer Recruitment Fund are expected to cause the service to cut 11 officers and may require them to withdraw services from one or two small communities (Wyatt, 2013).

Northeast NAPS detachments include the following First Nations in the regional study area (NAPS, 2009):

- Brunswick House First Nation;
- Matachewan First Nation; and
- Mattagami First Nation.

The Mattagami First Nation indicates that the policing needs of the community are not being met. The service needs more visibility and more community awareness programs (e.g. D.A.R.E., road safety) in schools and in the community. Issues include crime and safety related to drug abuse; access to unlicensed, uninsured vehicle use, and alcohol consumption. Future plans are unclear for the policing services. However, plans may be developed at the Chief and Council level (pers. comm., Mattagami First Nation, June 2013).

5.4.13.3 Ambulance Service

An emergency ambulance service for the Gogama area is staffed by trained personnel (Gogama, 2013). The Manitoulin-Sudbury District Service Board provides additional emergency services and has one ambulance, which is often only available 40 hours a week and then is on-call for the remainder of the week. (pers. comm., CDSSAB, May 2013).

The Cochrane District Social Services Administration Board (CDSSAB) acts as the emergency response services for nearby mining companies and has not experienced increased demand on services from the recent developments such as the Detour Gold mine development northeast of Cochrane, Ontario (pers. comm., CDSSAB, May 2013). CDSSAB does not foresee any changes in demand on its services associated to the Côté Gold Project.

Emergency medical services in Timmins are provided by the CDSSAB. Over 94 Basic Life Support Paramedics provide 24/7 ambulance coverage at various locations. In Timmins one to two ambulances are available in the city, with the number varying based on peak demand (TEDC, 2010; CDSSAB, 2005).

The Emergency Medical Services Division is the sole provider of ambulance service in the City of Greater Sudbury and is responsible for providing primary and advanced medical care to ill and injured persons to, from and between medical treatment facilities.

Ambulance deployment in Sudbury ranges from 7 ambulances during low demand periods (nights) to 10 ambulances during peak demand periods (weekdays). There are 5 Paramedic Response Units available 24/7 (City of Greater Sudbury, 2013a).

Mattagami First Nation emergency ambulance service is provided by Gogama as required. There is one ambulance on call 24/7. Under extreme conditions Air Ornge will provide emergency services as well as the Timmins Fire and Rescue as an auto service response. Emergency Management Ontario has been used twice over the past two years for fire and flooding evacuations. There are no future plans for the reserve to acquire their personal service due to liability issues that need to be explored. Future development plans are being assessed for the ambulance and first response services (pers. comm., Mattagami First Nation, June 2013; pers. comm., Mattagami First Nation, July 2013).

Flying Post First Nation provides a medical van for Elders and disabled members who are unable to drive themselves to out of town appointments (pers. comm., Flying Post First Nation, June 2013b).

6.0 SUMMARY

The regional study area includes the areas of Gogama, Timmins, Sudbury, the Unorganized North Sudbury Subdivision, Unorganized Timiskaming West, Mattagami First Nation, Flying Post First Nation, Brunswick House First Nation and Matachewan First Nation. Timmins and Sudbury are urban communities which have increasingly become service hubs for mining, education and health services. The rural areas of Gogama and the unorganized subdivisions have, over the past decade, seen negative population growth and a greying demographic composition. The First Nation reserves have younger populations and have seen positive population growth, although some (Mattagami First Nation and Matachewan First Nation in particular) seem to be undergoing a demographic transition to a larger working-age population. The majority of their members live off-reserve.

The local study area communities of Gogama and Mattagami First Nation have struggled to keep working-age residents in their communities. In Gogama this has resulted in the population falling by 30% between the 2006 and 2011 Censuses. Over the same period, the population on Mattagami First Nation's reserve stayed more-or-less stable, while share of the off-reserve membership rose from 57.3% to 64.6%. The population that remains is older: Gogama's population over 65 is almost double the Ontario average and its leadership describe it as a retirement community. Mattagami First Nation's population below the age of 15 fell from 26.3% in 2006 to 17.6% in 2011, although this is still higher than the average for the regional study area of 15.9%. Despite outmigration, Mattagami First Nation's working age population share (those from 20 to 64 years of age) is 68.9%, the highest among all of the regional study area communities.

