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Marathon Palladium Project

Cumulative Effects

APRIL 1, 2022

Agenda

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- Introduction
- Assessing Cumulative Effects
- The Project's Cumulative Effects Assessment Approach
- Cumulative Effects Assessment Results

Introduction

GenPGM Witness Panel:

- Drew Anwyll, GenPGM - Witness Panel Chair
- Jeremy Dart, GenPGM - Environmental & Permitting Lead
- Cathryn Moffett, GenPGM - Indigenous Consultation Lead
- Tabatha LeBlanc, GenPGM - Senior Environmental Advisor

Technical Witnesses:

- Brian Fraser, Ecometrix - Environmental Lead
- George Hegmann, Stantec - Cumulative Effects Advisor
- Craig Hall, Knight Piésold Ltd. - Water Balance / Mine Rock and Process Solids Design
- Ron Nicholson, Ecometrix - Surface Water Quality and Geochemistry
- Robert Foster, Northern Bioscience - Terrestrial Environment and Species at Risk Don
- Heart, Ecometrix - Human Health
- Hilary Janes, Stantec - Socio-economics

GenPGM Vision and Key Corporate Goals:

- Develop and **grow in a sustainable** manner
- Achieve **substantial benefits** for the region
- Operate **responsibly** and provide a **safe work environment**
- To be an industry leader in developing **mutually beneficial** and **respectful** relationships with Indigenous communities, groups and members
- Focusing on providing **critical minerals** for Canada and Ontario

Project Location

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- Located approximately 10 km north of the Town of Marathon and northwest of Biigtigong Nishnaabeg First Nation
- 300 km east of Thunder Bay
- The terrain is moderate to steep with frequent bedrock outcrops and predominant east-west oriented valleys
- Access to the Project site is by an access route called Camp 19 Road which extends north of Highway 17 and proceeds along southern portion of the site before turning north along the Pic River

Source: CIAR #224 Figure 1.4-6

Project Location: Local and Regional

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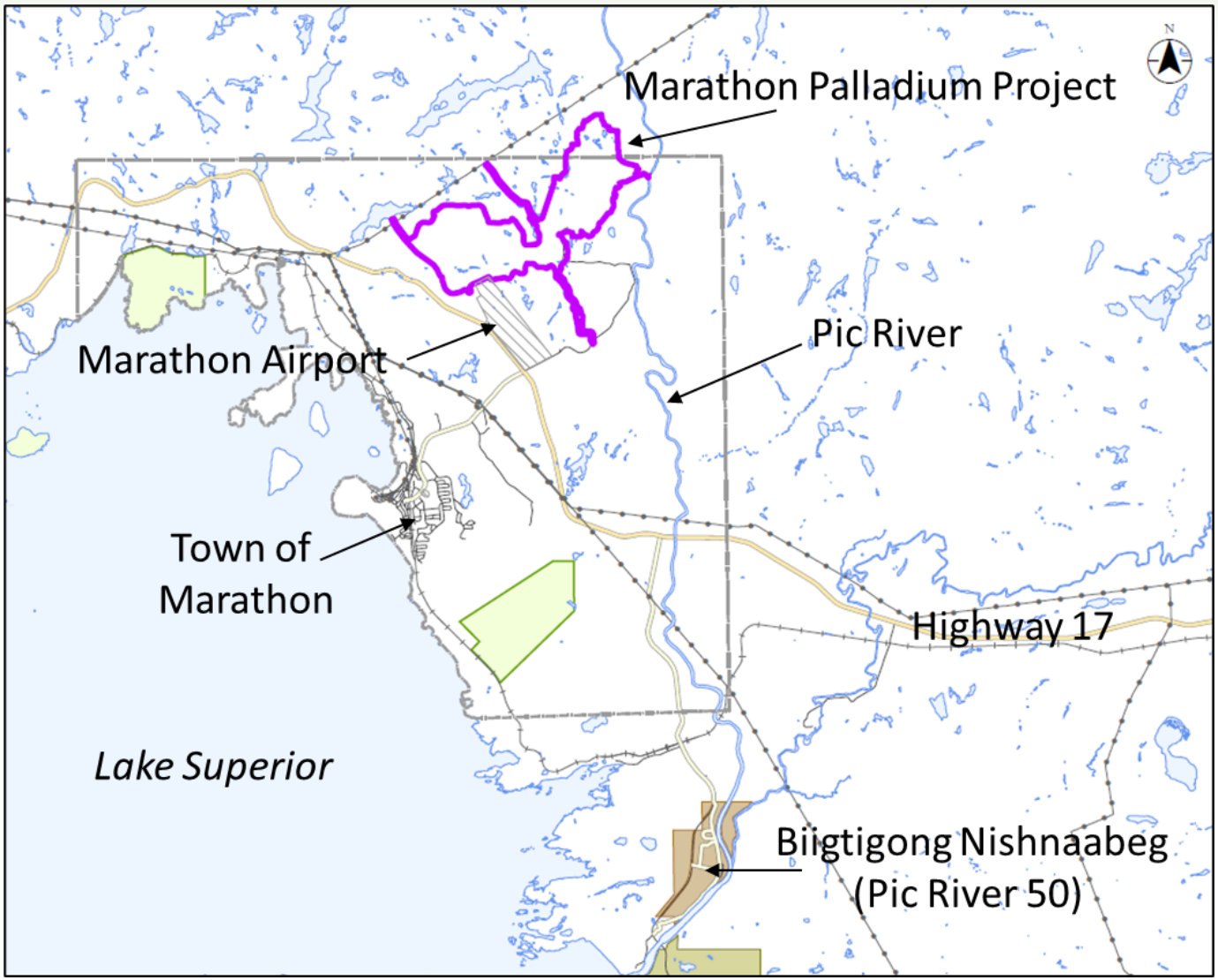

Adapted from: CIAR #727

General Site Layout

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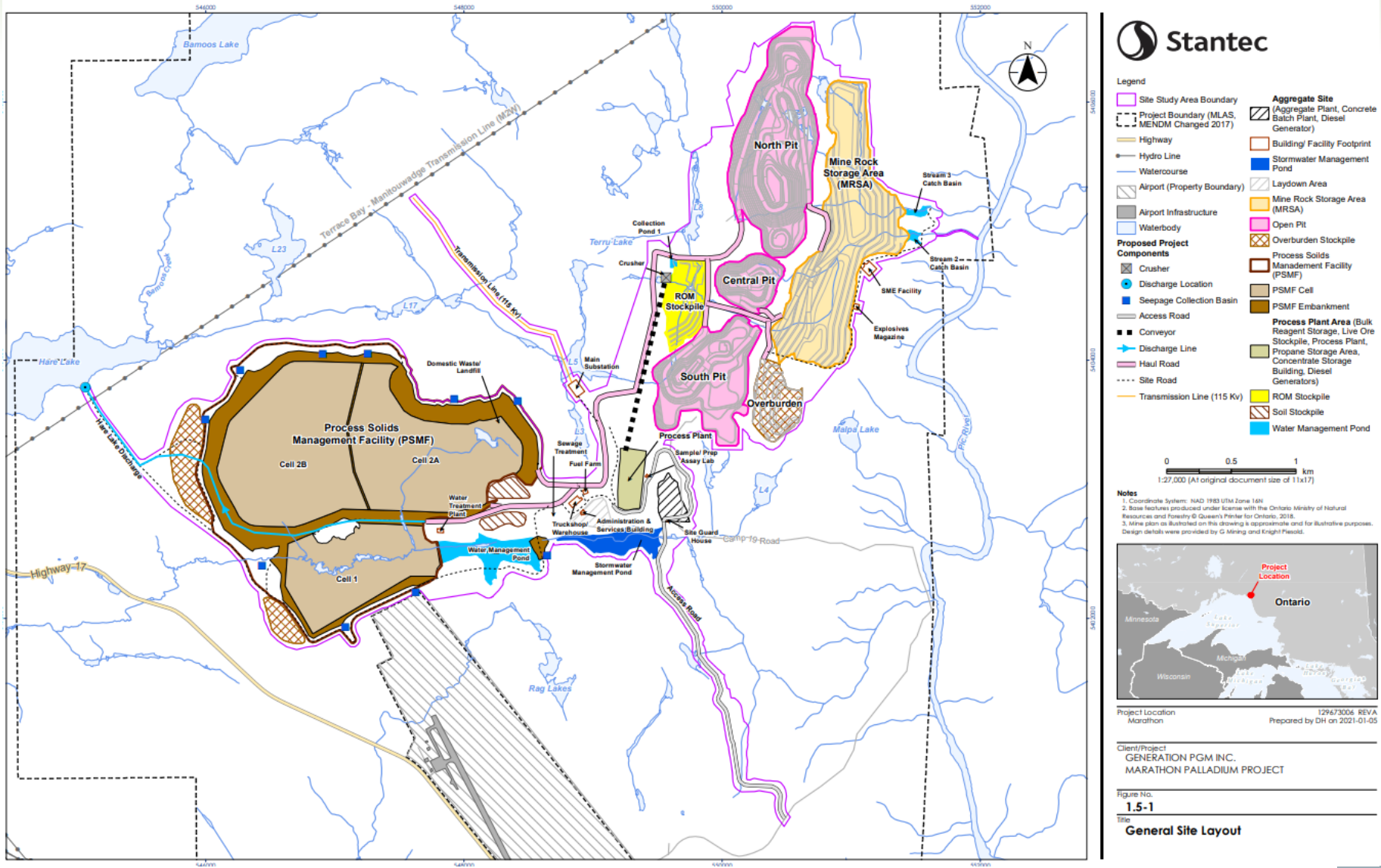

