50 More Years
of Sprawling Tailings

Mapping future decades of destruction by oil sands tailings



CPAWS
CANADIAN PARKS AND WILDERNESS SOCIETY
NORTHERN ALBERTA CHAPTER

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NORTHERN ALBERTA CHAPTER

About CPAWS Northern Alberta

Nationally, the Canadian Parks and Wilderness Society's vision is to protect at least half of our public land and water so that future generations can experience Canada's irreplaceable wilderness. CPAWS uses a collaborative approach with Crown and Indigenous governments, communities, progressive companies, and other environmental organizations to achieve conservation solutions. The CPAWS Northern Alberta Chapter (CPAWS NAB) was one of the society's first designated regional chapters, formed in 1968. CPAWS Northern Alberta's focus is on the northern two-thirds of the province.

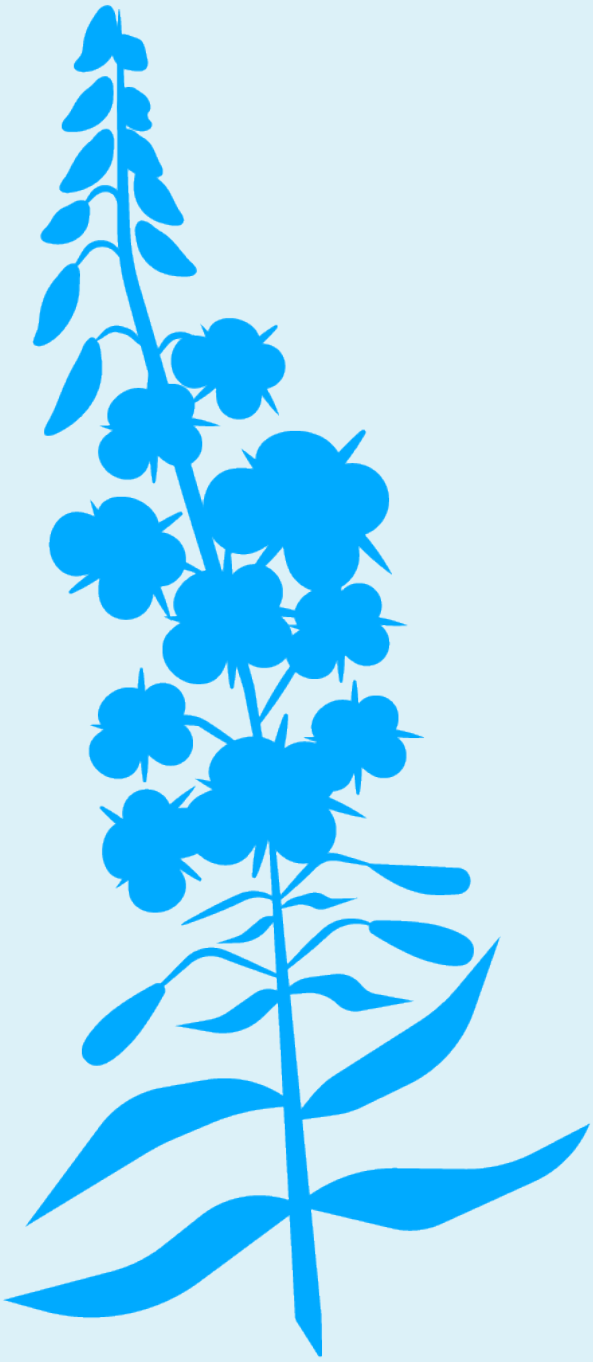
KEEPERS OF THE WATER
Water is Life

About Keepers of the Water

Keepers of the Water is an Indigenous-led organization founded in 2006 to protect the interconnected waters and lands that flow from the Rocky Mountains to the Arctic Ocean. Guided by Elders, Knowledge Keepers, and youth, Keepers of the Water uphold the understanding that 'Water is Life' and that its protection is essential to cultural survival, community wellbeing, and the health of future generations.

Rooted in Indigenous knowledge and strengthened through collaboration with science and research, Keepers of the Water advances community-led monitoring, education, and advocacy to address the cumulative impacts of industrial development and climate change. The organization works to uphold Indigenous rights, promote accountability, and ensure that the waters of the Arctic Drainage Basin remain clean, healthy, and abundant for all life.