The regional study area's population grew by 1.3% over the period from 2006 to 2011. The majority (97.3%) of regional study area residents live in one of the two cities in the regional study area, Timmins and Sudbury. Both Cities have grown in population while rural populations shrank. The result of these population trends is stable demands for community services and infrastructure in the urban regional study area communities and declining demands in rural regional study area communities. Regional study area communities continue to plan strategically and make investments in public infrastructure and services to address these challenges. High primary commodity prices have strengthened the regional study area's economy over the last decade, particularly in urban areas. The unemployment rate has fallen, incomes have risen and the real estate market has increased demands to a point where there are concerns about a possible housing shortage in Timmins. Urban areas have also benefitted economically from their role as regional service hubs providing a wide range of services in health, education, retail and recreation.

The culture of the region has been influenced by the Aboriginal peoples who reside in the area and the pattern of settlement from French and English Canada. Gogama in particular has a strong Franco-Ontarian influence in its culture. More than half of its residents, 56.1%, consider French their mother tongue and 64.3% of residents are bilingual. Across the region 40.9% of those in the regional study area are bilingual compared to an Ontario average of 11.0% (SC,

2012a). A substantial and rising share of the region's residents identify as Aboriginal, 8.0% in Timmins and 8.2% in Sudbury compared to an Ontario average of 2.4%. Among those who identify as Aboriginal there are multiple identities, with about half of the population identifying as Métis and half as First Nation (SC, 2013a).

The regional economy has been strengthened by a sustained boom in resource commodity prices, particularly in gold, which has helped expand the mining industry. The regional study area has a long history of mining and the industry has played a role in forming its institutions, culture and infrastructure. Both Timmins and Sudbury have had or have mines in production within their city limits. People working in mining make up 14.5% of the workforce of Timmins and 8.6% of the workforce of Sudbury compared to 0.4% for Ontario as a whole. Both City governments are supportive of the mining industry. Many of the largest private-sector employers in both Cities are mining or mining service firms. For the region, however, the strong relationship with natural resource based activities leaves it vulnerable to global markets and commodity prices. This is of increasing concern with the recent fall in the prices of commodities, particularly gold - the price of which fell by 12.1% from June 2011 to June 2013 (World Bank Group, 2013) and a recent poll reported that 46% of mining companies are considering layoffs to compensate (Sankey, 2013).

The regional study area's infrastructure and social services for Timmins and Sudbury provide adequate services for current demands and needs. However increased access to affordable housing is needed to help improve the status of the homeless, particularly in Timmins. Generally, water and wastewater treatment is adequate throughout the regional study area, including the First Nation communities, although Gogama's wastewater treatment is currently near capacity.

Northern Ontario's primary and secondary school enrolment trends have been in decline for the past nine years and are predicted to continue on a similar path until 2020. With an aging workforce, decline in birth rates and youth-outmigration, future enrolment trends are predicted to continue to decline. First Nation communities have seen divergent trends within the regional study area, with the share of the population below 15 falling in Mattagami First Nation to provincial norms while Brunswick House continues to have a very youthful and growing population which will place increased pressure on the primary and secondary schools its children attend.

Timmins, Sudbury and Gogama's health infrastructure and services are well equipped and do not currently face capacity issues. Police services needs in Gogama, Timmins, and Sudbury are currently being met and are not judged to be at-capacity. First Nations policing, however, is facing challenges owing to cuts in funding to the NAPS program although these impacts vary between First Nations. Mattagami First Nation does not currently face major issues with public order.