Source: CIAR #727 Figure 1.5-1

Environmental Impact Statement

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- Over ***15 years*** of consultation and engagement efforts and input from Indigenous communities, public and regulators
- ***Design details*** provided within EIS and EIS Addendum for robust effects assessment
- Updated technical studies demonstrate that the Project ***can comply*** with Federal and Provincial regulatory requirements
- GenPGM is committed to on-going dialogue and implementing proposed mitigation measures and commitments outlined in EA documentation
- With mitigation and environmental protection measures, the Project ***is not predicted*** to result in any significant adverse environmental effects or significant adverse cumulative effects
- Predicted effects and effectiveness of mitigation measures will be verified through follow-up programs and adaptive management process

Assessing Cumulative Effects

How CEAs Work: Cause-Effect

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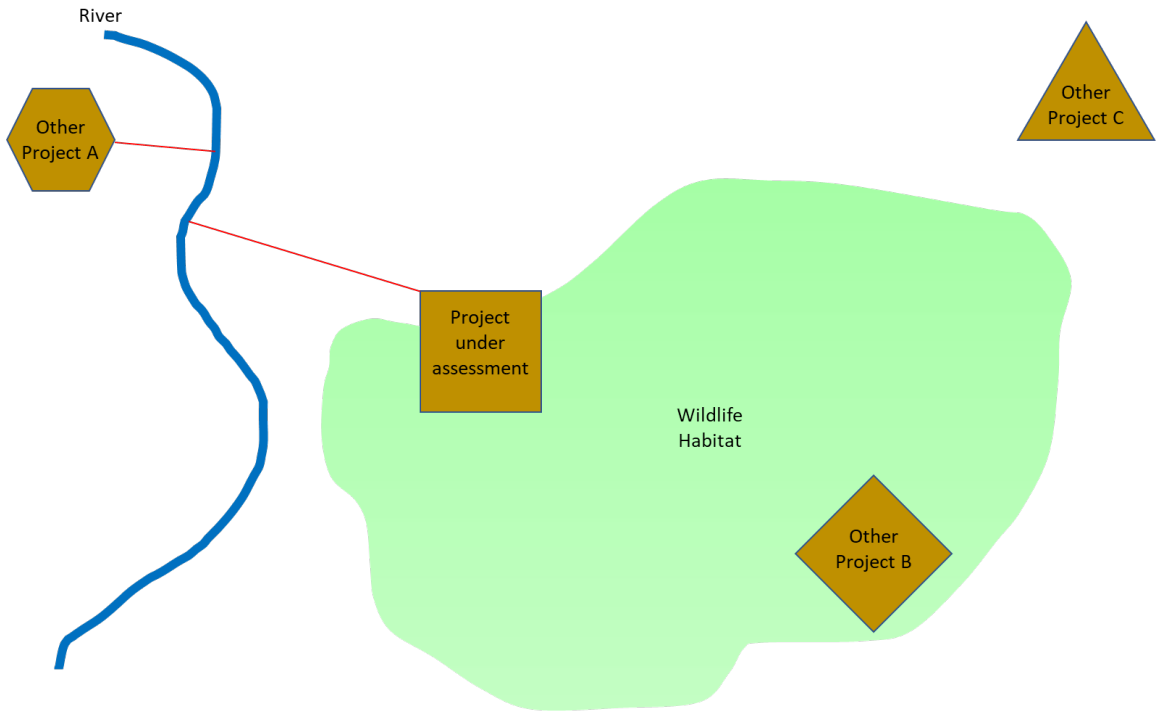
1. Project (under assessment) has direct effect on river (surface water quality VEC) via a stream to the river
2. Project A also has an effect on that river
3. So, there is a cumulative effect between the Project and A on that VEC



How CEAs Work: Cause-Effect (2)

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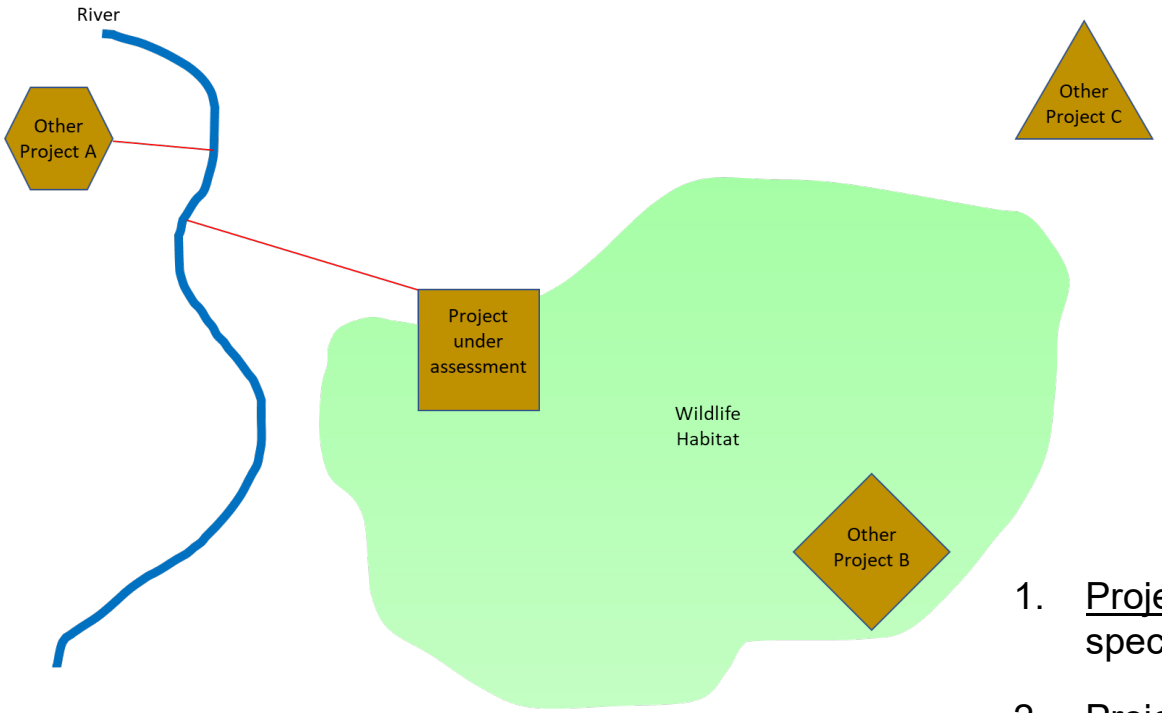

1. Project has direct effect on a wildlife species habitat (by being in it)
2. Project B also has an effect on that habitat for the same reason
3. So, there is a cumulative effect between the Project and Project B on that VEC

How CEAs Work: Cause-Effect (3)