Cover photo: Garth Lenz



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Executive Summary

Today, the Alberta oil sands tailings storage sites constitute one of the largest concentrations of toxic industrial waste in the world[1,2]. The oil sands mines and their associated tailings storage sites have been growing on the landscape since the 1970s. While they are often referred to as tailings "ponds", many cover areas larger than surrounding lakes.

As of 2025, total fluid tailings cover an area 4 times larger than McClelland Lake, one of the biggest waterbodies in the region.



The impacts of tailings have been recognized since operations first began. Examples include spills and seepage of contaminated toxins into the environment, wildlife deaths, and human health impacts, with rare cancers and respiratory illnesses being identified in nearby communities. Indigenous Peoples, Albertans, and Canadians have been raising their voices for decades, demanding that oil sands companies pay to clean up their mess without causing any further harm to communities or the environment.

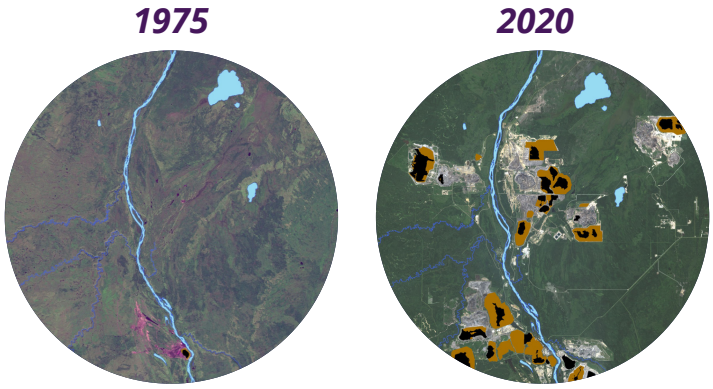
No demonstration of a safe, community-approved, or scientifically verified method to clean up tailings exists, despite decades of promises[3,4]. Even in the absence of reclamation solutions, approvals continue to be issued by the Alberta Energy Regulator to allow oil sands mines and associated tailings to expand, with companies forecasting impacts on the land up to the year 2800[5].



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The ongoing presence and expansion of tailings have placed a disproportionate burden on Indigenous communities, particularly those near and downstream of the mines. Indigenous Peoples have always been active in the face of these harms. In March 2026, six Chiefs co-signed a joint letter with Calls to Action that demanded Canada and Alberta stop all plans to treat and release tailings into waterways, now and into the future.

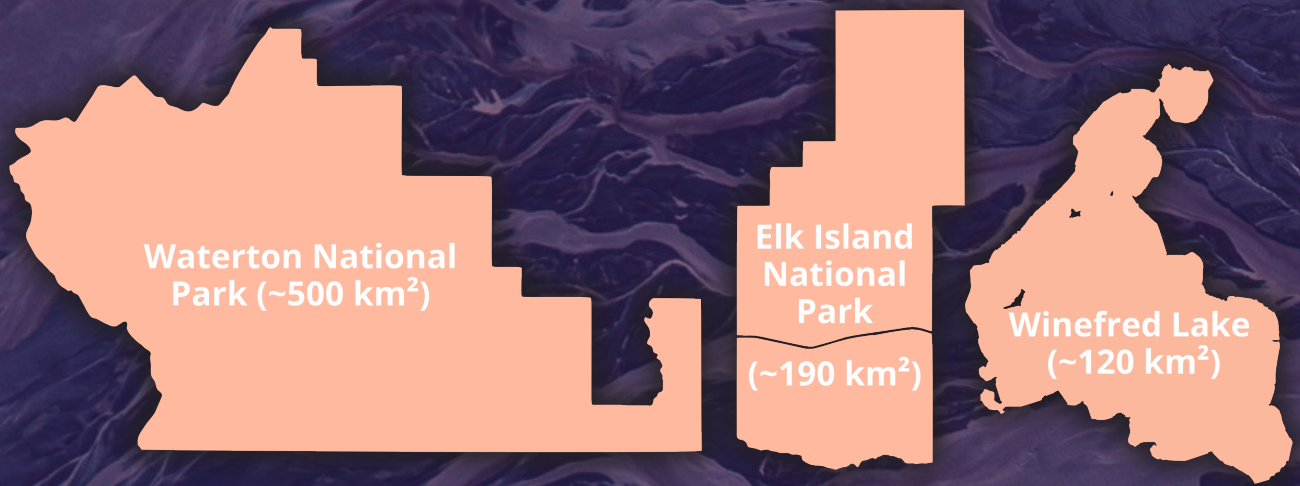
In 2022, Canadian Parks and Wilderness Society (CPAWS) Northern Alberta and Environmental Defence Canada released a joint report titled, *50 Years of Sprawling Tailings: Mapping decades of destruction by oil sands tailings*. For more background information on tailings and the risk they pose to communities and the environment, we encourage you to revisit this first report.



