



Marathon Palladium Project Environmental Impact Statement Addendum

VOLUME 2 OF 2

6.2.9 Socio-Economic Environment

Prepared for:

GENERATIONPGM

Prepared by:



Date: April 2021

Environmental Assessment by Review Panel under CEAA 2012

Reference Number 54755

Table of Contents

6.2.9	Socio-economic Environment.....	6.400
6.2.9.1	Summary of Original Socio-economic Environment.....	6.400
6.2.9.2	Approach to Update the Assessment	6.403
6.2.9.3	Scope of the Assessment.....	6.403
6.2.9.4	Existing Conditions for Socio-economic Environment.....	6.412
6.2.9.5	Determining Project Interactions with Socio-economic Environment	6.413
6.2.9.6	Assessment of Residual Effects on Socio-economic Environment	6.418
6.2.9.7	Prediction Confidence	6.442
6.2.9.8	Summary of Project Residual Effects	6.442
6.2.9.9	References.....	6.443

LIST OF TABLES

Table 6.2.9-1:	Potential Effects and Pathways Original EIS and EIS Addendum	6.405
Table 6.2.9-2:	Characterization of Residual Effects on Socio-economic Environment	6.410
Table 6.2.9-3:	Project Interactions with Socio-economic Environment.....	6.413
Table 6.2.9-4:	Estimated Employment (FTEs) and Labour Income (\$ Millions, CDN).....	6.420
Table 6.2.9-5:	Estimated GDP Contributions (\$ Millions, CDN)	6.423
Table 6.2.9-6:	Estimated Tax Contributions to Federal and Provincial Governments (\$ Millions) due to Project Expenditures.....	6.424
Table 6.2.9-7:	Project Residual Effects on the Socio-economic Environment.....	6.442

LIST OF FIGURES

Figure 6.2.9-1:	Socio-economic Environment Spatial Boundaries	6.409
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MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Abbreviations

AAC	annual allowable cut
AIP	Agreement in Principle
ATV	all terrain vehicle
BN	Biigtigong Nishnaabeg
CDN	Canadian
CEA Act	<i>Former Canadian Environmental Assessment Act</i>
CEAA, 2012	<i>Canadian Environmental Assessment Act, 2012</i>
CIAR	Canadian Impact Assessment Registry
CRA	Canada Revenue Agency
dBA	A-weighted decibels
EAP	Employee Assistance Program
EIS	Environmental Impact Statement
EMS	Environmental Medical Services
EPRP	Emergency Preparedness and Response Plan
FTE	full-time equivalents
GDP	Gross Domestic Profit
GenPGM	Generation PGM Inc.
ha	hectares
HHRA	Human Health Risk Assessment
IR	Information Request
ISC	Indigenous Services Canada

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

km	kilometre
km ² /km	square kilometre/ kilometre
LOS	Level of Service
LRU	land and resource use
LSA	Local Study Area
m	metre
M2W Line	Terrace Bay-Manitouwadge transmission line
m ³ /ha/year	cubic metre/ hectares/year
MNO	Metis Nation of Ontario
MW	Megawatt
OCIP	Ontario Coalition of Indigenous Peoples
PMFN	Pic Moberg First Nation
PPFN	Pays Plat First Nation
PSMF	Process Solids Management Facility
RSA	Regional Study Area
RSMIN	Red Sky Metis Independent Nation
SIR	Supplemental Information Request
SSA	Site Study Area
TIS	Traffic Impact Study
TLRU	Traditional land and resource use
VEC	Valued Ecosystem Component
WMU	Wildlife Management Unit
µg/m ³	milligram per cubic metre

6.2.9 Socio-economic Environment

6.2.9.1 Summary of Original Socio-economic Environment

6.2.9.1.1 Assessment of Residual Effects in Original EIS

Section 6.2.9 of the original EIS (2012) and subsequent responses to information requests from the Panel provided an assessment of the following effects to socio-economic and culture conditions for all communities, including Indigenous communities, members of Indigenous groups without a land base, and residents located in the study area as result of the Project:

- change in demographics
- change in accommodation (housing) availability
- change in education and training
- change in community infrastructure demand
- change in community services demand
- change in health and emergency services demand
- change to traffic
- change in employment and income
- change in employment and government revenue
- change in economic and business development
- change in recreation/tourism
- change in forestry
- change in agriculture
- change in commercial development
- change to navigable waters

Additional information on the assessment of effects on Socio-economics and Culture was provided in responses to the following IRs:

- Response to IR 16.5 ([CIAR # 398](#))
- Responses to IR 16.1, 16.2, 16.7 ([CIAR #457](#))

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

- Response to IR 21.2 ([CIAR #461](#))
- Responses to IR 16.3 ([CIAR # 477](#))
- Response to SIR 7 ([CIAR #576](#))
- Response to SIR 8 ([CIAR #575](#))

The VECs assessed in the original EIS (2012) were representative of social factors, economic factors, human health, resource use, and navigable waters.

Social Factors

Planned mitigation measures were originally determined to be sufficient to prevent the majority of the potential negative effects from occurring on the social environment. The following potential residual effects on the social environment were identified:

- during mine closure and thereafter, there will be reduced demand for housing and downward pressure on home prices
- during mine closure and thereafter, there will be reduced demand for community, health, and emergency services.

Economic Factors

While positive effects were anticipated during site preparation, construction and mine operation in the form of job creation, planned mitigation measures were originally determined to be sufficient to prevent the majority of the likely adverse effects from occurring on the economic environment that may result at or following mine closure. The following residual adverse effects on the economic environment were identified:

- at mine closure and thereafter, there will be a reduction in levels of employment at the mine
- at mine closure and thereafter, there will be a reduction in government revenues from the mine.

Resource Uses

No residual effects on resource uses were expected in the original EIS (2012).

Navigable Waters

It was originally determined that there would be the permanent removal of nine waterbodies totaling 7.02 ha and a number of sections of minor navigable watercourses totaling 12.16 km.

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Human Health

While the original EIS (2012) discussed Human Health as an effect on the Socio-economic Environment, and in more detail in the Human Health Risk Assessment (HHRA) (response to SIR #10 [\[CIAR #581\]](#)), this EIS Addendum discusses Human Health as a standalone VEC and provides a summary of the findings of the original assessment in Section 6.2.10 and as a standalone HHRA update (Appendix D10 of this EIS Addendum [Vol 2]).

6.2.9.1.2 Determination of Significance in Original EIS

Overall, the residual adverse effects of the Project on social factors, including population demographics, housing, education and training, infrastructure and services, community infrastructure and services, health and emergency infrastructure and services, and traffic, were assessed as “not significant”. The magnitude of the effects was determined to be low and limited to the local study area (LSA). The duration of effects was considered permanent and it was probable that effects would occur in the absence of other projects, such as the Ring of Fire. The previous proponent, Stillwater, had proposed to maintain ongoing communication with the local communities to inform residents of project developments, to help ease any potential adverse effects.

Overall, the residual adverse effects associated with economic factors, including employment and income, government revenues, and economic and business development, were assessed as “not significant”. With respect to employment, the magnitude of effects was considered to be low to medium and the geographic extent limited to the LSA, extending slightly to the regional study area (RSA). The duration of effects was considered permanent and it was highly probable that these effects would occur. However, this was a planned phase of the Project that Stillwater, as well as the employees, could foresee and take steps to mitigate. The same was true for the Town of Marathon. Stillwater had proposed to implement employment transition programs to enable workers to identify opportunities to use their transferrable skills and seek other employment.

Anticipated opportunities included mining potential in the McFaulds Lake area (Ring of Fire) of the James Bay Lowlands and Osisko’s Hammond Reef Interests. These employment opportunities could more than offset potential negative effects to the population as a result of Project closure. These developments could also offer the potential to stabilize and increase overall government revenues, although likely not for the Town of Marathon.

No significant adverse effect on resource use was predicted.

The loss of the navigable waters was limited in geographical extent to the SSA. The changes were deemed to be of minimal societal value as the waters that would be rendered non-navigable did not appear to provide or contribute to navigable corridors in a meaningful way. Moreover, given the nature (size) of the waterbodies and watercourses of concern, and their relative inaccessibility, none would have been considered a preferred destination for recreational activity such as boating, canoeing and/or kayaking. Overall, the residual effects of the Project as it pertained to navigable waters were assessed as “not significant”.

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

The original EIS (2012) concluded that the Project would have no significant adverse effect on socio-economics and culture.

6.2.9.2 Approach to Update the Assessment

The following subsections provide an update to the assessment of residual environmental effects of the Project, including a determination of their significance based on:

- Updated environmental conditions within the SSA, LSA and RSA, as appropriate
- Recognition of updated standards, criteria, guidelines, or other thresholds that inform the determination of significance
- Consideration and recognition of project refinements, including changes to the project components and activities that may affect potential project interactions, mitigation measures and residual effects

Changes to the results of the previous assessment have been highlighted and discussed below, as appropriate. Supplementary rationale and explanation for the conclusions of the assessment have been provided based on the previous responses to the information requests (IRs, SIRs, AIRs) and additional input from the various technical discipline leads based on the current assessment.

6.2.9.3 Scope of the Assessment

6.2.9.3.1 Regulatory and Policy Setting

The Project initially commenced in 2010 under the *Canadian Environmental Assessment Act* (CEA Act) ([CIAR #1](#)) and was referred to a review panel on October 7, 2010 ([CIAR #2](#)). On July 6, 2012, the CEA Act was repealed by CEAA 2012. In accordance with subsection 126(1) of the new Act, existing projects were to proceed under the process established by CEAA 2012. The Project is being assessed in accordance with the *Canadian Environmental Assessment Act* (CEAA, 2012) and Ontario's EA Act through a Joint Review Panel (the Panel) pursuant to the Canada-Ontario Agreement on Environmental Assessment Cooperation (2004). As a result, there are no changes to the regulatory setting for the assessment of the Project on the socio-economic environment.

6.2.9.3.2 Influence of Consultation and Engagement on the Assessment

Consultation for the Project has been ongoing since 2004 and will continue throughout the life of the Project. Chapter 4 of the original EIS (2012) and Chapter 5 of this EIS Addendum (Vol 2) provide more details on the consultation process and activities undertaken by GenPGM and formerly by Stillwater. Comments and feedback received throughout the consultation process pertaining to the socio-economic environment are summarized below:

- Concern relating to the siting and location of the proposed Accommodation Complex

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

- An interest raised by the Township of Manitouwadge for the Accommodations Complex and construction workforce to have facilities located in Manitouwadge
- Information was requested regarding workforce training and employment opportunities, including training and education requirements
- Opportunities for local businesses
- An opportunity for community youth to be educated about future career opportunities in the mining industry
- Concerns about public access along Camp 19 Road to the Pic River and surrounding lands, including comments that the site access/gated restrictions be relocated to permit use of Camp 19 Road
- Concerns relating to the potential effect that the Project may have on traffic in the area
- Information was requested on the traffic volumes for trucks and personal vehicles going to and from the site during the site preparation/construction and operation phases
- Information was requested on changes required to the Camp 19 Road and Highway 17 intersection
- Information was requested on the aesthetics of the site upon closure and the ability for public access, including road access
- Concern from members of Biigtigong Nishnaabeg (BN) First Nation regarding the capacity of the community's infrastructure and services to accommodate First Nation members who may wish to return to the community to attain Project work.

Feedback related to the socio-economic environment has been addressed through updates made to the original EIS (2012) through this EIS Addendum and supporting materials, responses and meetings with communities and stakeholders, as appropriate. Traditional land and resource use (TLRU) information that contributes to the socio-economic environment was provided by Indigenous communities; however, given the confidentiality of this material, explicit details are not included nor are communities identified.

Section 6.2.12 of this EIS Addendum (Vol 2) provides details on how TLRU and traditional knowledge have been incorporated into the assessment. The socio-economic environment outside of TLRU for communities and peoples within the LSA, including BN, Pays Plat First Nation (PPFN), Pic Mobert First Nation (PMFN), Red Sky Métis Independent Nation (RSMIN), Ontario Coalition of Indigenous Peoples (OCIP) and Métis Nation of Ontario (MNO), have been considered in this section of the report.