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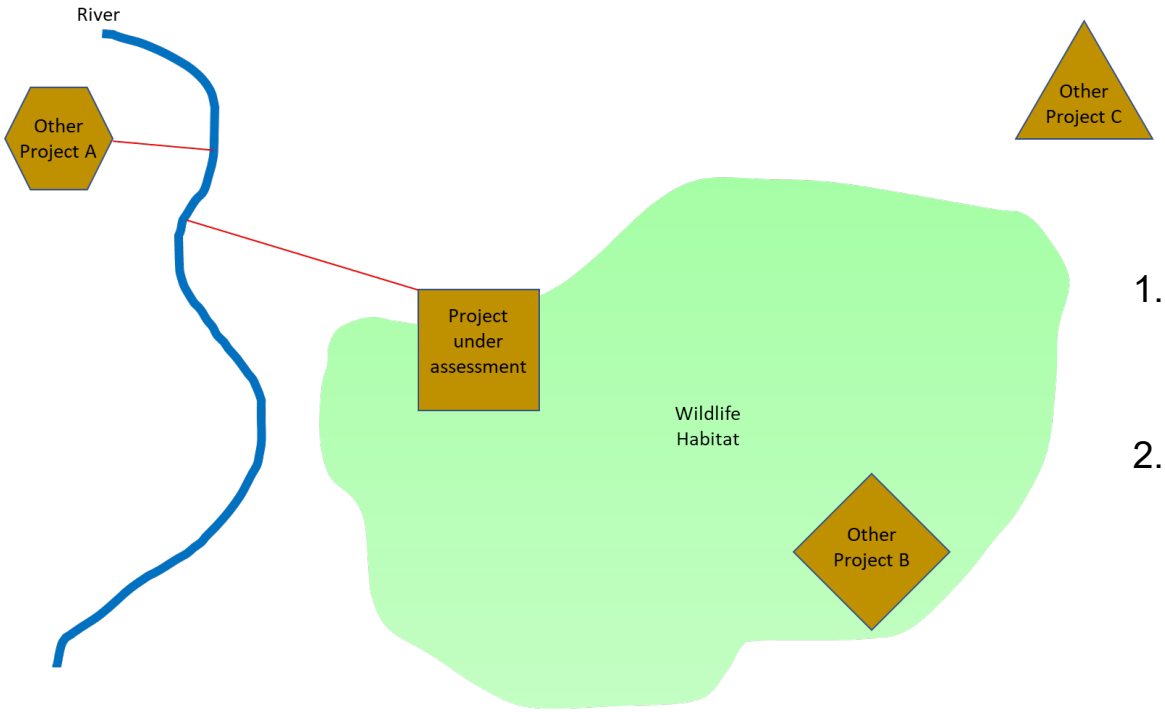

1. Project C does not have an effect on the surface water or wildlife habitat VEC
2. So there is no cumulative effect between the Project and Project C

How CEAs Work: Study Areas

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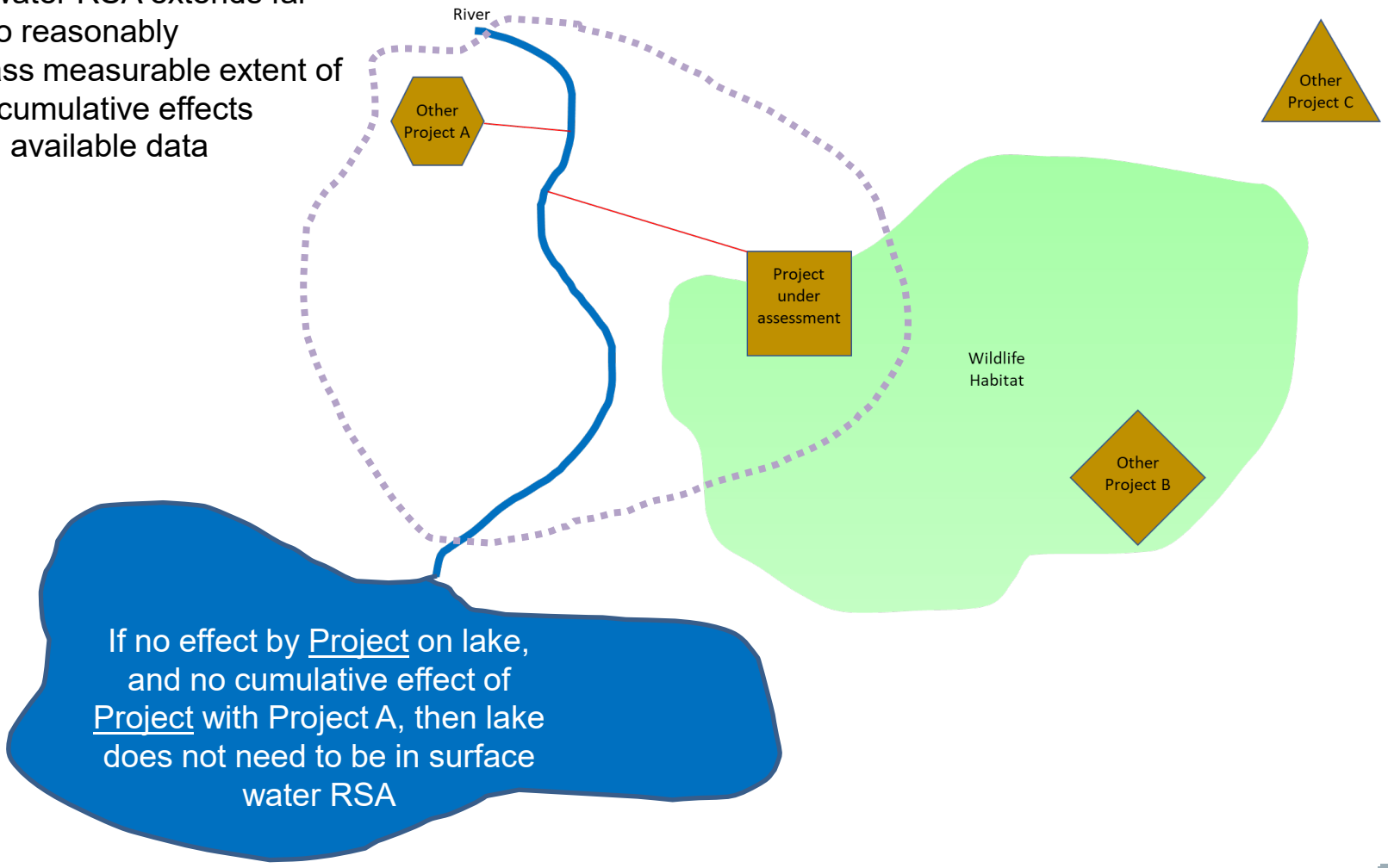
Surface water RSA extends far enough to reasonably encompass measurable extent of possible cumulative effects based on available data



How CEAs Work: Study Areas

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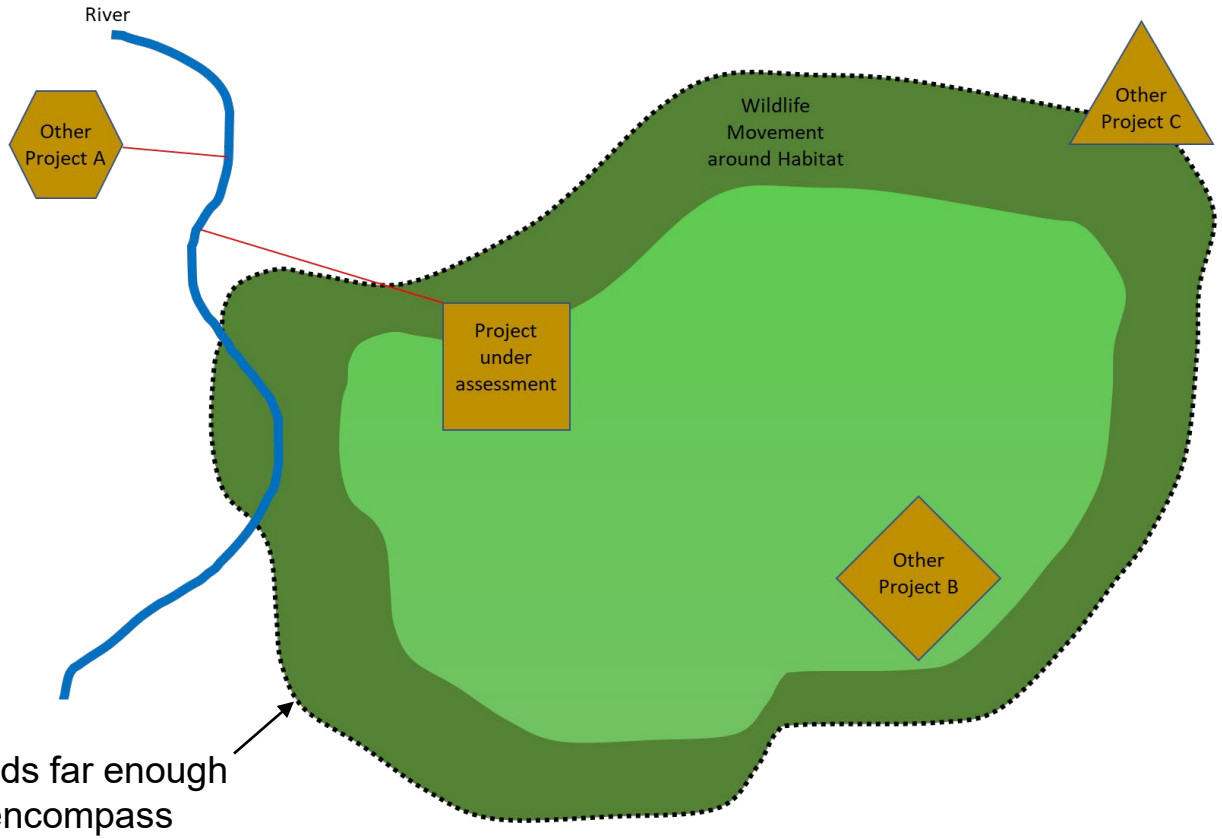