Emergency response services in Gogama are in a difficult position at the edge of the service area for Manitoulin-Sudbury district services. However, in crisis situations they have been able to draw on services from CDSSAB and do not currently have capacity issues. The regional study area is accessible by road, rail and air services. The level of service is best for Highway 144 in the local study area with declining service levels near Sudbury where traffic volumes are highest within the regional study area.

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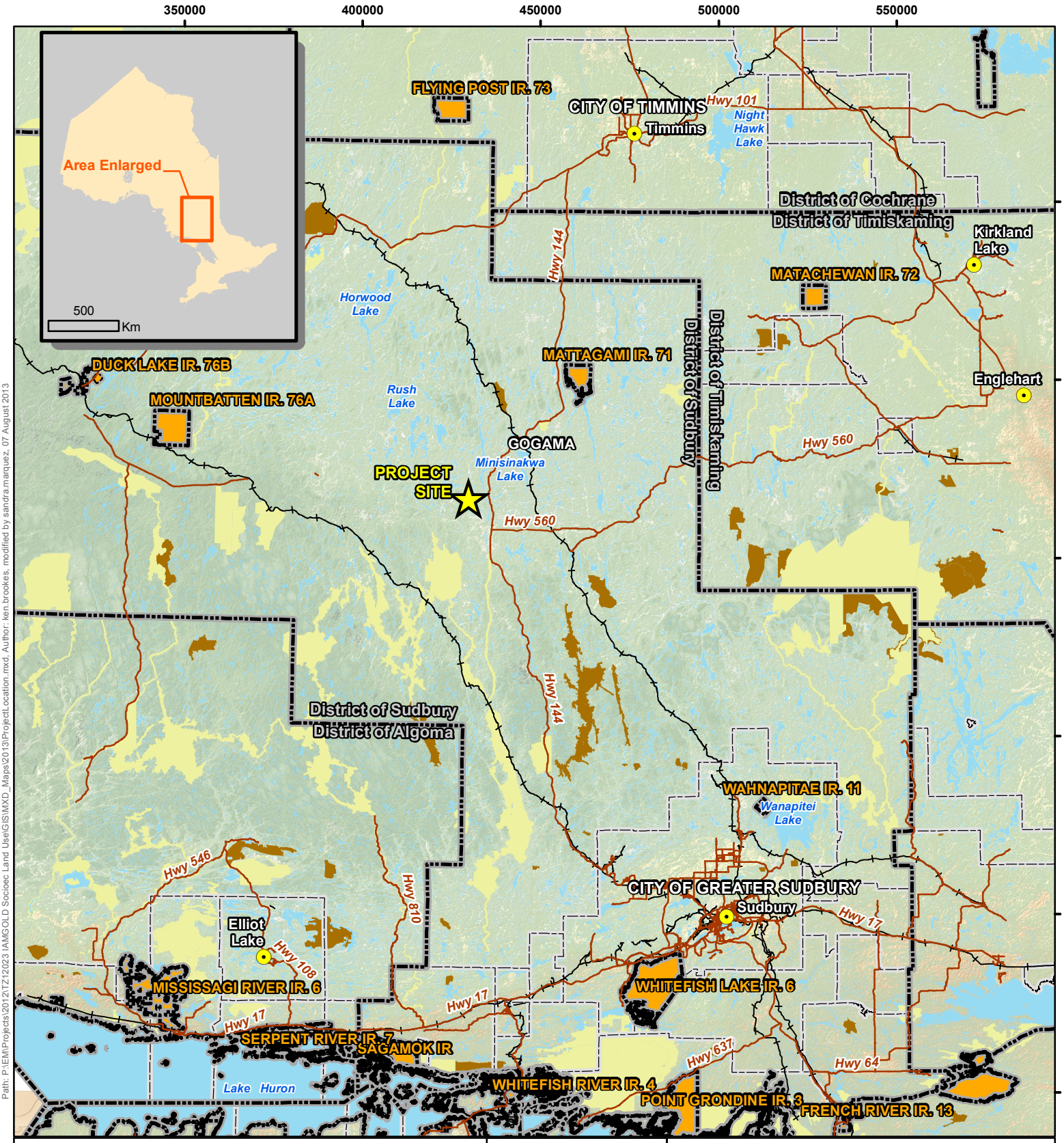
FIGURES