GenPGM acknowledges that BN has concerns about potential demands placed on their infrastructure and services by returning members of the First Nation. The magnitude of this phenomenon is difficult to determine without knowing how many individuals will return to the RSA, how many will choose to live in the First Nation community, and how many will be employed by the Project. GenPGM has proposed an Accommodations Complex to house those workers coming to the mine from outside of the RSA. GenPGM has also proposed an Employee Assistance Program (EAP), which will be available to

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

GenPGM employees and their families. All Project workers (including members of BN) who come from outside the RSA will be eligible for Project accommodations at the complex or at temporary accommodations within the RSA, which will reduce potential effects on infrastructure and services for BN. Further discussion in this regard is provided in Section 6.2.9.6 of this report.

6.2.9.3.3 Potential Effects, Pathways and Measurable Parameters

The potential effects identified in the original EIS (2012) have been condensed into three main effects to focus the socio-economic assessment. Table 6.2.9-1 shows how the potential effects from the original EIS (2012) are included in this assessment. As described previously, while the original EIS (2012) discussed human health as an effect on the socio-economic environment, this EIS Addendum discusses it in a separate section (6.2.10).

It should be noted that the name of the VEC has been changed for the EIS Addendum to socio-economic environment to better reflect the topics being assessed.

Table 6.2.9-1: Potential Effects and Pathways Original EIS and EIS Addendum

Potential Effect Addendum	Potential Effects Original EIS	Effect Pathway	Measurable Parameter(s) and Units of Measurement
Change in economy and employment	- change in demographics - change in employment and income - change in employment in government revenue - change in economic and business development	- The Project's demand for labour will affect the regional labour supply - Project spending will affect regional businesses - Project employment and spending will affect the regional economy	- Qualified labour supply (persons) and existing wage levels - Project employment (jobs and full-time equivalents [FTEs]) - Value of local and regional spending and related employment - Gross domestic product (\$) - Tax revenue (\$)

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Table 6.2.9-1: Potential Effects and Pathways Original EIS and EIS Addendum

Potential Effect Addendum	Potential Effects Original EIS	Effect Pathway	Measurable Parameter(s) and Units of Measurement
Change in infrastructure and services	- change in accommodation (housing) availability - change in education and training - change in community infrastructure demand - change in community services demand - change in health and emergency services demand - change to traffic	Demand on infrastructure and services may be affected by Project activities and Project-related population growth	- Availability of permanent and temporary accommodations (vacancy rates, inventory levels) - Number of hospital beds - Police officers/100,000 population - Physicians/100,000 population - Student/Teacher ratio - Road volume (vehicles/day) - Capacity of utilities (landfill, water, wastewater)
Change in land and resource use	- change in recreation/tourism - change in forestry - change in agriculture - change in commercial development - change to navigable waters	- Project activities incompatible with applicable land use plans and zoning - Disturbance and nuisance effects on property (noise, dust) - Project presence, activities, and workers may disrupt resource harvesting success (hunting, trapping, fishing) - Project activities may result in the loss of area available and/or reduced quality of recreational and resource use - Project can reduce productive forest land, annual allowable cut (AAC) and merchantable timber, and cause disturbance to high-value forest sites	- Qualitative description of property development potential based on zoning - Change / restriction of land use (km²) - Change / restriction of navigable waters (km²/km) - Proximity to land use sites (km) - Change in sound levels (decibels [dBA]) - Change in air quality (µg/m³ of particulate matter) - Area of current recreation use overlapped by the Project (ha) - Access to recreational areas - Qualitative use of area - Attribute data on overlapping uses (e.g., hunting and trapping) within area affected (ha)

Table 6.2.9-1: Potential Effects and Pathways Original EIS and EIS Addendum

Potential Effect Addendum	Potential Effects Original EIS	Effect Pathway	Measurable Parameter(s) and Units of Measurement
			- Area of commercial forest (ha); reduction of AAC (m³/ha/year), number of high- value forest sites affected - Proximity to resource use sites

6.2.9.3.4 Assessment Boundaries

In general, the spatial boundaries for the assessment of environmental effects are presented in Section 2.4 of the EIS Addendum (Vol 1) ([CIAR #727](#)), while the LSA and RSA are defined based on the extent of potential effects specific to each VEC.

- **Site Study Area:** The SSA is the direct footprint of the Project and is consistent across all VECs. The SSA has been revised from the original EIS (2012) to reflect changes and refinements to the Project design.
- **Local Study Area:** The socio-economic environment LSAs represent the area within which effects from Project activities and components can be predicted or measured with a reasonable degree of accuracy and confidence. Separate LSAs have been created for economy and employment, infrastructure and services, and land and resource use to best reflect the extent of VEC-specific effects. These LSAs consist of the SSA and adjacent areas where Project-related environmental effects are reasonably expected to occur based on available information and professional judgment.
 - The LSA for economy and employment includes the population living within the following Census subdivisions, which are located within 100 km of the SSA: Marathon, Plays Plat 51, Pic Moberg North, Pic Moberg South, Pic River 50, Schreiber, Terrace Bay, and White River.
 - The LSA for infrastructure and services includes the area immediately surrounding the Project, including the Town of Marathon and BN First Nation.
 - The LSA for land and resource use is defined by adding a 1 km buffer to the SSA. The rationale for aligning the land and resource use (LRU) and wildlife LSA (see Section 6.2.7 of this EIS Addendum [Vol2]), which also encompasses the Fish Habitat LSA (see Section 6.2.4), is based on potential interactions between Project-related activities and nearby land uses by communities, focused on plant, fish and wildlife resources.
- **Regional Study Area:** The socio-economic environment RSA is the area within which residual environmental effects from Project activities and components may interact cumulatively with the residual environmental effects of other past, present and future (i.e., certain or reasonably

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

foreseeable) physical activities. The RSA is based on the potential for interactions between the Project and other existing or future potential projects in regard to effects on the socio-economic environment. Separate RSAs have been created for economy and employment, infrastructure and services, and land and resource use to best reflect the extent of VEC-specific effects. The RSAs include the SSAs and the LSAs.

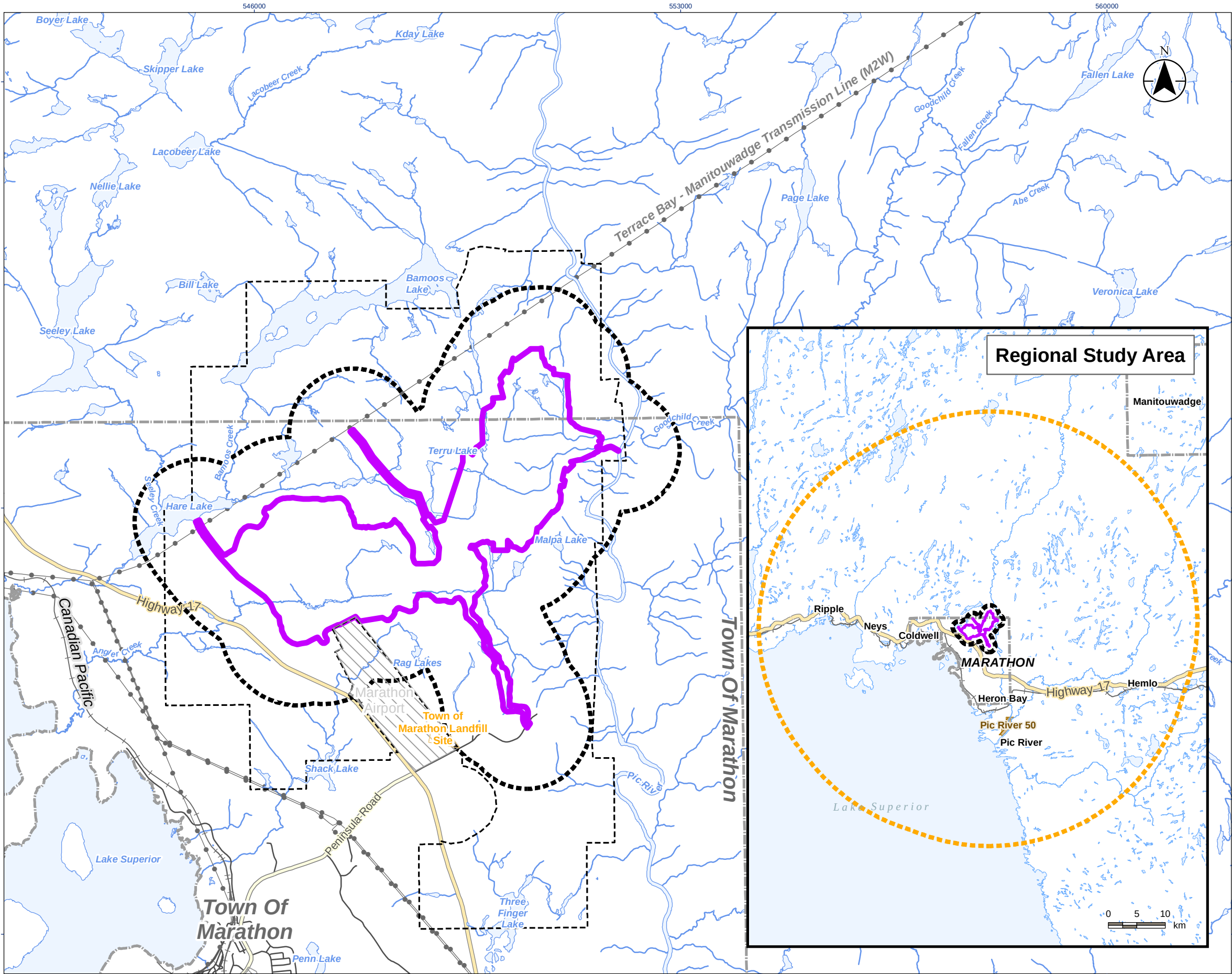
- The RSA for economy and employment is coincident with the LSA, as it is comprised of an area where both Project effects and cumulative effects could occur.
- The RSA for infrastructure and services includes communities within a 100 km highway travel distance of the Project. These are:
 - Terrace Bay
 - Manitouwadge
 - Schreiber
 - White River
 - Pic Mobert First Nation
 - Pays Plat First Nation
- The RSA for land and resource use is defined by a 35 km buffer added to the SSA, which was selected to capture the extent of potential cumulative effects on land and resource users in the area.

The socioeconomic and current resource use LSA and RSA boundaries are included on Figure 6.2.9-1.

The communities identified in the LSA and RSA, include Métis groups and residents located in those communities that don't have land base, include Red Sky Métis Independent Nation, Superior North Shore Métis (Charter community of Métis Nation of Ontario) and Jackfish Métis of the Ontario Coalition of Indigenous People.

The temporal boundaries for the Project that have been considered in the determination of environmental effects are described in Section 2.5 of the EIS Addendum (Vol 1) ([CIAR #727](#)).

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Legend

- Project Boundary (MLAS, MENDM Changed 2017)
- Site Study Area Boundary
- Local Study Area
- Regional Study Area
- Highway
- Major Road
- Minor Road
- Hydro Line
- Railway
- Watercourse
- Airport
- Municipal Boundary, Lower Tier
- Waterbody
- Waste Management Site

0 1 2 km
1:65,000 (At original document size of 11x17)

- Notes
- Coordinate System: NAD 1983 UTM Zone 16N
 - Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2018.



Project Location
Marathon
129673006 REVA
Prepared by SW on 2020-11-13

Client/Project
GENERATION PGM INC.
MARATHON PALLADIUM PROJECT

Figure No.
6.2.9-1

Title
Socio-Economic Environment Spatial Boundaries

6.2.9.3.5 Residual Effects Characterization

Table 6.2.9-2 summarizes how residual environmental effects are characterized in terms of direction, magnitude, geographic extent, timing, frequency, duration, reversibility and in ecological/societal value. Quantitative measures or definitions for qualitative categories are provided.