Wildlife RSA extends far enough to reasonably encompass measurable extent of possible cumulative effects based on available data

How CEAs Work: Timelines

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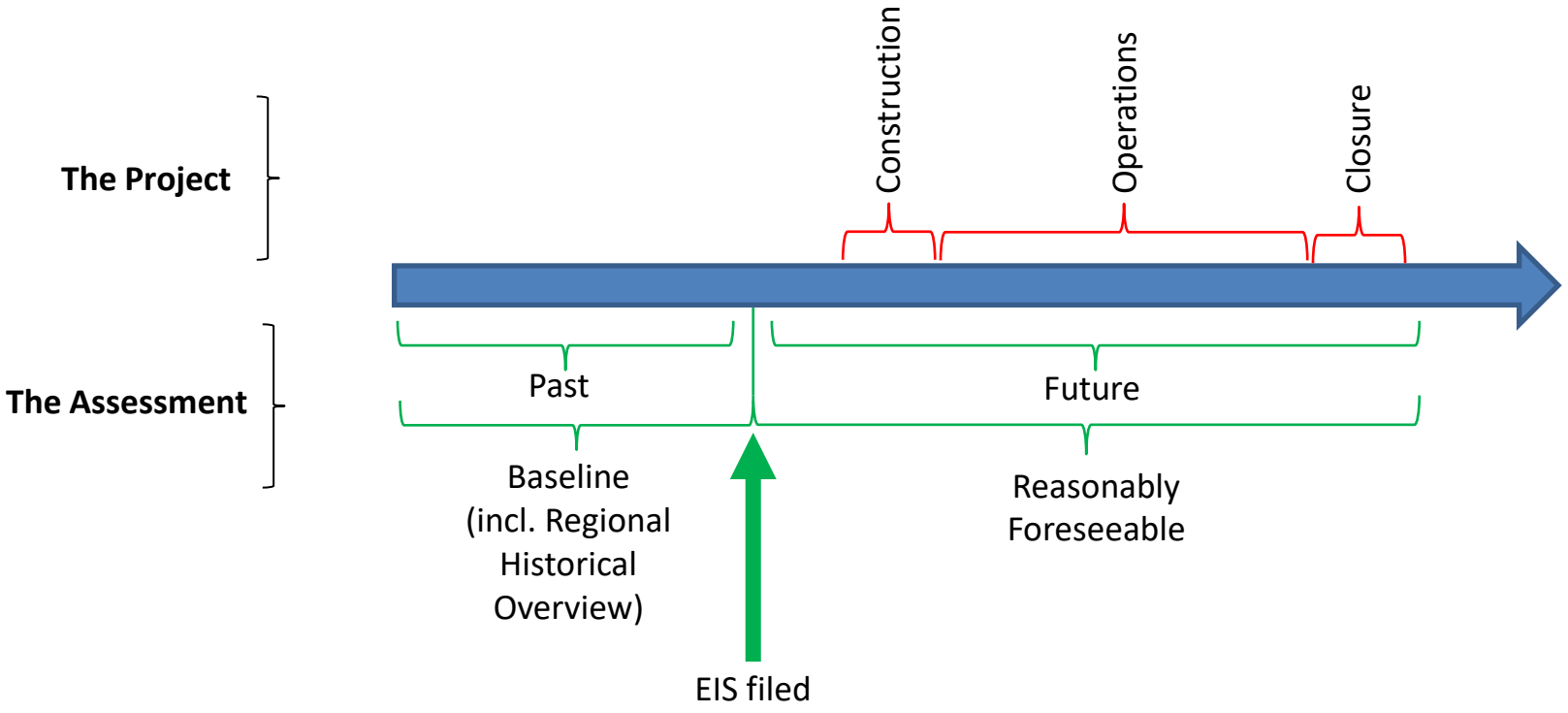

How CEAs Work: Limitations

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- Types of effects:
  - additive most common, appropriate and adequate with available data
  - may sometimes be another type (subtractive, synergistic, compensatory, masking, induced, complementary) but complexities not always detectable or meaningful
- Study areas:
  - spatial data coverage (extent, themes, vintage, sources)
  - limits of analytical techniques (incl. numerical/spatial modelling)
- Assessment Timelines: (uncertainty)
  - in past: sparse historical records
  - in future: available descriptive information
- Thresholds: (few available)
  - some for some physical VECs (air and water)
  - some for some wildlife species (some SAR)
- System Complexities
  - Ecosystems (“Holistic” assessment)
  - Human Use interactions (physical, perceptual, cultural, spiritual)

The Project's CEA Approach

Cumulative Effects: Method Summary

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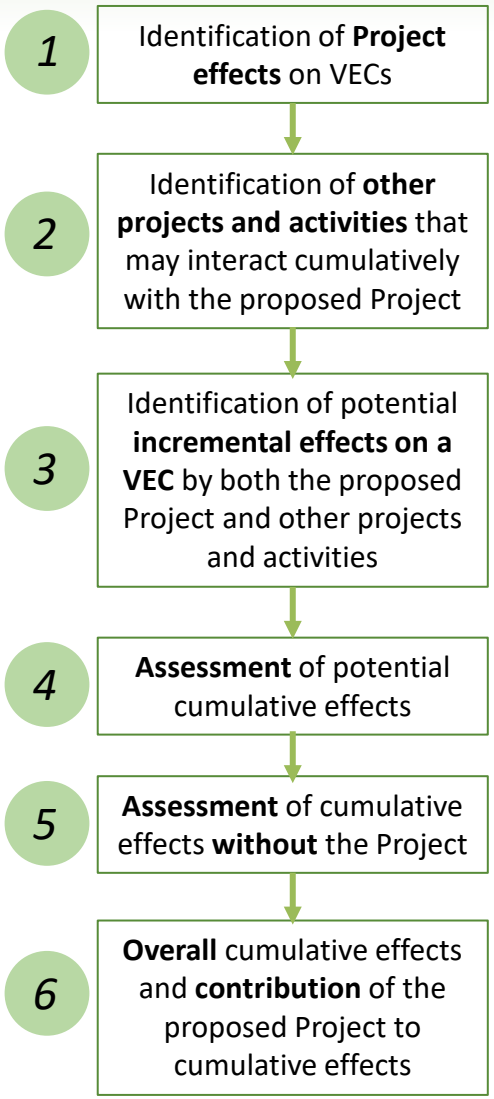

Source: from CIAR #912 IR3-1

Cumulative Effects: Guidance

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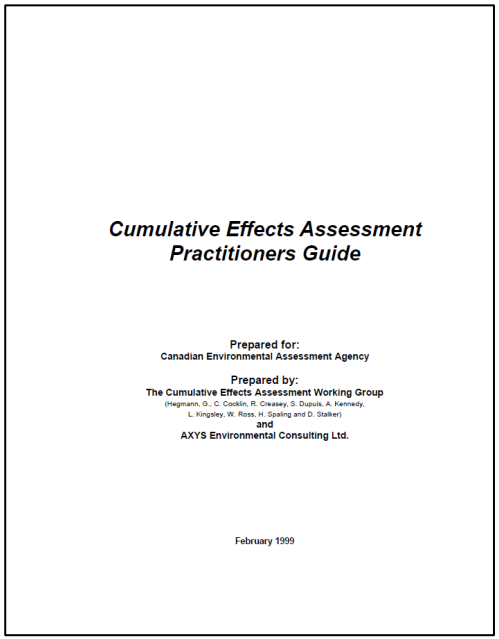