Now, CPAWS Northern Alberta and Keepers of the Water are teaming up to release *50 More Years of Sprawling Tailings: Mapping future decades of destruction by oil sands tailings.* **In this report, we work together to tell the story of 50+ more years of tailings on the landscape near Fort McKay.** You will find maps forecasting tailings growth at five year increments and insights into several of the issues associated with tailings storage sites.

Our analysis revealed that the footprint of tailings and associated infrastructure is approved to nearly triple between now and 2070, growing from approximately 300 km² to 850 km².

This is an area larger than the combined size of Waterton National Park, Elk Island National Park, and Winefred Lake.



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Why We Are Doing This Report

This report is grounded in our responsibility to protect the air, land and water for present and future generations.

Keepers of the Water and the CPAWS Northern Alberta take on this work to hold industry and governments accountable to the communities most directly affected. Our responsibility is to ensure that Indigenous Peoples are fully informed about what is happening in our territories, build public awareness on the issue, and ensure that the long-term impacts are neither hidden nor ignored.

The burden on Indigenous communities, particularly those downstream of the mines, includes chronic stress, anxiety, and grief associated with environmental loss and poor air quality, uncertainty about future contamination, and grappling with the reality of continued approval of projects despite unresolved harms. The cumulative nature of these impacts — experienced across generations and across entire watersheds — underscores that tailings are not a localized issue but a systemic one[6,7].



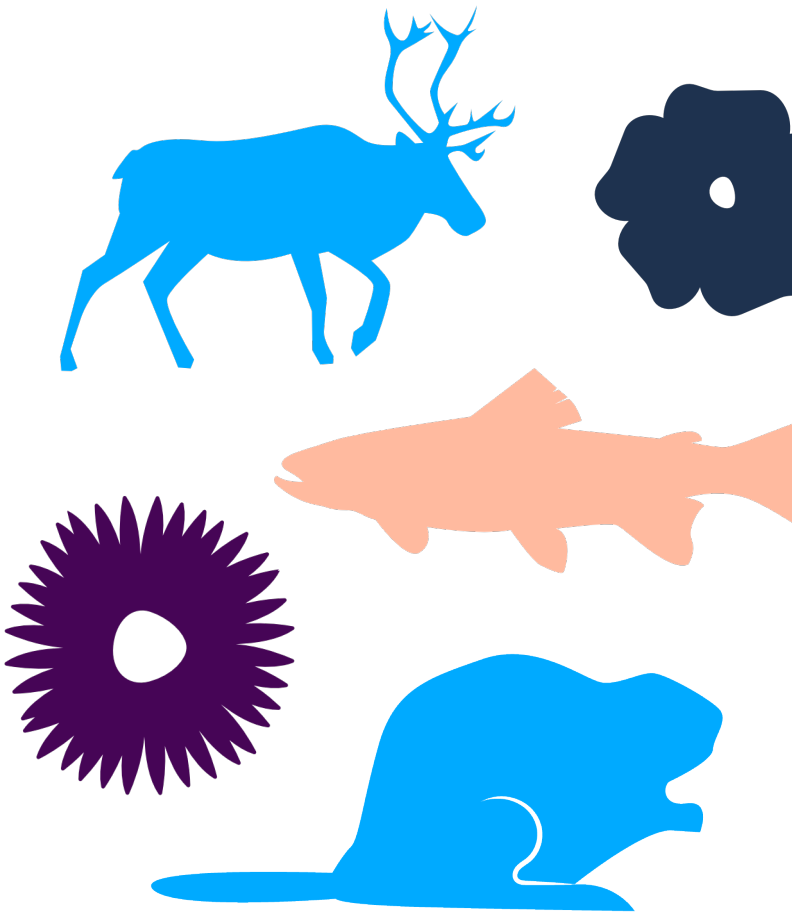
> ***"We must stand together, and remember that water is boss, and that there is no Plan B for water."***
>
> Elder and Chief Francois Paulette,
> Tthëbátthie Denesųłiné Nation



Communities have spoken out, organized, conducted their own monitoring, and participated in regulatory, legal, and international processes to assert their rights and responsibilities. This work reflects resilience and intergenerational responsibility, not acceptance of harm. Indigenous expertise is both historical and forward-looking, assessing how present actions will shape the long-term health and well-being of Indigenous Peoples across generations.