Table 6.2.9-2: Characterization of Residual Effects on Socio-economic Environment

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories
Direction	The long-term trend of the residual effect	Positive – Effect moves measurable parameters in a direction beneficial to the socio-economic environment relative to baseline conditions. Adverse – Effect moves measurable parameters in a direction detrimental to socio-economic environment relative to baseline conditions.
Magnitude	The amount of change in measurable parameters of the VEC relative to existing conditions	For economy and employment Negligible – No measurable change in economy and employment from baseline conditions Low – a measurable change in economy and employment, but residual effect cannot be distinguished from baseline conditions within normal range of variability Medium – a measured change in economy and employment but less than high likelihood to pose a serious risk or benefit to economy and employment High – a measured change in economy and employment that is likely to pose a serious risk or benefit to economy and employment For infrastructure and services Negligible – no measurable change Low – capacity of infrastructure and services will be at or near to baseline conditions Medium – demand for infrastructure and services approaches current capacity, standard or threshold but will not result in a reduction in standards of service High – demand for infrastructure and services exceeds current capacity, standard or threshold that results in a reduction in standards of service For land and resource use Negligible – no measurable change in baseline land and resource use capacity Low – a small, measurable change in land and resource use capacity, however land and resource use activities can take place at or near baseline levels Medium – a measurable change in land and resource use capacity that is greater than low, however land and resource use activities can take place at or near baseline levels

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Table 6.2.9-2: Characterization of Residual Effects on Socio-economic Environment

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories
		High – a measurable change in land and resource use capacity, such that land and resource use activities cannot take place at or near baseline levels
Geographic Extent	The geographic area in which a residual effect occurs	Negligible (SSA) – residual effects are limited to SSA Low – residual effects are restricted to the SSA or immediate surroundings Medium (LSA) – residual effects extend into the LSA High (RSA) – residual effects extend into the RSA
Timing	Considers when the residual effect is expected to occur, where relevant to the VEC.	Not Applicable – N/A
Duration	The time required until the measurable parameter or the VEC returns to its existing condition, or the residual effect can no longer be measured or otherwise perceived	Negligible – residual effect is limited to a single event Low (short-term) – the residual effect is limited to short term events (a few years or less) Medium – the residual effect is limited to the operational/decommissioning phases (years to decades) High (Long-term) – the residual effect extends beyond the life of the project (centuries)
Frequency	Considers whether the residual effect is expected to occur once, at regular or irregular intervals or continuously	Negligible – the condition of phenomena causing the effect rarely occurs Low (Multiple irregular event) – occurs at no set schedule and are unlikely to occur Medium (Multiple regular event) – occurs at regular intervals (i.e. >1% of the time) High (Continuous) – occurs continuously
Reversibility	Considers whether the residual effect is reversible or irreversible.	Negligible – effect ceases immediately once source or stressor is removed Low – effect ceases once source or stressor is removed Medium – effect persists for some time after source or stressor is removed High (Irreversible) – the residual effect is unlikely to be reversed
Ecological/Societal Value	Considers the magnitude that the residual effect is expected to have on the ecological or societal community, as determined through consultation and engagement.	Negligible – the VEC has no value from a cultural or societal context Low – the VEC is common in the LSA and/or has little to no value from a cultural or societal context Medium – the VEC is abundant in the RSA, though may be less so in the LSA, and/or has moderate cultural or societal value High – the VEC is rare and/or of high cultural or societal value

Note: Timing was not included in the original EIS.

6.2.9.3.6 Significance Definition

For economy and employment, a significant adverse residual effect is defined as an effect that is highly distinguishable from current conditions and trends, which cannot be mitigated or managed with current or anticipated programs, policies, plans, or other mitigation measures. The residual effects assessment considers both positive and adverse effects after mitigation and other management measures are implemented. However, significance determination is made for adverse effects only.

For infrastructure and services, a significant adverse residual effect is defined as an effect that results in an exceedance of available capacity, or a substantial decrease in the quality of a service provided, on a persistent and ongoing basis, which cannot be mitigated or managed with current or anticipated programs, policies, plans, or other mitigation measures.

For land and resource use, a significant adverse residual effect is defined as an effect that results:

- in Project-related risks that exceed objectives established by relevant regulatory organization(s)
- in a change or disruption that restricts or degrades present land and resource use capacity within the RSA to a point where activities cannot continue at or near current levels over the long term and where compensation is not possible

6.2.9.4 Existing Conditions for Socio-economic Environment

Existing conditions are described in Chapter 4 of the EIS Addendum (Vol 1) ([CIAR #727](#)). The updated baseline report (Stantec, 2020g) ([CIAR #722](#)) provides an overview of how baseline conditions have changed since the original EIS (2012) and/or how the understanding of the baseline conditions has evolved.

In March 2021, additional information was provided after further consultation with members of BN regarding the capacity of specific infrastructure and services in their community (see meetings notes in the Record of Consultation dated March 24 to April 9, 2021). Discussions with the authorities for housing, education, health, and utilities for BN indicated that such community services are at or beyond capacity

With respect to housing, none of the 168 houses in the community are vacant and many families are on a wait list for housing or for maintenance to existing housing. The creation of new housing is a challenge due to a shortage of serviceable land. In addition, the water supply infrastructure is also operating beyond its designed lifespan, with limited capacity to support existing water demand and shortages that often lead to boil water advisories. There is no community sewage treatment as each lot (residential, commercial, institutional) manage sanitary waste through individual septic systems. This limited capacity and lack of communal treatment further limits the ability to create new serviceable lots or to service new homes (as such infrastructure is already operating beyond its designed capacity and lifespan).

Childcare services are limited in BN and the community is eagerly awaiting the construction of a new elementary school to provide much needed space for students and education programs, such as physical education. A new health centre and the addition of a mental health and crisis response team has

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

improved health care in BN, however, chronic health issues remain. The recruitment of teachers, early childhood educators, and health centre staff is a challenge in the community and an obstacle to the provision of these services.

Health care, social services, home and community care, and mental health and crisis response are provided through a combination of care within the community (Biigtigong Mno-zhi-yaawgamig, including resident staff and visiting physicians and specialists) and in the Town of Marathon (Wilson Memorial General Hospital and Marathon Family Health Team). In addition, regulator visits by the Primary Care Travelling Team, home visits through the Home and Community Care Program, and access to the Biidaaban Healing Lodge further support such services for community members. Concern was raised by BN that influx of members could place strain on these local and regional services and programs (i.e., increased demand for services, staff hiring / retention).

While the community is working to address capacity constraints, with many plans in place to improve community services and infrastructure, funding to implement such solutions remains uncertain. It was described by BN that the funding and the process currently established through government agencies to address community services and infrastructure-related issues contain many barriers, which are lengthy and overly complicated in comparison to the steps local municipalities can take to resolve similar issues in their communities.

6.2.9.5 Determining Project Interactions with Socio-economic Environment

Table 6.2.9-3 identifies, for each potential effect, the Project's physical activities that might interact with the VEC and result in the identified effect. This table is based on a similar table from the original EIS (2012) and has been updated to reflect changes to the Project.

Table 6.2.9-3: Project Interactions with Socio-economic Environment

Physical Activities	Effects		
	Change in economy and employment	Change in infrastructure and services	Change in land and resource use
Site Preparation/ Construction			
Clearing, grubbing and stripping of vegetation, topsoil and other organic material			✓
Grading with topsoil	–	–	✓
Drilling and blasting to develop the open pits and plant site area	–	–	✓

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Table 6.2.9-3: Project Interactions with Socio-economic Environment

Physical Activities	Effects		
	Change in economy and employment	Change in infrastructure and services	Change in land and resource use
Excavation and pre-stripping to remove mine rock and overburden	–	–	✓
Preparation of construction surfaces and installation of temporary construction facilities	–	–	✓
Site preparation for waste management	–	–	✓
Construction of administration buildings, storage buildings, other ancillary structures and site services such as parking lots, area fencing, and security systems	–	–	✓
Construction of explosives facilities	–	–	✓
Construction of PSMF containment dams and MRSA	–	–	✓
Management of surface water and groundwater on the site, including seepage and run-off	–	–	✓
Maintenance and management of mine rock stockpiles, overburden, and PSMF	–	–	✓
Construction of water management facilities and drainage works (including but not limited to pipelines, dewatering facilities, stormwater management, control ponds, and water management pond)	–	–	✓
Dewatering of natural waterbodies in the project area	–	–	✓
Construction of new mine site access and haul roads, including any water crossings and water body shoreline works or undertaking	–	–	✓
Upgrading of the existing mine access road(s) and entrance(s) to the project area including any water crossings and water body shoreline works or undertakings	–	–	✓
Construction of a 115kV electrical transmission line within a new right-of-way from M2W Transmission corridor	–	–	✓
Aggregate sources and amounts	–	–	✓
Management of waste	–	✓	✓
Any works or undertakings associated with upgrading a rail load-out facility for mine concentrate and off-site accommodations complex	–	–	✓
Operating vehicles	–	✓	✓

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Table 6.2.9-3: Project Interactions with Socio-economic Environment

Physical Activities	Effects		
	Change in economy and employment	Change in infrastructure and services	Change in land and resource use
Hiring and management of workforce	✓	✓	✓
Taxes, contracts and purchases	✓	–	–
Operation			
Drilling, blasting, loading and hauling of mine rock from the pits to ROM stockpile pad, crusher or the MRSA	–	–	✓
Operation of explosives facilities	–	–	–
Handling, transportation, use and disposal of explosives	–	–	✓
Transportation of crushed material to coarse ore stockpile	–	–	✓
Transportation of mill feed (ore) to the Process Plant	–	–	✓
Process Plant operation	–	–	–
Transportation of filtered concentrate	–	–	✓
Management and maintenance of the entire mine waste stream, including but not limited to process solids and mine rock	–	–	–
Decommissioning of the temporary process water pond (proposed during mine operations), including removal or breaching of dams	–	–	–
Dewatering activities (e.g. open pit)	–	–	–
Management of surface water and groundwater on the site; including seepage, run-off, contact water, process water and storm water	–	–	–
Management of surface water on site during dam removal or breaching	–	–	–
Management of domestic waste from the mine site	–	✓	–
Management of hazardous waste	–	✓	–
Environmental safety procedures	–	✓	–
Operating vehicles	–	✓	✓
Hiring and management of workforce	✓	✓	✓
Taxes, contracts and purchases	✓	–	–
Decommissioning and Closure/Post-Closure			
Installation of barriers around the pit perimeters	–	–	–

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Table 6.2.9-3: Project Interactions with Socio-economic Environment

Physical Activities	Effects		
	Change in economy and employment	Change in infrastructure and services	Change in land and resource use
Management of inputs from groundwater and surface water run-off into pits	–	–	–
Decommissioning, dismantling and/or disposal of equipment	–	–	–
Demolition/removal of surface buildings and associated infrastructure and disposal of resulting rubble	–	–	–
Decommissioning/removal of explosives e facilities	–	–	–
Removal of power lines and electrical equipment	–	–	–
Decommissioning of the potable water and sewage treatment systems (e.g. water treatment plant and membrane bioreactor)	–	–	–
Maintenance and management of mine rock stockpiles and PSMF	–	–	✓
Following removal of infrastructure, soil, groundwater, and surface water testing for residual contamination, and disposal of contaminated soils and treatment of groundwater and surface water, as required	–	–	✓
Reclamation and restoration of landscape (including water bodies) to productive capacity including management and monitoring	–	–	✓
Management of flooded pits to protect groundwater and surface water quality during flooding and pit overflow	–	–	–
Operating vehicles	–	✓	✓
Hiring and management of workforce	✓	✓	✓
Taxes, contracts and purchases	✓	–	–
Notes: ✓ = Potential interaction – = No interaction * minor wording changes to the physical activities list have been made to better align with the updated Project description covered in Chapter 1 (EIS Addendum [Vol 1])			

Economy and Employment

For change in economy and employment, the main Project interactions are a result of Project expenditures, which will occur throughout the life of the Project, as well as hiring and retention of workers. Project spending will stimulate economic activity within the LSA, in other parts of Ontario, as well as elsewhere in Canada. The purchase of equipment, supplies, and services results in a multiplying effect, as dollars are recirculated throughout the economy. For example, the purchase of mining equipment generates employment at the manufacturer, distributor, and transporter of such equipment. The manufacturer in turn will source various components, materials, and purchase energy, fuel, and various other goods and services from other suppliers. The hiring of workers, both directly by the Project, as well as by its suppliers (and suppliers further along the value chain) will reduce the unemployment rate, and the addition of a large employer such as GenPGM will contribute to population stabilizing in the Marathon area. Wages paid to workers also gets recirculated back into the economy in the form of household spending. The income earned by the Project, workers associated directly or indirectly with the Project, as well as by suppliers of goods, services, and equipment, will be subject to federal and provincial taxes, thus expanding government revenues.