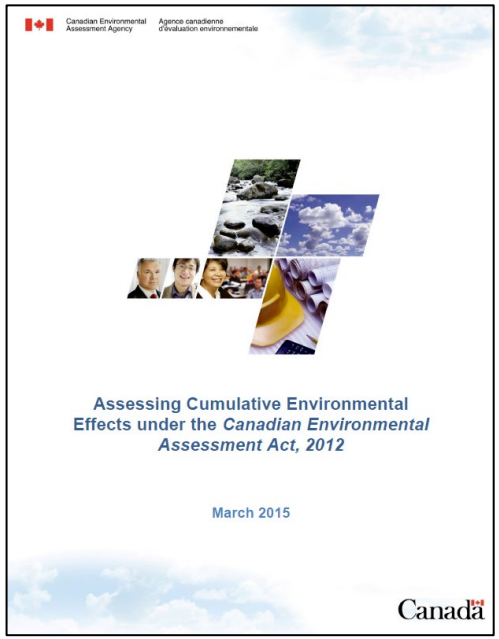

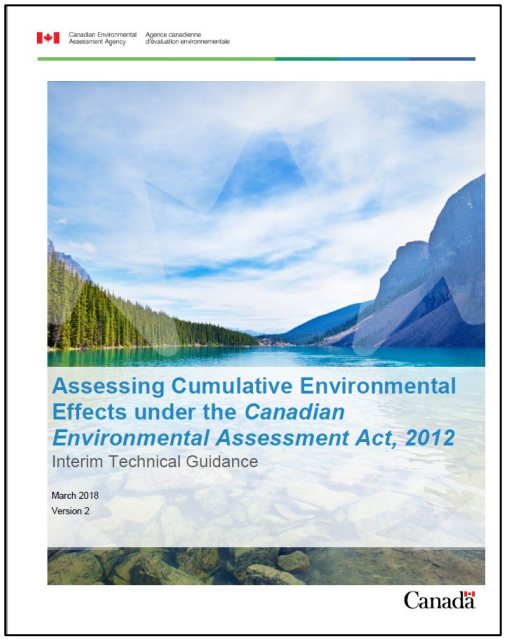

Cumulative Effects: Project Effects

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Atmospheric Environment	Air Quality
	Dustfall
	Ambient Light Levels
	Climate Change (Greenhouse Gas [GHG])
Acoustic Environment	Noise
	Blasting/Vibration
Water Quality and Quantity	Groundwater Quantity
	Groundwater Quality
	Surface Water Quantity
	Surface Water Quality
Fish and Fish Habitat	Fish Habitat
	Benthic Invertebrates
Terrain and Soil	Terrain and Soils
Vegetation	Forest Cover
	Non-forest cover, including wetlands and rock barrens
	Regionally Rare Species
	Provincially Rare Species
	Plant Species of Interest to Indigenous Communities
Wildlife	Furbearers
	Moose
	Grey Wolf
	Black Bear
	Migratory Birds (songbirds and waterfowl)

Species at Risk	Woodland Caribou
	Little brown myotis/ Northern myotis
	Canada Warbler
	Rusty Blackbird
	Common nighthawk
	Eastern whip-poor-will
	Yellow-banded bumble bee
	Monarch
Socio-economic Environment	*Economy and employment*
	Employment and Income
	Government Revenue
	Economic and Business Development (including commercial fisheries)
	Infrastructure and services
	Accommodations
	Community Services and Infrastructure
	Transportation Infrastructure
	Recreation and Tourism (including recreational fisheries)
	Land and resource uses
	Forestry
	Agriculture
	Navigable Waters
Human Health	Air Quality
	Noise
	Drinking Water
	Country Foods
Indigenous Considerations	Traditional Land and Resource Uses
	Heritage and Archaeological Resources
	Indigenous Health

Source: CIAR #727 Section 6.6 Table 6.6-1

Cumulative Effects: Other Physical Activities

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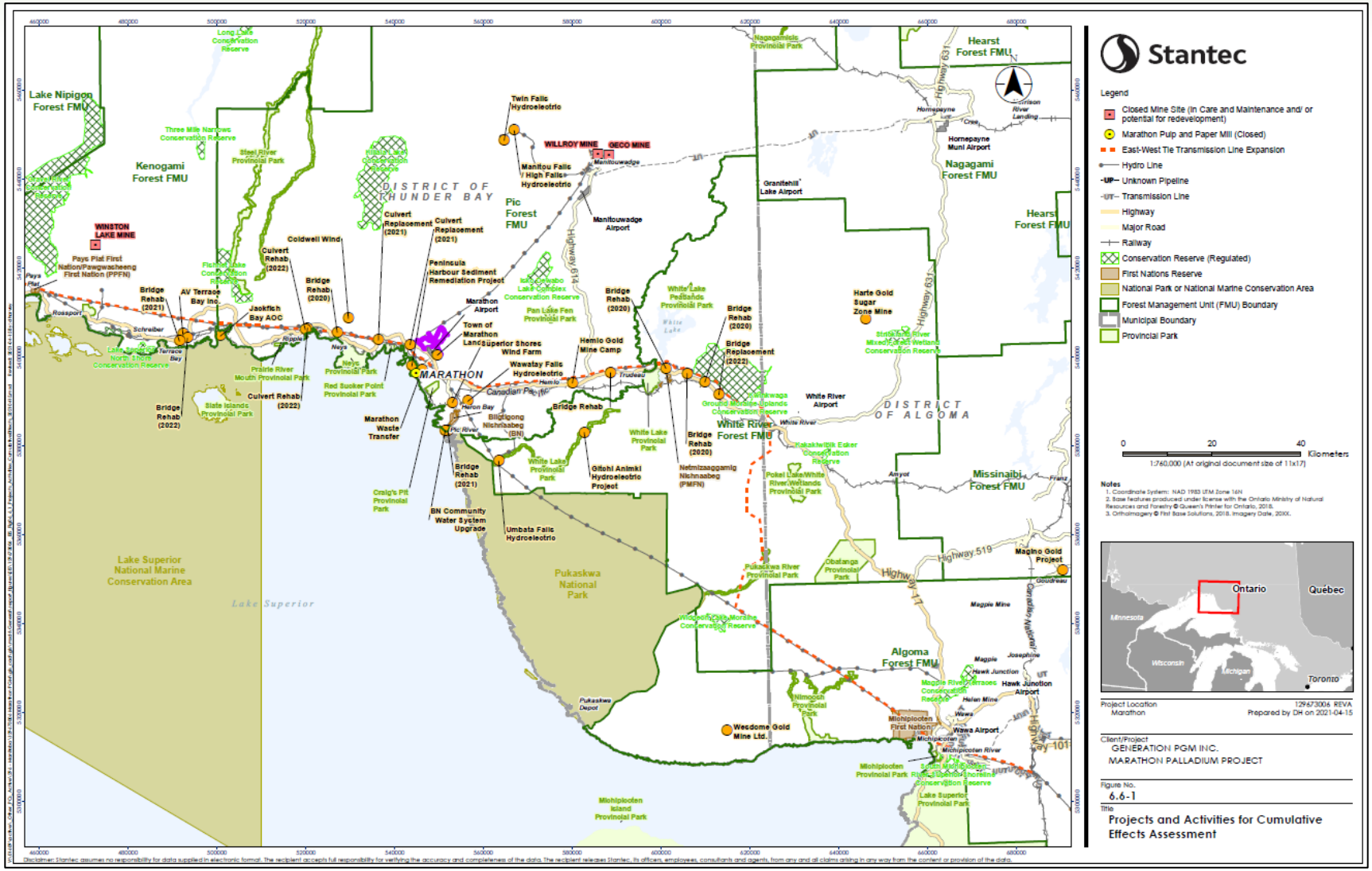