By mapping the projected expansion of tailings facilities and documenting their impacts, we are calling for a path forward that honours the spirit and intent of the Treaties, upholds Free, Prior, and Informed Consent, and respects Indigenous sovereignty[8].

We take this responsibility seriously and with respect. Our intention is not merely to document the harm of the past and present, but to help chart a different future—one rooted in truth, accountability, and the protection of the lands and waters that sustain all life.



What Are Tailings?

All mining operations produce waste when they separate the material of interest from the surrounding earth. This waste is known as **tailings**. Oil sands companies extract **bitumen**, a heavy crude oil mixed with sand, clay, and silt. To separate the bitumen, operators use large volumes of water, heat, and chemical additives. The mixture that remains after extraction—consisting of water, fine clays, residual bitumen, and a complex suite of contaminants—is referred to as **oil sands tailings**[3,9].

These tailings are **highly contaminated** and unsafe for humans, wildlife, and the environment. Toxins found in oil sands tailings include: heavy metals, polycyclic aromatic hydrocarbons (PAHs), Naphthenic acids (NAs), volatile organic compounds (VOCs), phthalates and phenolic compounds, and salts and dissolved ions.

These toxins can travel through the land, air and water causing harm to communities and the environment far beyond the immediate location of the tailings sites[8].



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Oil sands development contributes elements that are toxic even at low concentrations into the Athabasca River and its tributaries[10].

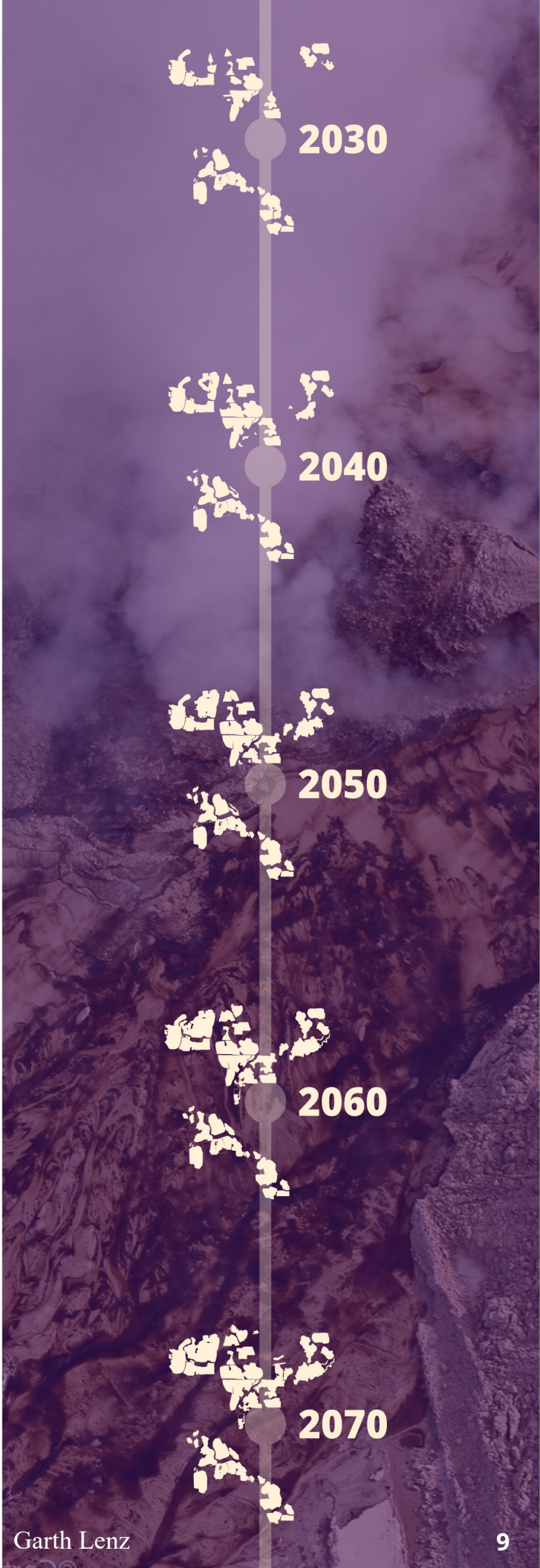
The Next 50 Years

In our first report, *50 Years of Sprawling Tailings,* we documented how oil sands tailings grew from small pilot-scale waste ponds in the 1970s into one of the largest toxic industrial footprints in the world[1,2]. That analysis demonstrated that tailings expansion did not happen by accident—it was permitted, approved, and extended over decades despite well-documented risks to communities, ecosystems, and Treaty obligations.