Infrastructure and Services

For change in infrastructure and services, the main Project interactions are a result of hiring and management of the workforce as labour requirements may cause an increase in the local population resulting in additional demands on infrastructure and services, including housing / accommodations, health and emergency services and infrastructure, utilities, as well as education, recreation, and transportation services and infrastructure. These interactions are addressed in subsequent sections.

Most of the Project physical activities (except for operating vehicles, management of waste, and environmental safety procedures) will not interact with change in infrastructure and services. Production of Project waste materials destined for landfill (e.g., domestic waste) will place additional demands on the local landfill, and the movement of trucks, equipment, supplies and personnel will place additional demands on local roads.

Land and Resource Use

Most Project activities during construction are anticipated to result in a change in land and resource use through disturbances (noise, dust, visual) to the viability of, restricted access to, or loss of areas used for resource activity and/or by recreational users. During operation and decommissioning and closure/post-closure, interactions with land and resource use are limited to those activities anticipated to generate emissions and discharges including blasting operation and operation of Project vehicles. During operation and decommissioning, there will be no additional loss of access to land or resources (i.e., through loss of natural habitats within the Project footprint) beyond those primarily incurred during mine construction; therefore, as noted in Table 6.2-3, several activities or components are not anticipated to interact with land and resource use for the purpose of the effects assessment.

6.2.9.6 Assessment of Residual Effects on Socio-economic Environment

6.2.9.6.1 Change in Economy and Employment

Analytical Assessment Techniques

Effects on economy and employment are qualitatively and quantitatively (where possible) assessed by comparing economic impacts (direct, indirect and induced) of the Project to baseline conditions. Characterization criteria presented in Section 6.2.9.3.5 of this report are applied to residual effects that remain after proposed mitigation and enhancements have been implemented. The significance of residual adverse effects is determined by considering thresholds and methods, as outlined in Section 6.2.9.3.6 of this report. Limitations of information, data analyses, and interpretation are compensated for by taking a conservative approach in this assessment.

Estimating Economic Impacts

Economic impacts (direct, indirect, and induced) were estimated at the provincial level using Statistics Canada's input-output multipliers (Statistics Canada 2019)). Statistics Canada's input-output multipliers are based on its input-output tables (derived from Statistics Canada's input-output model). Economic impacts were estimated for each Project phase (site-preparation/construction, operation, and decommissioning and closure/post closure).

Economic impacts estimated using Statistics Canada's input-output multipliers provide an estimate of resource allocations associated with a given shock (e.g., capital expenditure) but do not indicate whether resources will be readily available or if resources would need to be diverted from other uses. As such, economic 'impacts' do not equal 'effects', which require consideration of 'net changes' from baseline conditions. Economic impacts are described in terms of direct, indirect, and induced impacts, where:

- Direct impacts result from labour, materials and services demand from GenPGM and its contractors during Project construction (e.g., construction labour, project management)
- Indirect impacts result from contractor spending on goods and services (e.g., employment with suppliers/manufacturers of materials used during construction)
- Induced impacts result from spending by direct and indirect workers on consumer goods and services (e.g., restaurant servers, retail positions)

Federal and provincial personal income tax revenues were estimated by applying effective income tax rates taken from the Canada Revenue Agency's (CRA) T1 Final Statistics 2018 edition (for the 2016 tax year; CRA 2019), to annual labour income estimates. Estimates are provided in 2019 dollars.

Project Pathways

Project spending will result in direct, indirect and induced economic impacts on economy and employment. Positive effects occur when Project expenditures on labour, goods and services result in a net increase (from baseline conditions) in local and regional employment and business activity.

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

The Project (through direct, indirect and induced impacts) can also result in positive effects on government revenues (e.g., tax revenue) and Gross Domestic Profit (GDP) (a measure of economic activity). Adverse effects stem from the loss of employment and expenditures following completion of operation and in decommissioning closure/post-closure phases of the Project resulting in losses in employment, labour income, and contributions to GDP and government revenues.

Mitigation and Enhancement Measures

Mitigation and enhancement measures to reduce potential effects to economy and employment include:

- Establishing measures to encourage and recruit employees from the existing populations in local communities
- Providing opportunities for training to facilitate employment by residents of the LSA and RSA and supporting initiatives to train local youth and members of Indigenous groups
- During decommissioning, implementing strategies to help transition the workforce
- Work with economic development groups to increase contracting opportunities for local businesses

Project Residual Effect

Project Expenditures

The initial capital cost of the Project, = is estimated at \$807¹ million, based on GenPGM's capital cost estimated of February 17, 2021. Of this, it is assumed that 80% of capital expenditures will occur in Ontario and 20% in other parts of Canada. Over the life of the mine, operational expenditures are estimated at \$2.7 billion, or approximately \$211 million/year, with all of the operation expenditures assumed to occur in Ontario. Sustaining capital (e.g., expenditures on mine equipment purchases and repair and site maintenance) is estimated at an additional \$429 million over the operational life of the Project (an estimated 80% of expenditures are to occur in Ontario with the remaining 20% in other parts of Canada). Preliminary decommissioning and closure/post-closure costs are estimated at \$66 million, all of which it is assumed will occur in Ontario.

Business and Economic Activity

The Project will generate opportunities for local and regional businesses to supply goods and services both to the Project directly or indirectly due to the presence of workers and contractors in the local area and region. The degree to which LSA and RSA businesses benefit from contracting and supply opportunities (indirect impacts) and increased consumer spending on the part of direct and indirect workers (induced impacts) depends on several factors, including the capability and capacity of existing business to respond to increased demand.

¹ This figure does not include the estimated capital cost contingency of \$75 million. Nor does it factor in the estimated \$173 million in pre-production revenue, which would offset some of the capital cost.

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Because of the long-established history of mining activity in the area, local businesses are likely well-positioned to respond to small- to medium-sized service and supply contracts, particularly those related to manufacturing and the transportation of goods and material, and to increased consumer spending (the RSA has high levels of employment in the retail trade sector). Business in larger centres outside the RSA (e.g., the City of Thunder Bay) may be better positioned to respond to larger service and supply contracts and scopes of work requiring more specialized labour.

Economic activity associated with the Project will bolster the economy of the RSA by injecting new capital into the region thereby reducing dependence of local businesses on existing mining and natural resources operations. The Project, both directly and indirectly, will also increase local and regional employment and, depending on existing conditions, could reduce unemployment rates during site-preparation/construction and operation phases. Because the Project is adding to the already well-established mining industry in the RSA, the Project will not diversify the industrial base of the region.

Employment and Labour Income

Table 6.2.9-4 provides a summary of estimated employment and labour income impacts by phase, location and type of impact (direct, indirect, and induced). Project construction will result in an estimated 5,075 full-time equivalents (FTEs) of labour, comprising 1,896 FTEs in direct employment, and the balance in indirect and induced employment. An additional 3,591 FTEs of employment will be generated from expenditures associated with sustaining capital investments. Project operations will generate on average 1,165 FTEs of employment annually, inclusive of direct, indirect, and induced employment, while decommissioning and closure will generate an estimated 333 FTEs of employment. Project construction will generate an estimated \$433 million in labour income, with sustaining capital investment generating an additional \$209 million. Project operations will result in \$104 million in labour income being generated each year, on average, while decommissioning and closure will generate an estimated \$31 million in labour income.

Table 6.2.9-4: Estimated Employment (FTEs) and Labour Income (\$ Millions, CDN)

Project Phase	Type of Impact	Ontario		Other Parts of Canada		Total	
		FTEs	Labour Income (\$)	FTEs	Labour Income (\$)	FTEs	Labour Income (\$)
Site-preparation / construction	Direct	1,513	197	383	48	1,896	245
	Indirect	1,268	90	409	29	1,677	119
	Induced	1,135	52	367	17	1,502	69
	Total	3,916	339	1,159	94	5,075	433
Operation (Annual)	Direct	419	60	-	-	419	60
	Indirect	395	28	-	-	395	28
	Induced	351	16	-	-	351	16

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Table 6.2.9-4: Estimated Employment (FTEs) and Labour Income (\$ Millions, CDN)

Project Phase	Type of Impact	Ontario		Other Parts of Canada		Total	
		FTEs	Labour Income (\$)	FTEs	Labour Income (\$)	FTEs	Labour Income (\$)
	Total	1,165	104	-	-	1,165	104
Sustaining capital	Direct	2,161	129	469	33	2,630	162
	Indirect	731	48	208	14	939	62
	Induced	699	32	223	11	922	43
	Total	3,591	209	900	58	4,491	267
Decommissioning and closure/post-closure	Direct	116	18	-	-	116	18
	Indirect	114	8	-	-	114	8
	Induced	103	5	-	-	103	5
	Total	333	31	-	-	333	31

Labour Availability

GenPGM currently estimates that Project construction will involve a workforce ranging from 430 to 550 persons over the 18-to-24-month construction period, with a peak workforce of 800 to 1,000 persons. During operations, the project will generate an average of 419 full-time-equivalents of employment per year, over which an average of 375 persons will be directly employed by the Project. Additional workers will be involved in activities related to sustaining capital investment, which will occur throughout the operational life of the mine.

Described in Section 6.3.4 of the Socio-economic and Current Resource Use Updated Baseline Report (Stantec 2020g) ([CIAR #722](#)), the mining sector in western Ontario is characterized by a tight labour supply, low unemployment rate, and is composed of a largely mobile and aging workforce. Demand for labour from current and developing mining operations in western Ontario will likely result in a continued tight supply of skilled labour in mine construction and operations.

Based on both industry and occupational classifications, the existing mining labour force in the RSA likely exceeds 700 persons, of whom the majority live and work within the region. With a workforce of 700 persons, and run on a “local operations” basis, Barrick’s Gold’s Hemlo operations until recently has accounted for the majority of mining-related resident labour force within the LSA. With the Hemlo site being repositioned as a contractor operated Tier Two underground operation, the labour requirements at Hemlo will be reduced to approximately 300 to 350 persons. While a proportion of the current workforce complement at Hemlo will likely retire, there could also be several hundred persons with mining occupations available to work on other projects in the near future.

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Because of the tight labour supply of miners in Ontario, and the number of mine development projects in northwestern Ontario, miners who are laid off from the Hemlo operation could be expected to find employment on other projects in the region, or elsewhere in Canada. However, given that most of the Hemlo labour force is locally based, laid off workers may be attracted to the Project, since they would be able to continue to work in the community in which they reside. The number of workers who choose to remain in the RSA and work on the Project would depend on a number of factors, including retirement of the individuals within the labour force within the RSA (the average age of the Hemlo workforce in 2017 was reported at 46, and 57 in 2019), timing of construction and operations of the Project, as well as transferability of skill sets and re-training requirements.

Taking labour force requirements and existing conditions into consideration, it is expected that the Project's demand for labour will exceed the current and projected availability of skilled labour in the RSA during construction as well as operations. Labour demand during decommissioning and closure / post-closure is expected to be largely satisfied by the Project's operations workforce with specialized labour sourced from outside the RSA. Based on this understanding, GenPGM currently estimates that 80-90% of the Project's operational labour force will be composed of workers from RSA communities with the remaining 10-20% comprised of transient workers.

To increase local content, GenPGM will establish measures to encourage and recruit employees from existing populations in local communities and will provide opportunities for training such that local residents can acquire the skills necessary to participate in the Project. Because labour force participation in the RSA in mining and mining-related sectors and occupations is skewed toward non-Indigenous males (see Table 6.3, Section 6.2.2 of Stantec 2020g [\(CIAR #722\)](#), it is likely that a greater number of males than females and non-Indigenous persons than Indigenous persons could be employed by the Project. To enhance employment equity, GenPGM will make training initiatives available to women and Indigenous persons such that they can acquire the skills necessary to participate in the Project.

Gross Domestic Product

Table 6.2.9-5 provides a summary of estimated GDP contributions by phase, location and type of economic impact. Expenditures associated with Project construction will contribute an estimated \$606 million to Ontario's GDP, with total GDP impact across Canada estimated at \$779 million. An estimated \$307 million in contributions to Ontario's GDP are estimated to result from expenditures on sustaining capital. During operations, the Project will contribute on average \$190 million to Ontario's GDP each year, with \$57 million resulting from expenditures during decommissioning and closure.