Source: CIAR #727 Figure 6.6-1

Cumulative Effects: Other Physical Activities

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Project Inclusion List

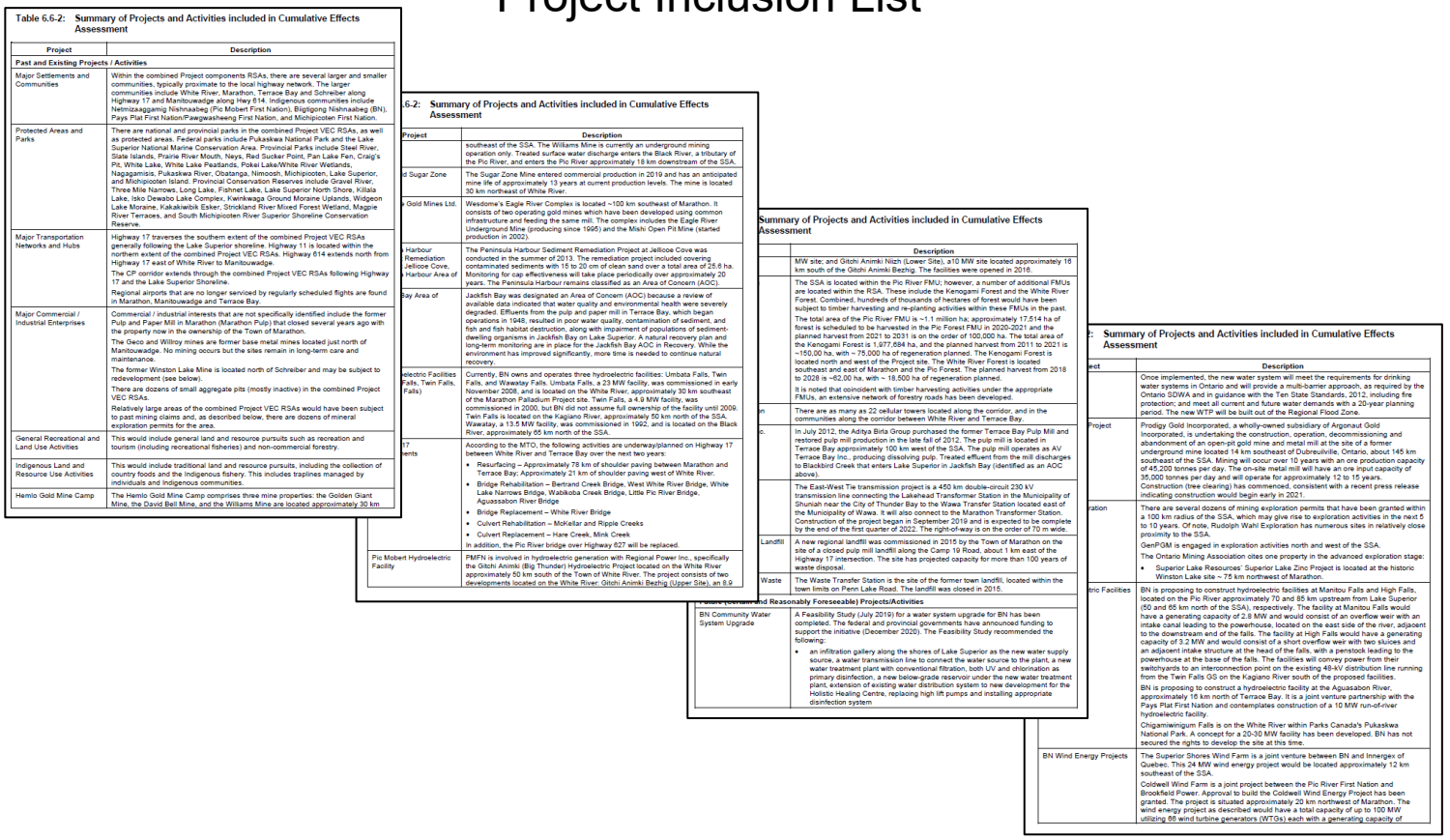

Table 6.6-2: Summary of Projects and Activities included in Cumulative Effects Assessment

Project	Description
Past and Existing Projects / Activities	
Major Settlements and Communities	Within the combined Project components RSAs, there are several larger and smaller communities, typically proximate to the local highway network. The larger communities include White River, Marathon, Terrace Bay and Schreiber along Highway 17 and Manitouwadge along Hwy 614. Indigenous communities include Netmizaaggamig Nishnaabeg (Pic Mobert First Nation), Biigtigong Nishnaabeg (BN), Pays Plat First Nation/Pawgwasheeng First Nation, and Michipicoten First Nation.
Protected Areas and Parks	There are national and provincial parks in the combined Project VEC RSAs, as well as protected areas. Federal parks include Pukaskwa National Park and the Lake Superior National Marine Conservation Area. Provincial Parks include Steel River, Slate Islands, Prairie River Mouth, Neys, Red Sucker Point, Pan Lake Fen, Craig's Pit, White Lake, White Lake Peatlands, Pokei Lake/White River Wetlands, Nagagamisis, Pukaskwa River, Obatanga, Nimoosh, Michipicoten, Lake Superior, and Michipicoten Island. Provincial Conservation Reserves include Gravel River, Three Mile Narrows, Long Lake, Fishnet Lake, Lake Superior North Shore, Killala Lake, Isko Dewabo Lake Complex, Kwinkwaga Ground Moraine Uplands, Widgeon Lake Moraine, Kakakiwibik Esker, Strickland River Mixed Forest Wetland, Maggie River Terraces, and South Michipicoten River Superior Shoreline Conservation Reserve.
Major Transportation Networks and Hubs	Highway 17 traverses the southern extent of the combined Project VEC RSAs generally following the Lake Superior shoreline. Highway 11 is located within the northern extent of the combined Project VEC RSAs. Highway 614 extends north from Highway 17 east of White River to Manitouwadge. The CP corridor extends through the combined Project VEC RSAs following Highway 17 and the Lake Superior Shoreline. Regional airports that are no longer serviced by regularly scheduled flights are found in Marathon, Manitouwadge and Terrace Bay.
Major Commercial / Industrial Enterprises	Commercial / industrial interests that are not specifically identified include the former Pulp and Paper Mill in Marathon (Marathon Pulp) that closed several years ago with the property now in the ownership of the Town of Marathon. The Geco and Willroy mines are former base metal mines located just north of Manitouwadge. No mining occurs but the sites remain in long-term care and maintenance. The former Winston Lake Mine is located north of Schreiber and may be subject to redevelopment (see below). There are dozens of small aggregate pits (mostly inactive) in the combined Project VEC RSAs. Relatively large areas of the combined Project VEC RSAs would have been subject to past mining claims and, as described below, there are dozens of mineral exploration permits for the area.
General Recreational and Land Use Activities	This would include general land and resource pursuits such as recreation and tourism (including recreational fisheries) and non-commercial forestry.
Indigenous Land and Resource Use Activities	This would include traditional land and resource pursuits, including the collection of country foods and the Indigenous fishery. This includes traplines managed by individuals and Indigenous communities.
Hemlo Gold Mine Camp	The Hemlo Gold Mine Camp comprises three mine properties: the Golden Giant Mine, the David Bell Mine, and the Williams Mine are located approximately 30 km

Table 6.6-2: Summary of Projects and Activities included in Cumulative Effects Assessment

Project	Description
	southeast of the SSA. The Williams Mine is currently an underground mining operation only. Treated surface water discharge enters the Black River, a tributary of the Pic River, and enters the Pic River approximately 18 km downstream of the SSA.
d Sugar Zone	The Sugar Zone Mine entered commercial production in 2019 and has an anticipated mine life of approximately 13 years at current production levels. The mine is located 30 km northeast of White River.
e Gold Mines Ltd.	Wesdome's Eagle River Complex is located ~100 km southeast of Marathon. It consists of two operating gold mines which have been developed using common infrastructure and feeding the same mill. The complex includes the Eagle River Underground Mine (producing since 1995) and the Mishi Open Pit Mine (started production in 2002).
Harbour Remediation Jellicoe Cove, Harbour Area of	The Peninsula Harbour Sediment Remediation Project at Jellicoe Cove was conducted in the summer of 2013. The remediation project included covering contaminated sediments with 15 to 20 cm of clean sand over a total area of 25.6 ha. Monitoring for cap effectiveness will take place periodically over approximately 20 years. The Peninsula Harbour remains classified as an Area of Concern (AOC).
Bay Area of	Jackfish Bay was designated an Area of Concern (AOC) because a review of available data indicated that water quality and environmental health were severely degraded. Effluents from the pulp and paper mill in Terrace Bay, which began operations in 1948, resulted in poor water quality, contamination of sediment, and fish and fish habitat destruction, along with impairment of populations of sediment-dwelling organisms in Jackfish Bay on Lake Superior. A natural recovery plan and long-term monitoring are in place for the Jackfish Bay AOC in Recovery. While the environment has improved significantly, more time is needed to continue natural recovery.
electric Facilities Falls, Twin Falls, Falls)	Currently, BN owns and operates three hydroelectric facilities: Umbata Falls, Twin Falls, and Wawatay Falls. Umbata Falls, a 23 MW facility, was commissioned in early November 2008, and is located on the White River, approximately 30 km southeast of the Marathon Palladium Project site. Twin Falls, a 4.9 MW facility, was commissioned in 2000, but BN did not assume full ownership of the facility until 2009. Twin Falls is located on the Kagiano River, approximately 50 km north of the SSA. Wawatay, a 13.5 MW facility, was commissioned in 1992, and is located on the Black River, approximately 65 km north of the SSA.
17 ents	According to the MTO, the following activities are underway/planned on Highway 17 between White River and Terrace Bay over the next two years: • Resurfacing – Approximately 78 km of shoulder paving between Marathon and Terrace Bay; Approximately 21 km of shoulder paving west of White River. • Bridge Rehabilitation – Bertrand Creek Bridge, West White River Bridge, White Lake Narrows Bridge, Wabikoba Creek Bridge, Little Pic River Bridge, Aguassabon River Bridge • Bridge Replacement – White River Bridge • Culvert Rehabilitation – McKellar and Ripple Creeks • Culvert Replacement – Hare Creek, Mink Creek In addition, the Pic River bridge over Highway 627 will be replaced.
Pic Mobert Hydroelectric Facility	PMFN is involved in hydroelectric generation with Regional Power Inc., specifically the Gitchi Animki (Big Thunder) Hydroelectric Project located on the White River approximately 50 km south of the Town of White River. The project consists of two developments located on the White River: Gitchi Animki Bezhig (Upper Site), an 8.9