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LEGEND

- Project Site Location
- Regional Communities
- Major Roads
- Railway
- Lower Tier Municipality Boundary
- Upper Tier Municipality Boundary
- First Nation Reserve
- Conservation Reserve (Regulated)
- Provincial Park
- Waterbody / Large Watercourse
- Wooded Area

NOTES:
- All base data on this map was extacted from Land Information Ontario, MNDM, OBM Ontario Digital Geospatial Database and Ontario Road Network Database.

0 12.5 25 50 75 100 125 Kilometres

Datum: NAD83
Projection: UTM Zone 17N

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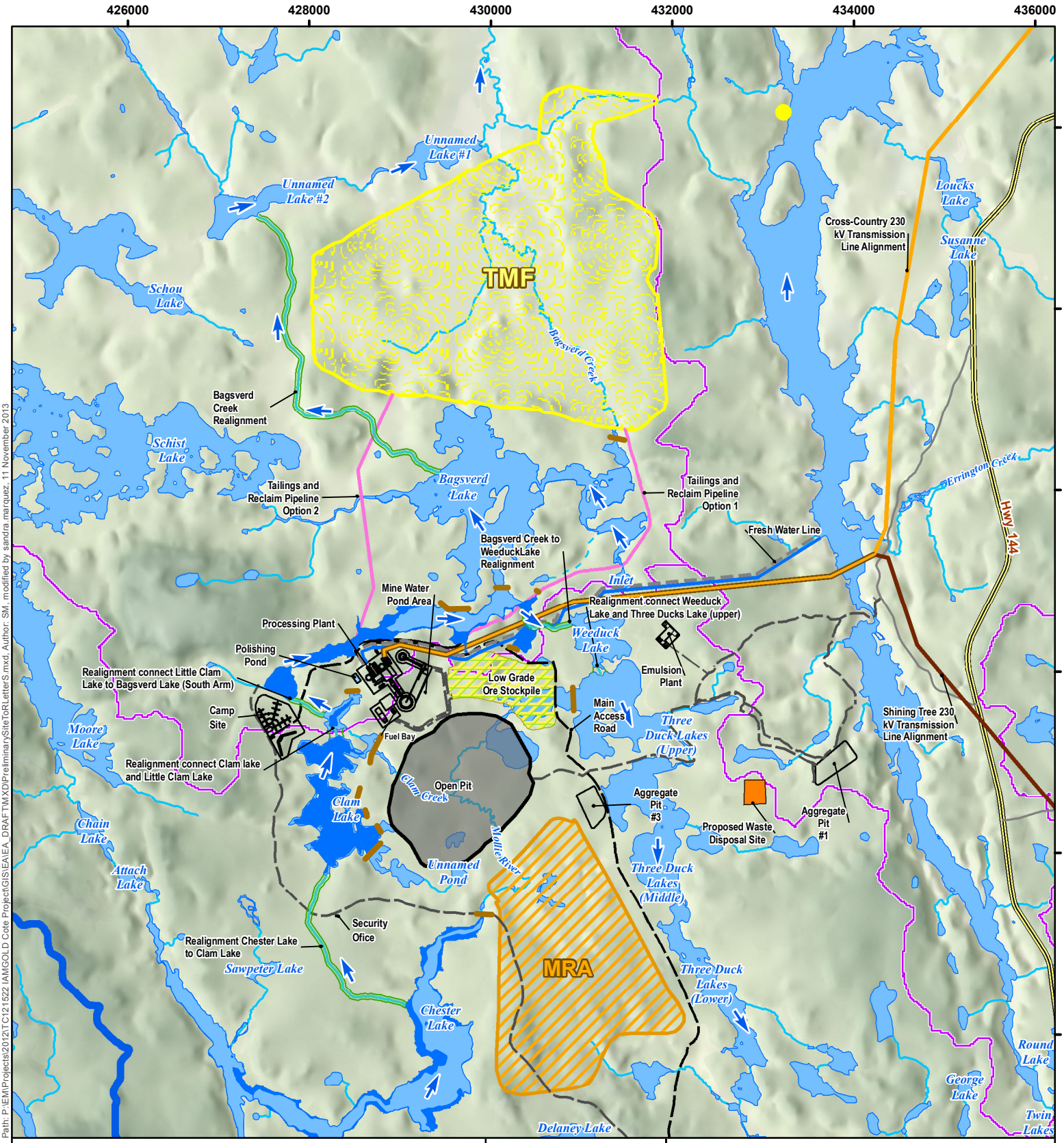
CÔTÉ GOLD PROJECT