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Table 6.2.9-5: Estimated GDP Contributions (\$ Millions, CDN)

Project Phase	Type of Impact	Ontario	Other Parts of Canada	Total
Site-preparation / construction	Direct	354	85	439
	Indirect	141	51	192
	Induced	111	37	148
	Total	606	173	779
Operation (annual)	Direct	112	-	112
	Indirect	44	-	44
	Induced	34	-	34
	Total	190	-	190
Sustaining capital	Direct	161	45	206
	Indirect	77	23	100
	Induced	69	23	92
	Total	307	91	398
Decommissioning and closure / post-closure	Direct	34	-	34
	Indirect	13	-	13
	Induced	10	-	10
	Total	57	-	57

Government Revenue

Table 6.2.9-6 summarizes estimated federal, provincial, and municipal tax revenue associated with Project expenditures occurring during construction, sustaining capital investment, operations, and decommissioning/closure. Capital spending during Project construction is estimated to generate approximately \$81 million in federal tax revenue, and \$54 million in provincial tax revenue, of which an estimated 80% will be received by the Province of Ontario. Sustaining capital investment will generate a further \$26 million in federal tax revenue and \$19.5 million in provincial tax revenue. Project expenditures associated with operations will, on average, generate an estimated \$20 million in federal tax revenue and \$13 million in provincial tax revenue annually. In addition, GenPGM estimates that it will pay a total of \$245 million in Ontario mining duties, \$279 million in provincial income taxes \$419 million in federal income taxes, and \$24 million in property and school taxes over the life of the mine. The Project will also pay an estimated \$4 million in other property royalties are anticipated to be payable over the life of the Project.

Table 6.2.9-6: Estimated Tax Contributions to Federal and Provincial Governments (\$ Millions) due to Project Expenditures

	Tax Type	Site-Preparation/Construction				Operation (Annual)				Sustaining Capital				Decommissioning and Closure/Post Closure			
		Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Federal	Corporate income	15.2	5.1	5.2	25.5	4.3	1.2	1.2	6.7	3.4	2.8	3.2	9.4	1.3	0.4	0.4	2.1
	Personal income	39.7	9.9	2.5	52.1	9.7	2.3	0.5	12.5	8.5	4.0	1.6	14.1	5.3	0.7	0.2	6.2
	Sales	2.1	0.2	1.0	3.3	0.5	0.1	0.3	0.9	1.4	0.5	0.5	2.4	0.2	-	0.1	0.3
	Total	57.0	15.2	8.7	80.9	14.5	3.6	2.0	20.1	13.3	7.3	5.3	25.9	6.8	1.1	0.7	8.6
Provincial	Corporate income	11.8	4.0	4.0	19.8	3.3	0.9	0.9	5.1	2.7	2.2	2.5	7.4	1.0	0.3	0.3	1.6
	Personal income	22.4	5.1	1.3	28.8	5.5	1.2	0.2	6.9	4.5	2.1	0.8	7.4	3.3	0.3	0.1	3.7
	Sales	3.2	0.3	1.6	5.1	0.7	0.1	0.4	1.2	2.6	1.0	1.1	4.7	0.2	-	0.1	0.3
	Total	37.4	9.4	6.9	53.7	9.5	2.2	1.5	13.2	9.8	5.3	4.4	19.5	4.5	0.6	0.5	5.6

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Tax contributions associated with each phase of the Project are inherently beneficial to governments and, given the assessment of 'change in infrastructure and services' (see Section 6.2.9.6.2 of this report), are expected to offset incremental costs of maintaining infrastructure and delivering services to area residents given Project demands. As the Project transitions from operations through decommissioning and closure/post-closure, contributions to government revenues will cease.

Transition from Operation through Decommissioning and Closure/Post-Closure

As the Project transitions into decommissioning and closure/post-closure, the workforce will be ramped down, resulting in a loss of employment within local communities. This eventual loss of employment, however, will be anticipated and communicated to Project workers. The skills, experience, and qualifications that workers gained while employed on the Project will help offset the loss of employment, as these improved qualifications will aid with securing employment on future projects within the LSA, RSA or other parts of Ontario.

Summary

With the implementation of mitigation and enhancement measures, the Project is anticipated to result in both positive (all project phases) and adverse effects (as the project transitions from operation through decommissioning and closure/post-closure).

Positive effects are expected to be medium in magnitude (due to employment, labour income, GDP and government revenue impacts and business contracting potential) during site-preparation/construction and operation. Positive effects are low in magnitude during decommissioning and closure/post-closure. Positive effects during all phases extend beyond the RSA (high geographic extent). Positive effects have a low duration during site-preparation/construction and decommissioning and closure/post-closure and a medium duration during operation. The frequency of positive effects is high (continuous throughout each phase) with low reversibility (i.e., effects are reversible once site-preparation/construction has been completed). The original EIS (2012) did not characterize residual positive effects of the Project.

Adverse effects are anticipated to occur as the Project transitions from operation through decommissioning and closure/post closure with the loss of employment and expenditures. Adverse effects are anticipated to be medium in magnitude and to extend beyond the RSA (high geographic extent). Adverse effects have a low duration and medium frequency (i.e., effects occur as multiple regular events as the project workforce adjusts from operations to decommissioning and closure and again to closure). The reversibility of effects is low. This characterization is similar to that provided in the original EIS (2012) with minor differences in the characterization of magnitude (the original EIS used a range of low-to medium) and geographical extent (the original EIS stated that effects predominantly occur in the LSA but extend slightly to the RSA). Characterizations provided in this assessment recognize current conditions, including tight labour force conditions in the LSA, and are considered more conservative.

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Determination of Significance

While the residual effects assessment considers both positive and adverse effects after mitigation and enhancement measures are implemented, a significance determination is made for adverse effects only. Since adverse residual adverse effects are anticipated to be of medium magnitude and, occur within the boundaries of a normal variation in baseline conditions (exemplified through recent changes in mining employment in the region), adverse residual effects are not assessed as being highly distinguishable from current conditions such that changes cannot be managed or mitigated through adjustments to programs, policies or plans. With the implementation of mitigation and management measures, residual adverse effects on economy and employment are predicted to be not significant. This conclusion is consistent with that provided in the original EIS.

Prediction Confidence

There is a moderate degree of confidence in the assessment of effects on economy and employment because of uncertainty about future economic conditions in the LSA and RSA. The extent of employment of local and regional workers will also depend on finalized Project workforce planning, while the extent to which regional businesses are affected depends on how they choose to respond to the opportunities presented by Project spending.

6.2.9.6.2 Change in Infrastructure and Services

Analytical Assessment Techniques

Potential environmental effects on infrastructure and services are qualitatively and quantitatively (where possible) assessed by comparing anticipated Project demand with existing capacity, as established through baseline research. There may also be potential to expand existing capacity through advanced planning and investment to accommodate new development.

Characterization criteria presented in Section 6.2.9.3.5 are applied to residual environmental effects that remain after proposed mitigation and enhancements have been implemented. The significance of these environmental effects is determined by considering thresholds and methods, as outlined in Section 6.2.9.3.6 of this report. Limitations of information, data analyses, and interpretation are compensated for by taking a conservative approach in this assessment (i.e., overstating risk rather than understating risk).

Project Pathways

Changes to infrastructure and services may result from the presence of Project workers in the LSA placing additional demands on permanent and temporary accommodations, community services and infrastructure (health and emergency, utilities, education, and recreation services and infrastructure), and transportation services and infrastructure. Project activities, including the movement of equipment and vehicles, and production of Project-related waste may also affect the capacity of infrastructure and services.

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Accommodations

The operating life of the mine is estimated to be approximately 13 years. The construction workforce will average approximately 450 to 550 people (400 in the original EIS (2012)) and will be required for between 18 and 24 months. The construction workforce is expected to peak at between 900 and 1,200 people. During operation, the work force will comprise an estimated 375 workers (365 in the original EIS (2012)). It is assumed that the majority of the operation workforce (80% to 90% up from 65% in the original EIS (2012)) will commute to and from the Project site from LSA and RSA communities. The remaining 10% to 20% of the workforce will arrive from outside of the RSA. Given the limited housing supply in the RSA, these workers will live at the Accommodations Complex during Project construction and operations. Additional accommodations, such as local hotels and rental accommodations may be used to house workers during these phases. The location of the Accommodations Complex has not been confirmed, but it is anticipated to be within the vicinity of the Project and the Town of Marathon. Workers may also choose to secure alternate accommodations (i.e., within the Town of Marathon, Indigenous community members on reserve lands), although the supply of available housing in these areas is limited.

Community Services and Infrastructure

Effects on community services and infrastructure can result from a Project-related population increase during construction and operation, which would place additional demands on existing services and infrastructure, including health, emergency, education, recreation, and utilities. For instance, health care and emergency services may be required by Project workers, and/or as a result of Project-related accidents or malfunctions, increasing the potential need for medical, first responder, and fire department services. Service centers in the LSA and RSA that provide services and infrastructure to support Project workers and Project operations are most likely to see increased demands on the services and infrastructure listed above where outside workers move into such communities.

Policing services can be affected by interactions between Project workers and residents and by increased disposable income. Demands on local policing and other social service providers may increase if Project-related income is spent on illicit activities or if it increases income differentials and hence tensions among community residents.

While it is unlikely that Project construction workers from outside the RSA will bring their families to settle in local communities for short-term Project work, it is possible that workers will bring families to communities nearby the Project site (including any First Nation members returning to the area) for the nearly 13-year operation phase. If workers have school-aged children, this will place additional demands on schools in the LSA and RSA.

The Project workforce and Project activities will likely draw on the existing water and wastewater systems and waste management infrastructure in the LSA and RSA communities. For instance, the Accommodations Complex will be composed of individual modular units, with shared bathroom, shower facilities, and common areas.

Transportation Infrastructure

Some Project-related activities during construction and operation will place increased demands on local transportation infrastructure. The transportation of Project goods, services, and workers will lead to additional use of existing roads and highways. The majority of Project workers will drive to and from the Project site from communities within the RSA for work shifts (at 7:00 and 7:00 pm). Concentrate hauling will also occur to the proposed rail loadout facility or existing third-party facility for further processing. These activities will create greater traffic volumes along local road networks, place additional demands on road infrastructure, and may cause traffic congestion and increase travel times for LSA and RSA residents.

Access to the Project site is currently provided by the Camp 19 Road, opposite Peninsula Road at Highway 17. The existing road runs east towards the Pic River before turning north along the river to the Project site (approximately 8 km). The existing road will be utilized from its junction with Highway 17 for approximately 2.2 km, where at this point a new road running north will be constructed to the future plant site.

Mitigation and Enhancement Measures

The primary mitigation and enhancement measure for infrastructure and services will be the implementation of a worker housing strategy, which entails the use of an Accommodations Complex in or near Marathon during construction and operation. The Accommodations Complex (operations) (see Section 1.5.6.1, EIS Addendum [Vol. 1]) will house workers derived from outside the RSA during construction and operation. This measure has been considered to be effective for use in similar applications and environmental conditions. This assessment is based on professional judgment of engineers and scientists in consideration of standard design codes and practices and industry standards. Regulations, industry standards, or best practices have been cited where applicable to justify the selection.

Other mitigation and enhancement measures for infrastructure and services include:

- Implementing rotational work arrangements.
- Establishing measures to encourage and recruit employees from the existing populations in local communities.
- Providing opportunities for training to facilitate employment by residents of the LSA and RSA and supporting initiatives to train local youth and members of Indigenous groups.
- Mandatory cultural sensitivity training for all Project employees.
- Engaging with municipal authorities to coordinate planning of infrastructure development or upgrades that may be needed to ensure that they do not negatively affect the local communities.
- Providing support to fund key community services or organizations and provide fitness and recreational programs for workers within the existing facilities.

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

- Providing Project employees with health services (physical, mental and social health), including Employee Assistance Programs (EAP) and on-site emergency service infrastructure, including fire-fighting equipment.
- GenPGM will co-ordinate its Emergency Preparedness and Response Plan (EPRP) with the Town of Marathon emergency services department.
- Implementing a Waste Management Plan.
- Implementing a Traffic Management Plan, which will include encouraging car-pooling and providing bus transport to and from the Project site and requiring all Project drivers and employees to observe speed limits and take safety precautions.
- Scheduling shift changes and truck movements to avoid peak traffic hours and school bus pick-up and drop-off times.
- Commitment to on-going monitoring of socio-economic effects on the BN community.