Summary of Projects and Activities included in Cumulative Effects Assessment

	Description
	MW site; and Gitchi Animki Niizh (Lower Site), a10 MW site located approximately 16 km south of the Gitchi Animki Bezhig. The facilities were opened in 2018.
	The SSA is located within the Pic River FMU; however, a number of additional FMUs are located within the RSA. These include the Kenogami Forest and the White River Forest. Combined, hundreds of thousands of hectares of forest would have been subject to timber harvesting and re-planting activities within these FMUs in the past. The total area of the Pic River FMU is ~1.1 million ha; approximately 17,514 ha of forest is scheduled to be harvested in the Pic Forest FMU in 2020-2021 and the planned harvest from 2021 to 2031 is on the order of 100,000 ha. The total area of the Kenogami Forest is 1,977,694 ha, and the planned harvest from 2011 to 2021 is ~150,00 ha, with ~ 75,000 ha of regeneration planned. The Kenogami Forest is located north and west of the Project site. The White River Forest is located southeast and east of Marathon and the Pic Forest. The planned harvest from 2018 to 2028 is ~62,00 ha, with ~ 18,500 ha of regeneration planned. It is noted that coincident with timber harvesting activities under the appropriate FMUs, an extensive network of forestry roads has been developed.
n	There are as many as 22 cellular towers located along the corridor, and in the communities along the corridor between White River and Terrace Bay.
c.	In July 2012, the Aditya Birla Group purchased the former Terrace Bay Pulp Mill and restored pulp mill production in the late fall of 2012. The pulp mill is located in Terrace Bay approximately 100 km west of the SSA. The pulp mill operates as AV Terrace Bay Inc., producing dissolving pulp. Treated effluent from the mill discharges to Blackbird Creek that enters Lake Superior in Jackfish Bay (identified as an AOC above).
	The East-West Tie transmission project is a 450 km double-circuit 230 kV transmission line connecting the Lakehead Transformer Station in the Municipality of Shuniah near the City of Thunder Bay to the Wawa Transfer Station located east of the Municipality of Wawa. It will also connect to the Marathon Transformer Station. Construction of the project began in September 2019 and is expected to be complete by the end of the first quarter of 2022. The right-of-way is on the order of 70 m wide.
Landfill	A new regional landfill was commissioned in 2015 by the Town of Marathon on the site of a closed pulp mill landfill along the Camp 19 Road, about 1 km east of the Highway 17 intersection. The site has projected capacity for more than 100 years of waste disposal.
Waste	The Waste Transfer Station is the site of the former town landfill, located within the town limits on Penn Lake Road. The landfill was closed in 2015.
	Reasonably Foreseeable) Projects/Activities
BN Community Water System Upgrade	A Feasibility Study (July 2019) for a water system upgrade for BN has been completed. The federal and provincial governments have announced funding to support the initiative (December 2020). The Feasibility Study recommended the following: • an infiltration gallery along the shores of Lake Superior as the new water supply source, a water transmission line to connect the water source to the plant, a new water treatment plant with conventional filtration, both UV and chlorination as primary disinfection, a new below-grade reservoir under the new water treatment plant, extension of existing water distribution system to new development for the Holistic Healing Centre, replacing high lift pumps and installing appropriate disinfection system

Summary of Projects and Activities included in Cumulative Effects Assessment

	Description
ect	Once implemented, the new water system will meet the requirements for drinking water systems in Ontario and will provide a multi-barrier approach, as required by the Ontario SDWA and in guidance with the Ten State Standards, 2012, including fire protection; and meet all current and future water demands with a 20-year planning period. The new WTP will be built out of the Regional Flood Zone.
Project	Prodigy Gold Incorporated, a wholly-owned subsidiary of Argonaut Gold Incorporated, is undertaking the construction, operation, decommissioning and abandonment of an open-pit gold mine and metal mill at the site of a former underground mine located 14 km southeast of Dubreuilville, Ontario, about 145 km southeast of the SSA. Mining will occur over 10 years with an ore production capacity of 45,200 tonnes per day. The on-site metal mill will have an ore input capacity of 35,000 tonnes per day and will operate for approximately 12 to 15 years. Construction (tree clearing) has commenced, consistent with a recent press release indicating construction would begin early in 2021.
ration	There are several dozens of mining exploration permits that have been granted within a 100 km radius of the SSA, which may give rise to exploration activities in the next 5 to 10 years. Of note, Rudolph Wahl Exploration has numerous sites in relatively close proximity to the SSA. GenPGM is engaged in exploration activities north and west of the SSA. The Ontario Mining Association cites one property in the advanced exploration stage: • Superior Lake Resources' Superior Lake Zinc Project is located at the historic Winston Lake site ~ 75 km northwest of Marathon.
tric Facilities	BN is proposing to construct hydroelectric facilities at Manitou Falls and High Falls, located on the Pic River approximately 70 and 85 km upstream from Lake Superior (50 and 65 km north of the SSA), respectively. The facility at Manitou Falls would have a generating capacity of 2.8 MW and would consist of an overflow weir with an intake canal leading to the powerhouse, located on the east side of the river, adjacent to the downstream end of the falls. The facility at High Falls would have a generating capacity of 3.2 MW and would consist of a short overflow weir with two sluices and an adjacent intake structure at the head of the falls, with a penstock leading to the powerhouse at the base of the falls. The facilities will convey power from their switchyards to an interconnection point on the existing 48-kV distribution line running from the Twin Falls GS on the Kagiano River south of the proposed facilities. BN is proposing to construct a hydroelectric facility at the Aguasabon River, approximately 16 km north of Terrace Bay. It is a joint venture partnership with the Pays Plat First Nation and contemplates construction of a 10 MW run-of-river hydroelectric facility. Chigamiwinigum Falls is on the White River within Parks Canada's Pukaskwa National Park. A concept for a 20-30 MW facility has been developed. BN has not secured the rights to develop the site at this time.
BN Wind Energy Projects	The Superior Shores Wind Farm is a joint venture between BN and Innergex of Quebec. This 24 MW wind energy project would be located approximately 12 km southeast of the SSA. Coldwell Wind Farm is a joint project between the Pic River First Nation and Brookfield Power. Approval to build the Coldwell Wind Energy Project has been granted. The project is situated approximately 20 km northwest of Marathon. The wind energy project as described would have a total capacity of up to 100 MW utilizing 66 wind turbine generators (WTGs) each with a generating capacity of

Source: CIAR #727 Section 6.6

Cumulative Effects: Other Resource Use

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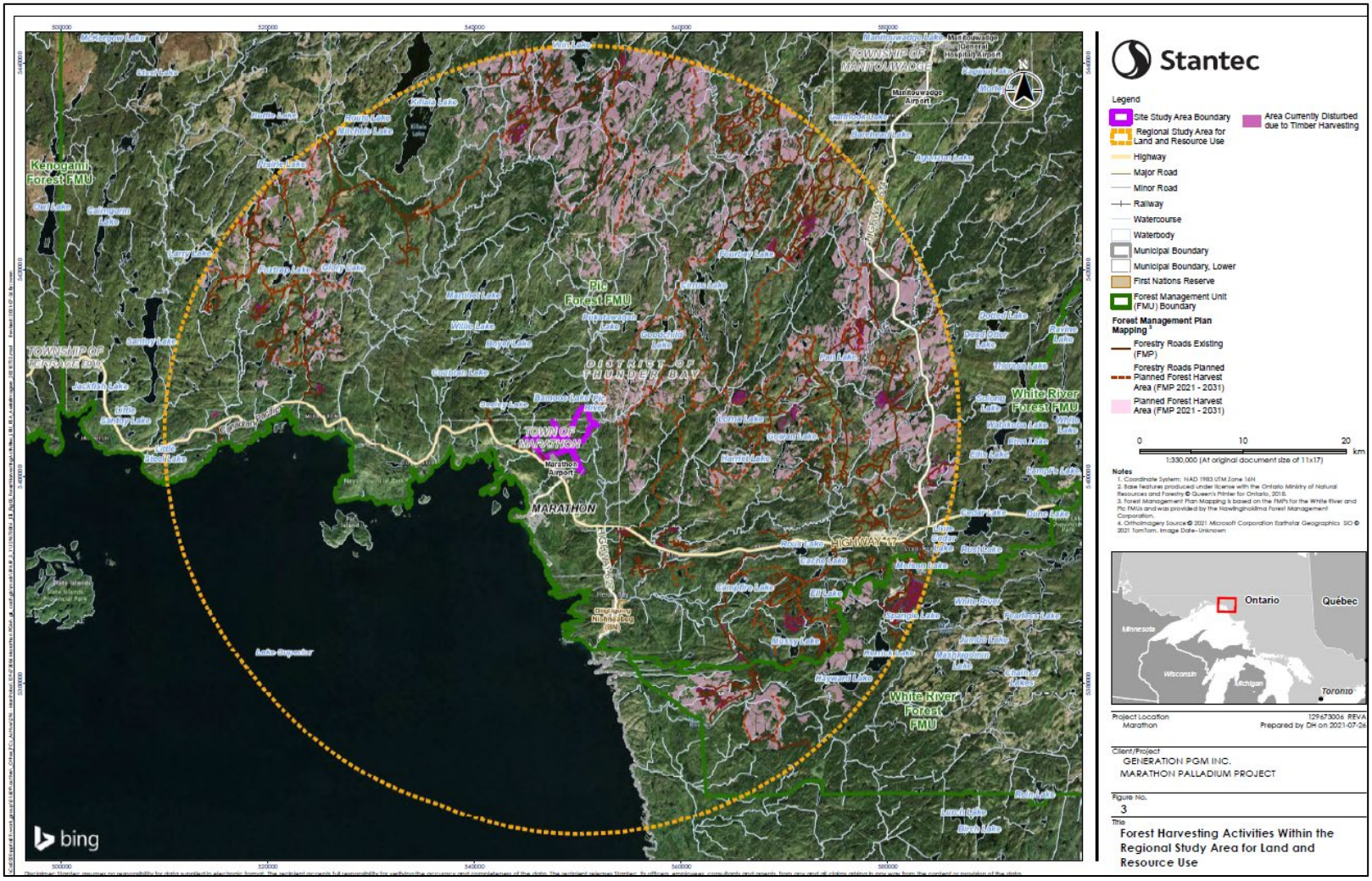