This second report asks a different question: What will the next fifty years look like if current approvals remain in place?

To answer this, we have drawn on both western scientific methods and Indigenous knowledge. Some of the perspectives reflected in this report arise from Indigenous knowledge, lived experience, and intergenerational observation. These perspectives were shared with Keepers of the Water and CPAWS Northern Alberta through long-standing relationships with Indigenous Nations within and downstream of the oil sands region.

Any discussions of oil sands tailings management are incomplete without Indigenous knowledge and lived experience. Indigenous Peoples are not simply impacted by tailings; they are authorities in understanding their effects, risks, and long-term implications. Respecting this authority requires more than consultation. It requires meaningful decision-making power, accountability for past and ongoing harms, and a fundamental shift away from policies that accept perpetual toxic waste as an acceptable legacy on Indigenous lands[8,11].



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Methodology

The forecasted growth of tailings ponds and associated structures was mapped using information from the tailings management plans that companies submit to the Alberta Energy Regulator. Tailings management plans establish the legally approved trajectory for managing tailings volumes, where they will be placed, and how long they are scheduled to remain on the landscape.

By digitizing and georeferencing data from the tailings management plans, the following maps present a comprehensive dataset covering all approved operations. A complete list of the tailings management plans used in this analysis is provided in Appendix 1.

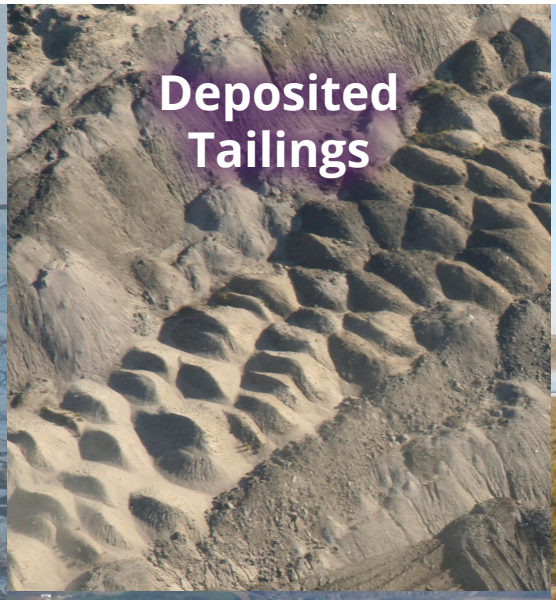
Based on the tailings management plans, maps in this report categorize areas as either:

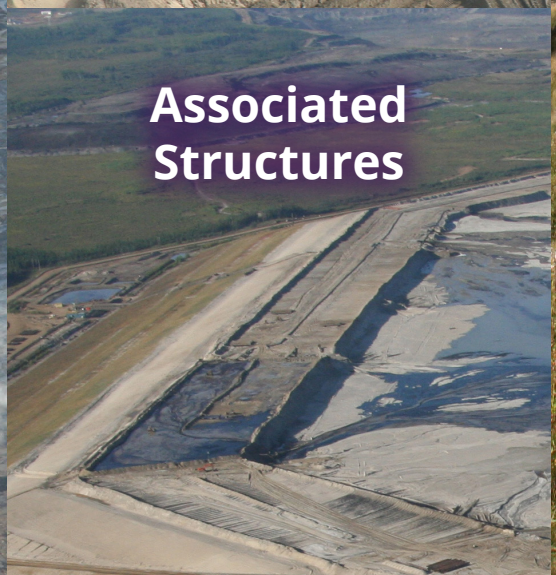
Fluid Tailings: Areas that will be occupied by the fluid waste byproduct of bitumen extraction.

Deposited Tailings and Associated Structures: Areas where solid tailings material will be placed, such as sand infilling and cake deposits, and areas with structures containing tailings, such as berms and dykes.

Previous Tailings: Areas where tailings were previously placed and companies plan to revegetate or reclaim.