In addition to the mitigation and enhancement measures for infrastructure and services that will be implemented by GenPGM, BN has developed a list of proposed mitigation measures that would be the responsibility of federal government agencies (i.e., Indigenous Services Canada (ISC)), to help improve upon existing conditions and reduce potential adverse effects of the Project on their community should any members decide to move back to the community.

These mitigation measures include, among others:

- Commitment for a new elementary school
- Funding a comprehensive community master plan to outline a strategy for managing growth and investment in technology and training for the housing program
- Commitment to construct new water infrastructure
- Funding for the Anishinabek Police Service (APS) for additional personnel

The complete list of meaningful mitigation measures presented by BN on February 25, 2021 has been included in the Record of Consultation. The project may provide the opportunity for BN members outside of the RSA to move back to the community through the provision of a local employment opportunity. However, housing constraints within the community limit their ability to move into the community proper, and capacity constraints on existing infrastructure limit BN's ability to establish additional housing on reserve. For GenPGM's part, the Accommodations Complex is proposed to provide housing for all workers, including members of indigenous communities.

In addition to the mitigation and enhancement measures for infrastructure and services that will be implemented by GenPGM, BN has developed a list of proposed meaningful mitigation measures that would be the responsibility of federal and provincial government agencies (i.e., Indigenous Services Canada (ISC), Ontario Ministry of Natural Resources and Forestry (MNR)), to help improve upon

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

existing conditions and reduce potential adverse effects of the Project on their community should any members decide to move back to the community.

Project Residual Effect

Accommodations

As previously described, a 100-person Accommodations Complex located in general area of the Town of Marathon will be used to house Project workers coming from outside the RSA during construction and operation. It is estimated that at least 80% of the Project construction and operation workforces will come from the LSA and RSA communities, and will, therefore, not require Project accommodations. Because the Project construction workforce is expected to peak at between 900 and 1,200 people, a conservative estimate of 240 employees will require housing at the Accommodations Complex at peak employment. The Accommodations Complex alone will not have the capacity to house this many Project workers but it will reduce or eliminate the need for rotational workers to use rooms in hotels/motels and rental units during the operation phase. There are five other options for temporary accommodation (hotels, motels, work camps) in Marathon with approximately 150 rooms. In addition, there are more than 200 rooms at temporary accommodations in the other LSA communities. The Accommodations Complex will be able to house non-local workers during operations should they choose to live there.

As the Project site is located approximately 10 km north of Marathon, it should be expected that Project-related demand for housing and short-term accommodations during construction and operation will be greatest in Marathon. Other communities where housing and accommodations may be available (e.g., Terrace Bay, Schreiber, Manitouwadge, and White River) are located at greater distances (i.e., in excess of 70 km) from the Project site. Some workers, particularly those intending to remain in the area in the long-term, may choose to commute from those communities.

Members of BN are hopeful that off-Reserve members will return to the community for Project-related employment. As noted in Section 6.2.9.3.2, there is concern that the community does not have housing to accommodate these members, as there is currently a waitlist with 43 families requesting new homes or maintenance to existing homes. While the number of off-reserve BN members who may return to the RSA is unknown, it is certain that BN is already beyond capacity with respect to housing. While the preference may be for off-reserve members to live on-reserve, housing will be available for Project employees at the Accommodations Complex during construction and operation.

Because the positions to be filled in the operation phase of the Project are of a longer-term nature than those available during site preparation and construction, it is likely that some workers will choose to relocate (in some cases, with families) to Marathon or to other RSA communities. A rural rental market survey, completed in 2015, show that vacancy rates for rental properties in Marathon were between 1.7% and 3.8% for apartments and row houses. The vacancy rate for owned dwellings in Marathon was near 0% in 2020 as a result of increased resource development projects in the area. However, the population of the RSA has been decreasing in recent years so there may be additional housing capacity in other RSA communities. Municipal authorities in Marathon would also consider the possibility of building new

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

subdivisions in the near future to support current and future resource development projects (Skworchinski, pers. comm., 2020).

Community Services and Infrastructure

Changes in demand for community services and infrastructure are largely based on population growth – therefore, the extent to which workers choose to relocate to local communities during Project construction and operation will influence the extent to which demand for community services will change. Rotational workers in the LSA and RSA during construction and operation will also require access to certain types of services, although, given the short-term nature of a temporary workforce engaged on a rotational basis, and the fact that some services will be available at the Accommodations Complex, it is not expected that construction phase workers will make substantial use of local community services.

Utilities

Project activities will place increased demand on utilities, including water, sewer, and waste infrastructure. Electrical power needed during initial site preparation will be provided by five 1 MW diesel generators which will be installed on-site. These diesel generators will be used to supply continuous duty power to the site during the site preparation and construction phases, as the new transmission line is developed. The generators will remain in place during operation to supply emergency power in the event of a power failure. Power to the Project site will be provided via a new 115 kV transmission line that will be constructed from a junction point on the Terrace Bay-Manitouwadge transmission line (M2W Line) located to the north of the Process Plant. During operation, electrical demand is estimated to be a maximum of 60 MW, using a power factor of 95%, as per the load projection for submission to Hydro One Networks Inc. This demand is available on the existing power grid.

Potable water will be supplied to the site by a groundwater well and/or supplemented as required by potable water from the Town of Marathon or a bulk water supplier. The potable water infrastructure system has a capacity for nearly twice the maximum daily usage (Northern Waterworks Inc. 2019).

As noted in Section 6.2.9.3.2 of this report, there is concern that community infrastructure and services in BN, in particular that for water and sewage, is not adequate to support an increase in demand should off-reserve members return to live in the community as a result of Project employment. As in the housing discussion, it is not known how many members could return to the RSA for Project work. However, those who choose to live at the Accommodations Complex during construction and operation would not place additional demands on infrastructure and services in BN.

Most waste generated during site preparation and construction will be recyclable. Scrap metal, wood, paper and cardboard, where not reusable, will be segregated and trucked offsite to appropriate facilities. Solid non-hazardous wastes generated during site preparation will be collected in temporary collection areas (areas that have been disturbed by clearing) and subsequently trucked off site to a licensed disposal site. Hazardous waste will be collected, stored on site temporarily as appropriate and trucked offsite to appropriate licensed facilities. A new landfill was opened in Marathon in 2015 and it is not expected to reach capacity for at least 100 years; therefore, the Project will not place demands on waste infrastructure beyond its capacity.

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Health and Emergency Services

Project workers may require health care as a result of illness or workplace injuries. It is expected that for conditions that require long-term care, workers will continue to use the services of family physicians or specialists located in their home communities.

In order to mitigate and manage effects of the Project on health and emergency infrastructure and services, there will be a first aid station and a trained Emergency Rescue Team on-site. There are two hospitals in the RSA with more than 65 acute care beds and a number of medical clinics. The number of family medicine physicians and specialists in the North West Local Health Integration Network have increased in recent years and decreases in the population of the RSA indicate that existing health services in the region should be expected to absorb Project-related increases.

There is a health centre in BN (Biigtigong Mno-zhi-yaawgamig) and an agreement in place for regularly scheduled visits to the community from travelling physicians and other visiting services (i.e., North East Mental Wellness & Crisis Response Team, Dilico Primary Care Travelling Team). A new, larger health centre building and the addition of a mental health crisis team have improved the ability to provide health care in BN. However, there remain chronic health concerns in the community and challenges associated with recruitment of health centre staff. Concerns have been expressed regarding increased Project-related demands on the BN health services. To alleviate these demands, Project employees may access health services provided at the Accommodations Complex and within nearby RSA communities (i.e., Town of Marathon).

The presence of the Project workforce and Project activities could also result in higher demand for services such as police, fire protection, and ambulance services. Fire-fighting equipment, a pumper truck, and a foam suppression unit will be available at the Project site during construction and operation. There are seven fire departments in the RSA with 108 members and five emergency medical services stations. In general, EMS services in the region have the capacity to handle the existing demand for service without requiring improvements to infrastructure or staffing levels (Ontario Ministry of Health and Long-Term Care 2019; Superior North EMS 2018). In addition, the Town of Marathon has agreed to supplement emergency services required at the Project site from the Marathon Fire Services and the Emergency Medical Services of Marathon. No demand on other fire or emergency response services in this RSA are anticipated to serve the Project.

In the RSA, there are five Ontario Provincial Police detachments and the Anishinabek Police Service Biigtigong Nishnaabeg detachment with a total of 140 officers. While the Crime Severity Index has generally been increasing in the region, the declining population indicates some capacity to absorb additional Project-related demands for police services. In addition, security will be provided at the Project site, which will aid in managing effects on police services.

Education

Increased demand for education services is only likely to occur during the operation phase if some workers relocate to RSA communities with their families. Available school enrolment data indicate that the elementary and secondary schools in some of the RSA communities, including Marathon and Terrace

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Bay, are operating below capacity and will be able to accommodate Project-related increases in enrolment. Any increases in school enrolments that occur during the construction phase will have no noticeable effect and will not create strain on the school system.

BN has an elementary school and a private high school and is currently seeking approval with ISC to construct a new K-8 school. The elementary school is operating beyond its capacity with only four classrooms and other areas of the school performing dual functions. Recruitment of qualified teachers and early childhood educators is also a challenge and daycare services are limited in the community. Any returning off-reserve members with families may place additional demands on education and daycare infrastructure and services in the community. The availability of school space in nearby RSA communities may help alleviate this pressure. Further capacity improvements within the community are being sought by BN to address existing and future demands.

There are institutions in the region which offer relevant training for careers in the trades, administration, and mining. These include the satellite campus of Confederation College in Marathon, as well as other institutions in Thunder Bay and Sault Ste. Marie. The Project may offer scholarships or support for apprenticeships or other training opportunities for local workers.

Recreation

During off-work hours, workers engaged in the construction phase of the Project may choose to utilize some of the sport and leisure amenities available in local communities. In Marathon and Terrace Bay there are golf courses, hiking trails, various sports fields or courts, as well as cross-country skiing and snowmobiling trails (which are maintained by local clubs). Marathon has the only indoor swimming pool between Thunder Bay and Sault Ste-Marie. There are also gyms, as well as indoor facilities for hockey and curling. The presence of the Project may result in increase in demand for some of these amenities. However, because the population of local communities has been in decline, it is unlikely that use of these facilities by Project personnel will create any substantial strains. Furthermore, Project workers' involvement in some of the local clubs may contribute to the continuation of some of the existing services or amenities.

The sport and leisure amenities available in local communities should be expected to absorb increases in demand/usage, although the indoor swimming pool in Marathon is the only one in the region and may become more heavily used as workers and families utilize the facility. Amenities such as groomed cross-country skiing and snowmobiling trails, which are maintained by local clubs, may benefit from an increase in the number of users.

Transportation Infrastructure

The Project is expected to contribute to an increase in road traffic volume (90 passenger vehicles entering the site for each of the day shift and 60 passenger vehicles for the night shifts; up to 40 tractor trailer truckloads per day of concentrate product; and six tractor trailer loads of supplies) in the vicinity of the Project site. Access to the Project is currently provided by the Camp 19 Road, opposite Peninsula Road at Highway 17. The existing road will be upgraded (i.e., brushing, installation/upgrades to culverts, and construction of an appropriate gravel roadbed) and utilized from its junction with Highway 17 to a new

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

road running north that will be constructed to access the Project site. These vehicle movements will affect primarily Peninsula/Camp 19 Road and Highway 17, but an increase in traffic can also be expected throughout the Town of Marathon.

Increased traffic in the Town of Marathon will occur during shift change, when employees are travelling to and from work, and during transport of concentrate from the Project site to the rail load-out facility in Marathon, if this facility becomes the preferred choice for concentrate transportation. Increased traffic volume will likely cause delays and could result in safety issues related to collisions with other vehicles and pedestrians.

To mitigate these potential safety issues, shift changes will occur at times that do not coincide with work and school release, with ideal timing in the later evening. With more of the workforce being local, increased traffic during shift changes will be observed within the community as employees travel between the mine and their homes. Traffic volumes during the decommissioning and closure phase of the Project will be lower than during other phases of the Project.