Project Location

PROJECT N°: TZ12023	FIGURE: 1
SCALE: 1:1,450,000	DATE: August 2013



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LEGEND

- Existing Intermittent Watercourse
- Existing Permanent Watercourse
- Existing Waterbodies
- Highway
- Local Road
- Subwatershed Boundary
- Wooded Area
- Open Pit
- Potential Discharge Location
- Facilities
- Dam
- Main Access Road
- Access Road
- Cross-Country 230 kV Transmission Line Alignment
- Shining Tree 230 kV Transmission Line Alignment
- Tailings and Reclaim Pipeline
- Fresh Water
- Water Realignment
- Proposed Water Flow Direction
- Proposed Lake Area
- Polishing Pond
- Low Grade Ore Stockpile
- Proposed Mine Rock Area (MRA)
- Proposed Tailings Management Facility (TMF)
- Proposed Landfill

NOTES:
- Ontario base data extracted from Land Information Ontario (MNR)
- TMF and subwatershed provided by Golder Associates.
- Watercourse realignment and proposed lake area provided by Calder Engineering.
- Surface infrastructure, open pit, landfill, MRA and transmission lines provided by IAMGOLD.
- Mesomikenda Lake is preferred discharge option, but others are being investigated.

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CÔTÉ GOLD PROJECT

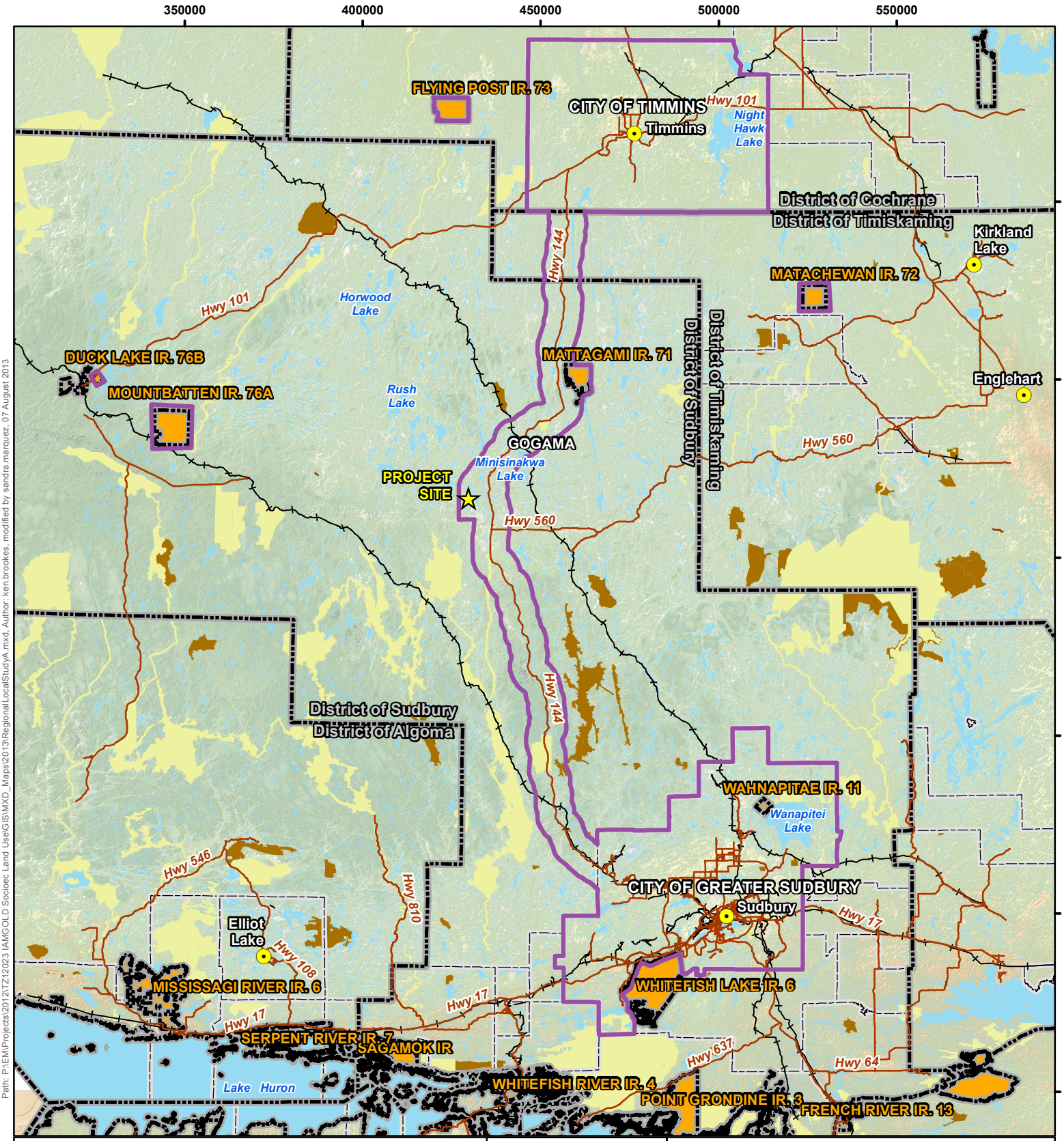
Preliminary Site Plan

Datum: NAD83
Projection: UTM Zone 17N

0 1 2 3 4 5 Kilometres

N W E S

PROJECT N°: TC121522	FIGURE: 2
SCALE:1:57,000	DATE: December 2013



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LEGEND

- Project Site Location
- Regional Study Area
- Regional Communities
- Major Roads
- Railway
- Lower Tier Municipality Boundary
- Upper Tier Municipality Boundary
- First Nation Reserve
- Conservation Reserve (Regulated)
- Provincial Park
- Waterbody / Large Watercourse
- Wooded Area

0 12.5 25 50 75 100 125 Kilometres

NOTES:
- All base data on this map was extacted from Land Information Ontario, MNDM, OBM Ontario Digital Geospatial Database and Ontario Road Network Database.