Source: CIAR #912 IR3-1

Cumulative Effects: Effects Assessed

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Atmospheric Environment – Change in GHGs
Fish and Fish Habitat – Change in Fish Habitat
Fish and Fish Habitat – Fish Mortality
Vegetation – Change in Forest Cover
Vegetation – Change in Non-forest Cover
Wildlife – Change in Wildlife Habitat (Direct)
Wildlife – Change in Wildlife Habitat (Indirect)
Wildlife – Change in Passage / Movement
Wildlife – Change in Mortality
Socio-Economic Environment – Infrastructure and Services
Socio-Economic Environment – Land and Resource Use
Indigenous Consideration – Changes to Traditional Land and Resource Use
Indigenous Consideration – Changes to Indigenous Heritage

SAR – woodland caribou – Change in Habitat (Direct)
SAR – woodland caribou – Change in Mortality
SAR – little brown Myotis and northern Myotis – Change in Habitat (Direct)
SAR – Canada warbler – Change in Habitat (Direct)
SAR – Canada warbler – Change in Habitat (Sensory Disturbance)
SAR – Canada warbler – Change in Mortality
SAR – rusty blackbird – Change in Habitat (Direct)
SAR – olive-sided flycatcher, eastern wood-pewee, and evening grosbeak – Change in Habitat (Direct)
SAR – common nighthawk – Change in Habitat (Direct)
SAR – common nighthawk – Change in Mortality
SAR – eastern whip-poor-will – Change in Habitat (Direct)
SAR – monarch – Change in Habitat (Direct)
SAR – monarch – Change in Mortality
SAR – yellow-banded bumble bee – Change in Habitat (Direct)
SAR – yellow-banded bumble bee – Change in Mortality

Source: CIAR #727 Section 6.6

CEA Results

Cumulative Effects: Results

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Timber Harvest Disturbances within the RSA for Land and Resource Use

Distribution within the LRU RSA	Area (ha)	% of RSA*
Area currently disturbed in the RSA due to timber harvesting	7,032 ha	2.0%
Area planned to be disturbed in the RSA due to timber harvesting	43,597 ha	12.6%
Combined current and planned timber harvest disturbance in the RSA	50,629 ha	14.6%
Planned disturbance within the SSA	1,116 ha	0.3%

* The land area of the RSA for Land and Resource Use (excluding Lake Superior and its islands) is approximately 345,697 ha.

Source: CIAR #912 IR3-1 Table 1

Cumulative Effects: Results

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Predicted Loss of Vegetation in the RSA

Project	Existing Loss of Vegetation			Future Loss of Vegetation		
	Pre-Project (ha)	% RSA For Vegetation: Forest	% RSA for Land & Resource Use	During Project (ha)	% RSA for Vegetation: Forest	% RSA for Land & Resource Use
Hemlo Gold Mine	1,200	0.104%	0.347%	--	--	--
East-West Tie Transmission Line Expansion	309	0.027%	0.089%	--	--	--
Bell Communication towers	26	0.002%	0.008%	--	--	--
Hydro-electric facilities	30	0.003%	0.009%	--	--	--
Superior Shores Wind Farm	--	--	--	180	0.016%	0.052%
Coldwell Wind Farm	--	--	--	2,470	0.214%	0.714%
Rudolph Wahl Exploration and GenPGM exploration activates	30	0.003%	0.009%	30	0.003%	0.009%
Town of Marathon Waste Transfer Station	11	0.001%	0.003%	--	--	--
Town of Marathon Landfill	15	0.001%	0.004%	--	--	--
Planned Forest Harvest, including roads & landings	17,514 (2018-2020)	1.519%	5.066%	87,486 (2021-2031)	7.586%	25.307%
Marathon Palladium Project	--	--	--	1,116	0.097%	0.323%
Total	**19,079**	**1.654%**	**5.519%**	**91,308**	**7.918%**	**26.413%**

Notes:
*The RSA for vegetation: Forest covers an area of approximately 1,153,240 ha, while the RSA for Land and Resource Use covers an area of approximately 345,697 ha.
*Values are approximate and based on existing available information.
*For existing projects, as defined in the table, there is no expectation, based on available information, that footprints will be expanded in the future, unless noted otherwise.
*For reasonably foreseeable projects future loss of vegetation is based on publicly available information and the footprint of construction for any future projects may be subject to change as those projects proceed through detailed design.
*For timber harvesting in the future, no specific harvesting values (as area harvested) beyond that information that is in the public domain has been presumed.
*Exploration activities were estimated based on experience of the Project team in such matters and represent combined clearing activity over all mining claims held.

Source: CIAR #950 IR6-17 Table 1

Cumulative Effects: Results

GENERATIONPGM

Atmospheric Environment – Change in GHGs	low emission contribution
Fish and Fish Habitat – Change in Fish Habitat	effective mitigation
Fish and Fish Habitat – Fish Mortality	
Vegetation – Change in Forest Cover	low areal project contribution, esp. relative to timber harvesting
Vegetation – Change in Non-forest Cover	
Wildlife – Change in Wildlife Habitat (Direct)	
Wildlife – Change in Wildlife Habitat (Indirect)	
Wildlife – Change in Passage / Movement	
Wildlife – Change in Mortality	
Socio-Economic Environment – Infrastructure and Services	low project contribution, effective mitigations, commitments
Socio-Economic Environment – Land and Resource Use	
Indigenous Consideration – Changes to Traditional Land and Resource Use	
Indigenous Consideration – Changes to Indigenous Heritage	

Source: Adapted from CIAR #727 Section 6.6

Cumulative Effects: Results

GENERATIONPGM

SAR – woodland caribou – Change in Habitat (Direct)	low project contribution, esp. relative to timber harvesting, below threshold
SAR – woodland caribou – Change in Mortality	
SAR – little brown Myotis and northern Myotis – Change in Habitat (Direct)	low areal project contribution, esp. relative to timber harvesting
SAR – Canada warbler – Change in Habitat (Direct)	
SAR – Canada warbler – Change in Habitat (Sensory Disturbance)	
SAR – Canada warbler – Change in Mortality	
SAR – rusty blackbird – Change in Habitat (Direct)	
SAR – olive-sided flycatcher, eastern wood-pewee, and evening grosbeak – Change in Habitat (Direct)	
SAR – common nighthawk – Change in Habitat (Direct)	
SAR – common nighthawk – Change in Mortality	
SAR – eastern whip-poor-will – Change in Habitat (Direct)	
SAR – monarch – Change in Habitat (Direct)	
SAR – monarch – Change in Mortality	
SAR – yellow-banded bumble bee – Change in Habitat (Direct)	
SAR – yellow-banded bumble bee – Change in Mortality	

Source: Adapted from CIAR #727 Section 6.6

Cumulative Effects: Results

GENERATIONPGM

- Conclusions:
  - Overall cumulative effects: not significant
  - Contribution of Project to overall cumulative effects: not significant
- Key contributors to conclusions:
  - relatively small Project footprint
  - limited spatial extent of many effects
  - anticipated effective mitigations
  - commitments to communities

Source: Adapted from CIAR #727 Section 6.6

More information on the Project can be found at:

www.genmining.com

If you have additional questions,
Please email us at comments@genpgm.com