The 2012 Traffic Impact Study (TIS), associated with the original project, concluded that no major road improvements would be required to Highway 17 or Camp 19 Road to accommodate the proposed mine development, and that the Highway 17 intersection with Peninsula Road/Camp 19 would operate at an acceptable Level of Service (LOS) for both the construction and operation phases of the mine. Overall, the Highway 17, Peninsula Road, and Camp 19 Road intersection during the site preparation and construction phase will remain at LOS A – little or no conflicting traffic for minor street approach, with an average total delay of less than 10 seconds per vehicle.

The updated Transportation Baseline Report (Stantec 2020f) ([CIAR #722](#)) indicated that data on the traffic type, volume, and distribution in the assessed area were still valid and applicable to the updated baseline condition and that the assumptions made in the TIS were found to still be still applicable relative to the anticipated traffic volumes in the area. Using a very conservative approach to traffic growth, the updated report confirmed that the recommendations outlined in the TIS are still valid and that the intersection will continue to operate as anticipated and well within an acceptable LOS.

Summary

With the application of mitigation and enhancement measures, including the use of an Accommodations Complex and Project-specific management plans, such as those for waste and transportation, the adverse effects on infrastructure and services are expected to occur during construction, operation, and decommissioning in the LSA and RSA. Effects are predicted to be medium with respect to magnitude and low for reversibility, medium in terms of duration, and high with respect to frequency. The magnitude of residual adverse effects has been characterized as high due to the additional demands that may be placed on community infrastructure and services in the BN community, if members returning to the community as a result of Project employment choose to live within the community instead of within the Accommodations Complex provided.

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

The implementation of additional measures to address existing community infrastructure and services capacity constraints (i.e., new elementary school, community master plan to manage growth, housing program, new water infrastructure, police funding) would require further and on-going discussions between BN and ISC. Such efforts would facilitate BN's ability to address existing concerns and challenges in this regard and would support the possible return of off-reserve members into the community, whose return may be facilitated through employment opportunities associated with this Project.

Further, the Project may also result in positive effects on infrastructure and services where increased demand may lead to additional investment and improvement, for instance with respect to housing and recreation, and this would ultimately result in increased capacity of such infrastructure and services.

Determination of Significance

If BN community members return to the community, GenPGM recognizes the additional demands that the Project will have on BN, and if realized, are considered significant; however in recognition of the predicted effect, GenPGM and BN have recently executed an Agreement in Principle (AIP) February 2021, that outlines the framework for a community benefit agreement to mitigate same residual effects and provide an overall benefit to BN.

The residual adverse effect of the Project on infrastructure and services is predicted to be not significant because it will not result in an exceedance of available capacity of infrastructure and services, or a substantial decrease in their quality, on a persistent and ongoing basis, which cannot be mitigated with future or anticipated government programs, policies, or proposed mitigation and enhancement measures.

6.2.9.6.3 Change in Land and Resource Use

Analytical Assessment Techniques

The assessment of land and resource use relied on spatial analysis to quantify the extent of land and resource use areas available in the SSA, LSA, and RSA, where possible. Primary and secondary research and information collected, as well as the conclusions from other VECs, were also used to support the assessment. The assessment of land and resource use considered the interactions and relationship between the land and resource use VEC and other socio-economic and biophysical VECs. For example, residual effects on wildlife and fish species and habitats are important factors for hunting and fishing activities. However, the assessment of the biological VECs is not repeated in this VEC, but rather the conclusions of those assessments are referenced. The assessment of effects related to sensory disturbance of land and resource users rely on the results of the air quality and noise assessment for the Project.

A description of the land and resource use in the SSA, LSA and RSA is provided in the Socio-economic Environment Updated Baseline Report ([CIAR #722](#)). Quantifiable data on the intensity of resource and recreational uses is unavailable for the SSA and LSA, therefore, a conservative approach that land, resource and recreational use may occur in these areas has been taken in assessing effects to land and resource use.

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Project Pathways

Changes to land and resource use occur primarily through the loss of, or restricted access to, the SSA, sensory disturbances (i.e., noise and dust) from Project activities, and the reduction in overall user experience from the Project presence. These pathways are described further below and have the potential to occur throughout the life of Project; however, the extent of these effects during decommissioning and closure are less than those during construction and operation.

Loss of / Change to Designated Land Use

Project activities may result in a change to designated lands (e.g., Crown lands, protected areas), for example lands designated for forestry use will no longer be available for forestry. Similarly, watercourses and other water bodies considered to be navigable will no longer be available to navigate (i.e., canoeing, kayaking). Project activities within the SSA may also be incompatible with applicable land use plans and zoning and have the potential to change the use of lands through the loss of area and the restriction of access to designated lands.

Reduction in Annual Allowable Cut (AAC)

Site preparation and construction activities will remove potentially commercially harvestable timber in the SSA. The Project is located in the Pic Forest Management Unit. The removal of forest land from the commercial forest area could affect the determination of AAC levels.

Sensory Disturbances

Project activities, such as clearing, grubbing and stripping of vegetation, as well as the use of Project equipment and vehicles, may affect nearby landowners due to sensory disturbances associated with noise and dust emissions. These sensory disturbances, particularly from the use of heavy equipment, transport of materials and increased traffic, also have the potential to affect harvesting activities (hunting, trapping, outfitting, and fishing) through changes in harvesting success due to the disruption of targeted species. There is potential for behavioral changes of harvested wildlife species due to the sensory disturbances which may cause a reduction in wildlife hunting success and greater pressure on game resources in other nearby areas. Project workers could also increase the competition for species harvested by local hunters, trappers, outfitters, and fishers.

Loss of / Reduced Quality of Experience

Project activities may result in the direct loss of local resource and recreational use areas through site preparation and construction as well as the physical presence of the Project within the SSA. Additionally, the overall experience of resource users (i.e., hunters, trappers, outfitters, and fishers) within the LSA may be altered as a result of Project presence and associated sensory disturbances (i.e., noise and dust), as the remoteness is a large part of the draw and appeal of these activities. Informal recreational activities, including recreational hiking, snowmobiling, ATV use, and camping could also be affected by Project activities and Project presence through a change in the quality of the outdoor recreation experience. Furthermore, throughout the life of the Project, the physical presence of the Project will affect land, resource and recreational uses and visual aesthetic values (e.g., user's quality of experience).

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Mitigation and Enhancement Measures

Mitigation and enhancement measures to reduce potential effects to land and resources use:

- Site clearing and disturbed areas will be limited to the extent practicable and only as required to accommodate the Project.
- To the extent possible, clearing and wood utilization will follow the requirements contained in the Forest Management Plan. This may include a commercial market for the harvested wood from the Project site or may be used for firewood for the general public. Un-merchantable wood, as defined by the *Crown Forest Sustainability Act*, may be left scattered throughout the harvested area to serve as coarse woody debris.
- GenPGM will engage with the Town of Marathon and provincial Crown lands permit holders to address potential disturbance to or access restrictions to municipal and Crown land areas.
- Harvester Training Fund. An endowment fund where interest supports annual harvester and trapline training programs.
- Signage will be installed around the SSA to alert the public and land users of the presence of the Project and its facilities.
- Hunting / fishing / harvesting of wildlife will be strictly prohibited on the site. Workers will not be permitted to hunt / fish / harvest and will not be permitted to bring firearms or angling gear to site.
- Project activities, locations, and timing will continue to be communicated to Indigenous groups, affected land and resource users, environmental non-government organizations, the provincial government, and local authorities throughout the life of the Project.
- Desired land and resource end-uses will be considered in the preparation of the Closure Plan.

Mitigation and enhancement measures identified in other VECs will also reduce the potential effects on land and resource use (Section 6.2.1 – Atmospheric Environment, Section 6.2.4 – Fish and Fish Habitat, Section 6.2.6 – Vegetation, and Section 6.2.7 – Wildlife of this EIS Addendum [Vol 2]).

Project Residual Effect

The original EIS (2012) predicted no significant adverse effect on resource use. Residual effects to land and resource use occur primarily through the loss of, or restricted access to, the SSA, sensory disturbances (i.e., noise and dust) from Project activities, and the reduction in overall user experience from the Project presence. Residual effects are described further below.

Loss of/Change to Designated Land Use

Project activities in the SSA have the potential to change the use of lands through the loss of area and the restriction of access to designated lands in the LSA. The SSA is located entirely on Crown land, as is 96.5% of the LSA (3,985 ha). According to the Ministry of Natural Resources and Forestry Crown Land

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Use Policies, the SSA is primarily located within a General Use Area designation, with a small portion located in the Enhanced Management Area designation. The LSA also includes a portion of lands designated as Lake Superior Shoreline. Mine exploration and development is a permitted use within all of these designations, except where development is controlled within 300 m of the shoreline of Lake Superior, which is located more than 3 km from the SSA boundary.

Project activities within the SSA may be incompatible with applicable land use plans and zoning. As per the Town of Marathon Official Plan, the SSA is in an area designated as rural, which permits uses related to natural resources, such as mining and mineral exploration.

As was the case with the original project proposal, the Project will potentially affect water course and water bodies in six local subwatersheds (see Navigable Waters Update, Appendix D7, of this EIS Addendum [Vol. 2]). A total of 13 numbered waterbodies (i.e., small ponds and lakes) and a number of other smaller ponds have been identified as being affected by the project (overprinting, loss of water), with a combined surface area of 10.6 hectares. The small on-site connecting channels, ponds and lakes are interpreted at this time as not be navigable as they do not likely meet the navigable water definition. They are small in size and are unlikely to be used for transport or travel for commercial or recreational purposes, nor have they been used for this purpose in the past. Many of these waterbodies would generally be considered difficult, at best, to access as they are isolated within the landscape.

Parks within the RSA have not changed since the completion of the original EIS. The two closest parks to the SSA are Red Sucker Point Provincial Park and Craigs Pit Provincial Park, which are both approximately 5 km from the SSA. These parks are nature reserves with no formal facilities.

Land use associated with the Project is consistent with the resource use that has been occurring in the RSA. Only a small portion of the overall available Crown land area will be affected by the Project development. Similarly, only a small proportion of the available navigable waterways in the LSA are to be affected by the Project. GenPGM will engage with the Town of Marathon and provincial Crown lands permit holders to address potential disturbance to or access restrictions to municipal and Crown land areas. Signage will also be installed around the mine site to alert land users of the presence of the Project and its facilities, and gates will be established to restrict access to active areas of the Project. It is therefore anticipated that adverse effects on a loss of designated land use areas are low in magnitude.

Reduction in Annual Allowable Cut

Site preparation and construction activities will remove potentially commercially harvestable timber in the SSA. The Project is located in the Pic Forest Management Unit. The SSA encompasses an area of approximately 1,116.4 ha, or about 0.1% of the total area of the Unit. The removal of forest land from the commercial forest area could affect the determination of AAC levels. Timber harvest on site will be staged over a four year period, commencing with site preparation and construction and continuing as needed during the initial two years of operation as project infrastructure is expanded. The adverse effect on AAC will be a continuous event because the affected productive forest land will remain deforested for the duration of the Project. However, no harvest areas in the SSA were identified in the current forestry management plan. Additionally, the Summary of the Proposed Long-Term Management Direction for the Pic Forest Management Plan (2018) outlines potential harvest areas until 2029 and no such areas were

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

identified within the SSA. To the extent possible, clearing and wood utilization will follow the requirements contained in the Forest Management Plan. This may include a commercial market for the harvested wood from the SSA or may be used for firewood for the general public. Un-merchantable wood, as defined by the *Crown Forest Sustainability Act*, may be left scattered throughout the harvested area to serve as coarse woody debris. It is therefore anticipated that adverse effects on a reduction in AAC are negligible in magnitude.