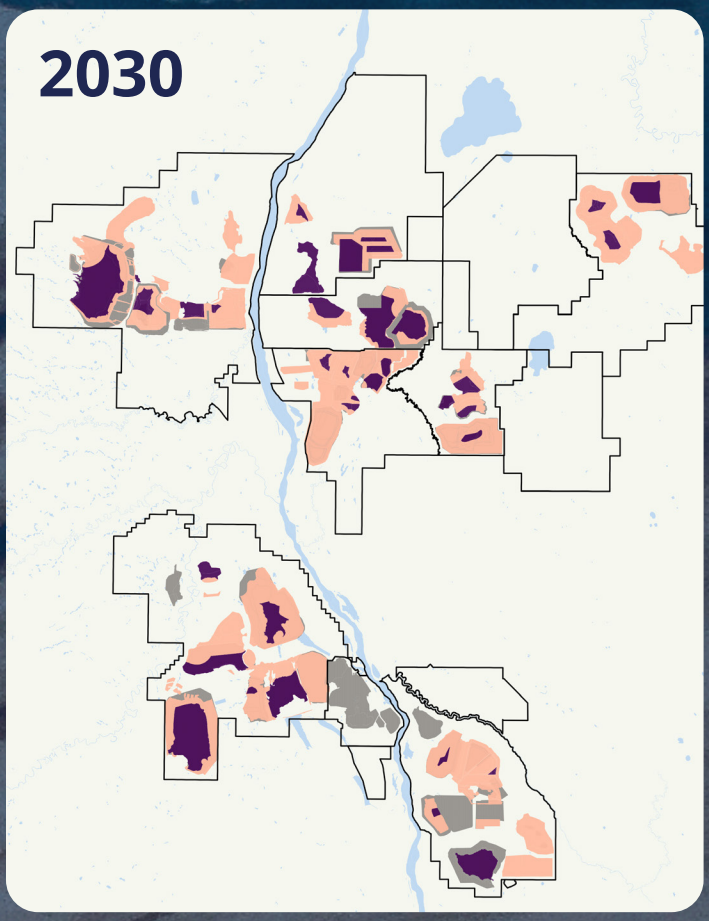
Projected Tailings Maps

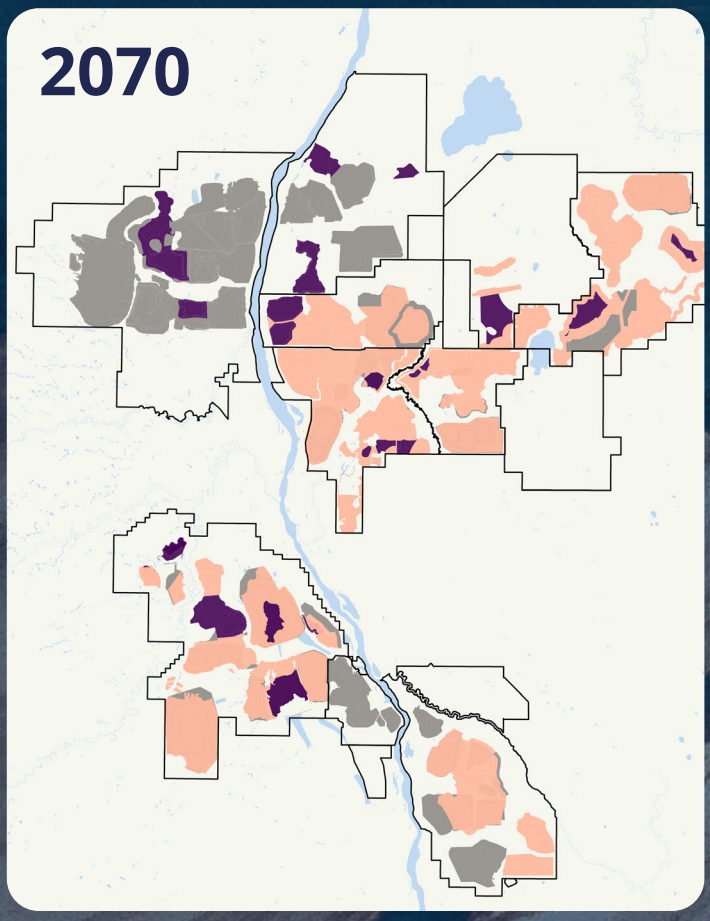
The maps that follow are the outcome of existing approvals if nothing changes and these plans are delivered on.