Datum: NAD83
Projection: UTM Zone 17N

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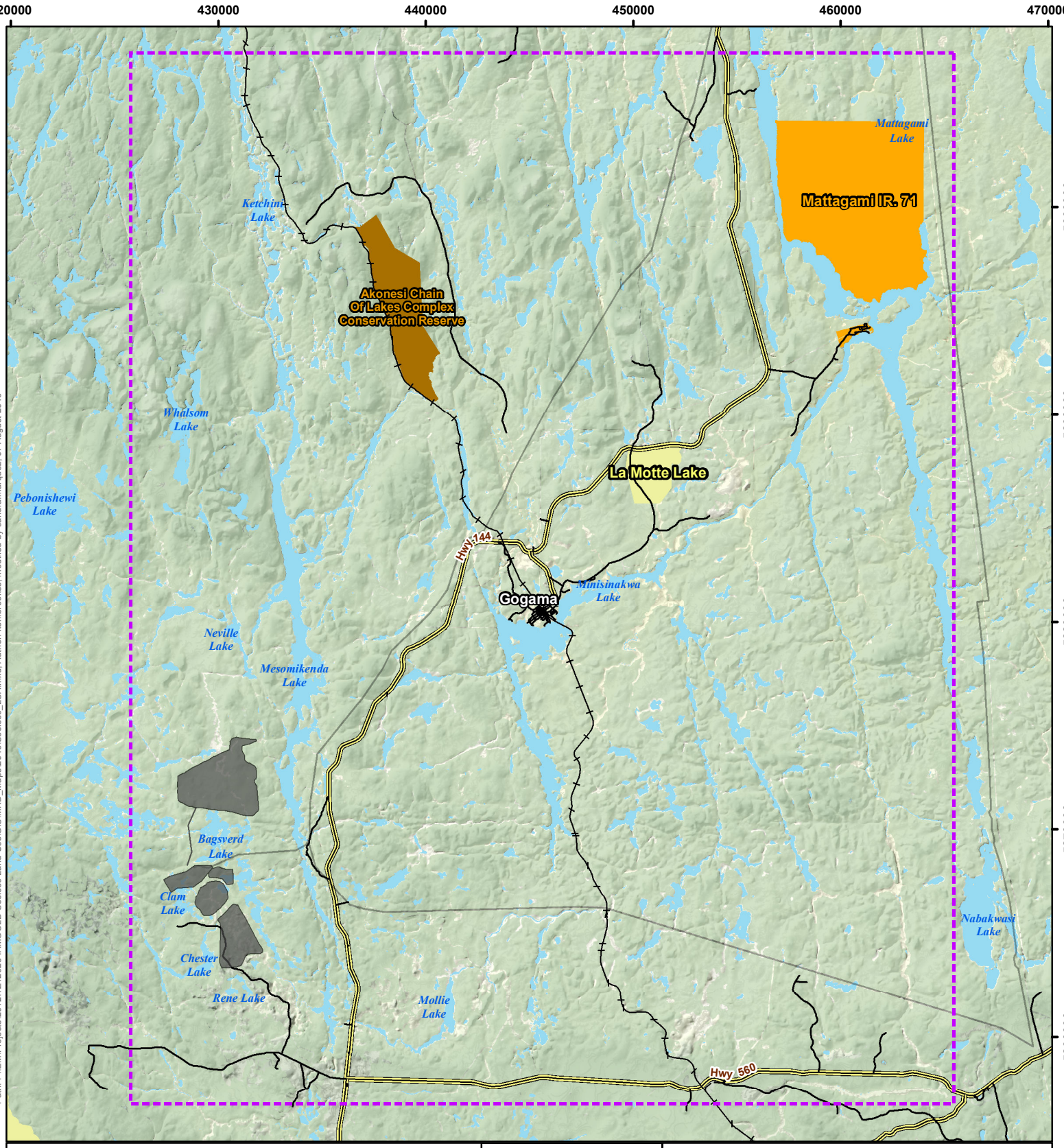
CÔTÉ GOLD PROJECT

Socio-Economic Study Regional Study Area

PROJECT N°: TZ12023	FIGURE: 3
SCALE: 1:1,450,000	DATE: August 2013



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LEGEND

- Proposed Site Facilities
- Local Study Area
- Waterbody / Large Watercourse
- Railway
- Highway/Expressway
- Local Road
- First Nation Reserve
- Conservation Reserve (Regulated)
- Provincial Park

NOTES:
- All base data on this map was extracted from Land Information Ontario, MNDM, OBM Ontario Digital Geospatial Database and Ontario Road Network Database.

Datum: NAD83
Projection: UTM Zone 17N

0 2.75 5.5 11 16.5 22 Kilometres

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CÔTÉ GOLD PROJECT

Socio-Economic Study
Local Study Area

PROJECT N°:TZ12023	FIGURE: 4
SCALE: 1:250,000	DATE: August 2013