Sensory Disturbances

Project activities, such as clearing, grubbing and stripping of vegetation, as well as the use of Project equipment and vehicles, may affect nearby landowners due to sensory disturbances associated with noise and dust emissions. There are two cabins located on Hare Lake within the LSA, one of which is owned by GenPGM. There are several commercial, residential, and industrial uses in the LSA within the Town of Marathon. The Marathon Airport is also located directly adjacent to the SSA. Within the SSA, activities such as site preparation and construction, will result in increased sound and dust levels. As assessed in Section 6.2.2 of this EIS Addendum (Vol 2), the site preparation and construction and operation of the Project will result in noise emissions and ground vibration; however, the magnitude of the releases will be limited and well managed. Construction related noise emissions will occur through the operation of heavy machinery and from earth moving and material handling, site preparation (including blasting) and material handling, power generation, and vehicle and haul truck traffic. Emissions during Project operation are expected to be similar and would also include ore processing, transportation of concentrate and activities at the rail load-out facility (if applicable). Based on acoustic modelling, the predicted sound levels and subsequent analysis (i.e., air blast setback distances and percent highly annoyed [%HA]) at representative noise-sensitive receptors from Project activities are expected to be below the applicable provincial and federal criteria. As detailed in Section 6.2.1 of this EIS Addendum (Vol 2), while dustfall levels during construction and operation are predicted to increase above criteria at the modelled property boundary (close to the entrance of the mine), they are expected to be below criteria at locations of potentially susceptible receptors.

Sensory disturbance effects (e.g., noise, dust, visual) may also displace targeted species and reduce harvesting success rates within the LSA for local harvesters and outfitters. The LSA is located within Wildlife Management Unit (WMU) 21A and 21B. Species harvested within these areas include black bear, white tailed deer, moose, and wolf coyote. Within WMU 21A and 21B, moose is the most common species pursued by active hunters with the number of moose harvested in 2018 estimated to be 243. Within WMU 21A and 21B, there are also a variety of furbearing species available for trapping, including beaver, otter, bobcat and lynx, mink, muskrat, fisher and marten, raccoon, fox, skunk, red squirrel, weasel, black bear, wolf, and coyote. There is potential for behavioral changes of these harvested species due to the sensory disturbances which may cause a reduction in wildlife hunting success. As discussed in Section 6.2.7 of this EIS Addendum (Vol 2), with the application of mitigation measures, the magnitude of change in wildlife survival and change in habitat for wildlife is predicted to be negligible. Assuming the successful implementation of mitigation measures described in Section 6.2.7 of this EIS Addendum (Vol 2), it is therefore anticipated that associated effects to harvesting success rate is anticipated to be negligible in magnitude.

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Sensory disturbances related from Project activities also have the potential to influence where users choose to pursue resource use activities. For example, Project activities could result in a decrease in interest in harvesting near the SSA, particularly if undisturbed or undeveloped areas are available elsewhere. This could lead to greater pressure on game resources in other nearby areas.

Given that Project activities results in a relatively small change in sound levels to nearby landowners and resource users, and the sound pressure levels are well below regulatory threshold, with the implementation of mitigation measures described in Section 6.2.2 of this EIS Addendum (Vol 2), residual effects as a result of sensory disturbances are therefore anticipated to be low in magnitude.

Loss of/Reduced Quality of Experience

Project activities will result in the continued direct loss of local resource use areas through site preparation and construction as well as the physical presence of the Project within the SSA. However, a locked access security gate was previously installed along Camp 19 Road to restrict access to active work sites and to protect the public and employees. GenPGM has surface and mining leases over most of the Project site and a Land Use Permit for the gate. Local recreational users have had limited use and restricted access of the Project site for over 15 years. Residents in the Town of Marathon and BN members have worked with Stillwater (previously) and GenPGM to plan for safe access to the Project site and north of the Project site past the security gate for hunting, trapping, bait fish and traditional purposes. Therefore, adverse effects to loss of area is predicted to be negligible.

As discussed above, the Project is likely to result in sensory disturbances which can affect the overall experience of resource users (i.e., hunters, trappers, outfitters, and fishers) within the SSA and LSA, as the remoteness is a large part of the draw and appeal of these activities. As noted above, the LSA is located within WMU 21A and WMU 21B. In 2018 there were an estimated 3,709 active hunters in WMU 21A and 3,530 active harvesters in WMU 21B (Government of Ontario, 2019a, 2019b, 2019c, 2019d). There are also two traplines areas with the SSA (TR022 and TR023). TR022 is an undefined licence type and approximately 1,097 ha of the trapline area is located within the SSA, 3,382 ha within the LSA, and 14,853 ha within the RSA. TR023 is a regular registered licence with 19 ha within the SSA, 749 ha within the LSA, and 21,019 ha within the RSA. While there are no hunting outfitters in Marathon, several serve the broader region. Bait harvesting is also carried out in the RSA and is a licensed commercial activity. The SSA is located within a single bait fish harvest area (NI3502). The SSA overlaps approximately 1,116 ha of NI3502, with the LSA overlapping 4,070 ha and the RSA overlapping 25,507 ha of the area. While specific resource use intensity levels are not available, it has been conservatively assumed that resource use is occurring in the SSA and LSA and could be affected through loss of area and reduced quality of user experience.

There are a variety of informal recreational activities within the SSA and LSA that could also be affected by Project activities through loss of area or a change in the quality of the outdoor recreation experience. The physical presence of the Project may also affect recreational uses and visual aesthetic values (e.g., user's quality of experience). Viewscape can be altered by physical features or works associated with the Project and may alter the aesthetics of the environment resulting in a change of perception of the area and discourage use. Informal recreational tourism in the SSA, LSA and RSA includes fishing, swimming, boating, canoeing, biking, picnicking, and birding in the summer months. Winter recreational activities

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

include snowmobiling, cross-country skiing, and snowshoeing. There are several snowmobile trails within the SSA, LSA, and RSA. For example, the Marathon Sno-Kickers Snowmobile Club operates a trail along Camp 19 Road that extends from Highway 17 to the east of the Pic River (OFSC, no date). Access along that portion of the Camp 19 Road and to the Pic River crossing will not be affected by the Project.

As noted in the original EIS, the LSA includes local fishing destinations, including Bamooos Lake, Hare Lake (and Hare Creek), the lower end of Stream 6 and the Pic River. Access to Bamooos Lake for the general public will be affected because use of the Bamooos Lake trail from the Camp 19 Road will be restricted by the development of the mine until such time as general site access is restored. Bamooos Lake will however remain accessible via other existing albeit less convenient routes including hiking or snow mobile in winter.

Project presence will remove 1,116.4 ha of area from resource and recreational use. For safety and security reasons, resource and recreational activities will be restricted near Project activities. Signage will be installed around the SSA to alert land users of the presence of the Project and its facilities. GenPGM will engage with local resource users (hunters, outfitters, trappers, fishers) regarding the overlap of the Project with hunting, trapping, and fishing areas in the SSA. Hunting / fishing / harvesting of wildlife will be strictly prohibited on the site. Workers will not be permitted to hunt / fish / harvest and will not be permitted to bring firearms or angling gear to site. Sensory and visual disturbances to resource and recreational users will be reduced through the implementation of mitigation to reduce noise and light emissions, where feasible (Section 6.2.2 of this EIS Addendum [Vol 2]). With the implementation of mitigation measures and given alternative areas within the LSA and the RSA are available for resource and recreational use, the residual effects to the quality of resource and recreational use is anticipated to be low in magnitude.

Summary

With the implementation of mitigation, residual adverse effects on land and resources use are predicted to be low in magnitude (i.e., a small, measurable change in land and resource use capacity, although activities can take place at or near current levels). The overall area of the SSA (1,116.4 ha) is relatively small in area compared to alternate lands available for land and resource use activities. Noise and dust effects to nearby users are anticipated to be below regulatory thresholds. Desired land and resource end-uses will be considered in the preparation of the Closure Plan. Furthermore, the Project is located in an area with a history of similar resource use activities. Residual effects are predicted to be limited to the SSA (direct loss of area) and LSA (sensory disturbances), be medium in duration, high in frequency as effects will be continuous throughout the life of the Project, low reversibility.

Determination of Significance

As noted in Section 6.2.9.3.6 a significant effect on land and resource use is defined as one that results in a change or disruption that restricts or degrades present land and resource use capacity within the RSA to a point where activities cannot continue at or near current levels over the long-term and where compensation is not feasible or results in Project-related risks that exceed objectives established by relevant regulatory organization(s).

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

While Project activities will result in adverse effects to land and resource use during each phase of the Project, these effects are anticipated to be low in magnitude. The Project does not conflict with established federal, provincial, or municipal land use designations, policies, or by-laws. Land and resource uses are anticipated to continue to occur at or near current levels over the long term and alternative land elsewhere in the LSA and RSA are available for resource and recreational pursuits. Project activities and components will not disrupt, restrict, or degrade land and resource use to a point where they cannot continue at or near current levels. With mitigation and enhancement measures, the residual environmental effects on land and resource use are predicted to be not significant.

6.2.9.7 Prediction Confidence

The level of confidence in the predictions for Project-related residual effects on the socio-economic environment is medium to high. This is based on information collected as part of desktop data compilation and understanding of current existing conditions, GIS data analyses, understanding of Project activities, locations and described interactions, the known effectiveness of mitigation measures, and experience of the assessment team. A medium level of confidence was given because some of the desktop data were limited in terms of availability (e.g., intensity of recreational usage) or scale (e.g., big game hunting areas to support harvest evaluation); however, environmental effects mechanisms are well-understood. Many of the mitigation measures are standard practice and have been successfully implemented in previous mining projects, further increasing confidence.

6.2.9.8 Summary of Project Residual Effects

A summary of residual environmental effects on socio-economic environment that are likely to occur as a result of the Project is presented in Table 6.2.9-7.

Table 6.2.9-7: Project Residual Effects on the Socio-economic Environment

Residual Effect	Residual Effects Characterization									
	Project Phase	Direction	Magnitude	Geographic Extent	Timing	Duration	Frequency	Reversibility	Ecological/ Societal Value	Significance Determination
Change in economy and employment	C, O, D	P/A	M	H	NS	L	H	L	H	NS
Change in infrastructure and services	C, O, D	A	H	M	NS	L	M	L	H	NS
Change in land and resource use	C, O, D	A	N-L	M	NS	M	H	N	M	NS

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

Table 6.2.9-7: Project Residual Effects on the Socio-economic Environment

Residual Effect	Residual Effects Characterization									
	Project Phase	Direction	Magnitude	Geographic Extent	Timing	Duration	Frequency	Reversibility	Ecological / Societal Value	Significance Determination
KEY See Section 2.5 of EIS Addendum (Vol. 1) and Table 6.2.9-2 for detailed definitions Project Phase: C: Site Preparation / Construction O: Operation D: Decommissioning Direction: P: Positive A: Adverse Magnitude: N: Negligible L: Low M: Medium H: High N/A: Not applicable Geographic Extent: N: Negligible L: Low M: Medium H: High Timing: NS: No sensitivity MS: Medium sensitivity HS: High sensitivity Duration: N: Negligible L: Low M: Medium H: High Significance Determination S: Significant NS: Not Significant Frequency: N: Negligible L: Low M: Medium H: High Reversibility: N: Negligible L: Low M: Medium H: High Ecological / Societal Value: N: Negligible L: Low M: Medium H: High										

Note: Timing was not included in the original EIS.

6.2.9.9 References

Northern Waterworks Inc. 2019. 2019 Annual Report Marathon Drinking Water System. Available at:

<https://www.marathon.ca/en/living-here/resources/Documents/2019-Annual-Report---Marathon.pdf>

Ontario Ministry of Health and Long-Term Care. 2019. Emergency Health Services, Land Ambulance Key Performance Indicators. Available at:

http://www.health.gov.on.ca/en/pro/programs/emergency_health/land/default.aspx

Stantec Consulting Ltd. (Stantec). 2020f. Marathon Palladium Project Environmental Transportation Updated Baseline Report. (CIAR #722). Prepared for Generation PGM Inc. 13 November 2020.

Stantec Consulting Ltd. (Stantec). 2020g. (CIAR #722). Marathon Palladium Project Socio-economic and Current Resource Use Updated Baseline Report. Prepared for Generation PGM Inc. 13 November 2020.

MARATHON PALLADIUM PROJECT ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

Socio-economic Environment
April 2021

(Statistics Canada 2019. Table 36-10-0595-01 Input-output multipliers, provincial and territorial, detail level. Available at: <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3610059501>

Superior North EMS. 2018. Stations. Available at: <https://www.thunderbay.ca/en/stations.aspx>