Unless governments, regulators, and industry change course, this is what the next fifty years of tailings expansion will bring to the Athabasca, Peace, Slave, and Dehcho river systems.

Despite the unresolved risks of toxicity, seepage, air emissions, and long-term reclamation failures, **existing approvals already allow tailings to continue spreading across the region for another half-century and beyond**. From the time operations first began, the details in the mine approval plans forecast a millennium of impacts to the land.

While these maps show data up to 2070, some mines near Fort McKay have approvals through 2115 and beyond.





Fluid Tailings

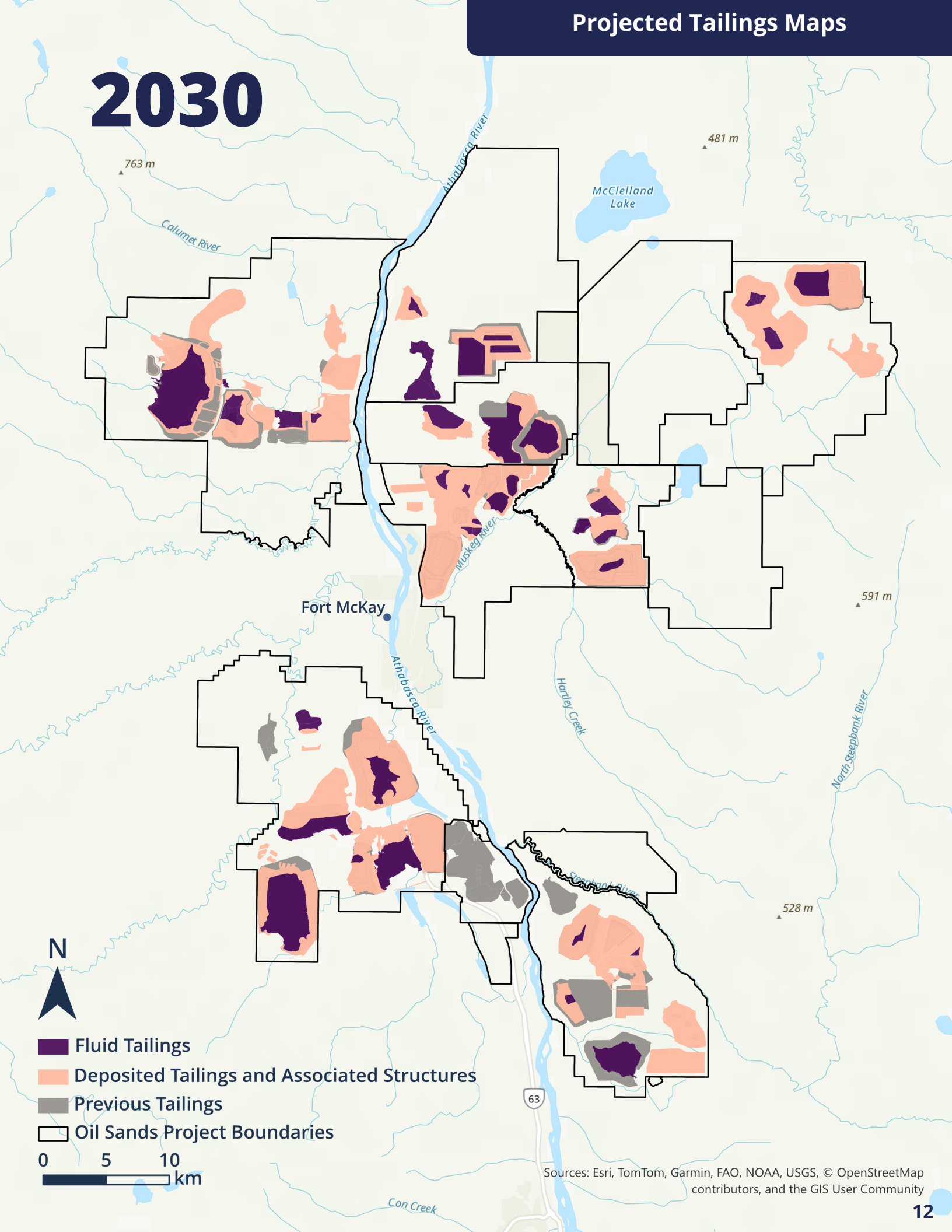
Deposited Tailings and Associated Structures

Previous Tailings

Oil Sands Project Boundaries

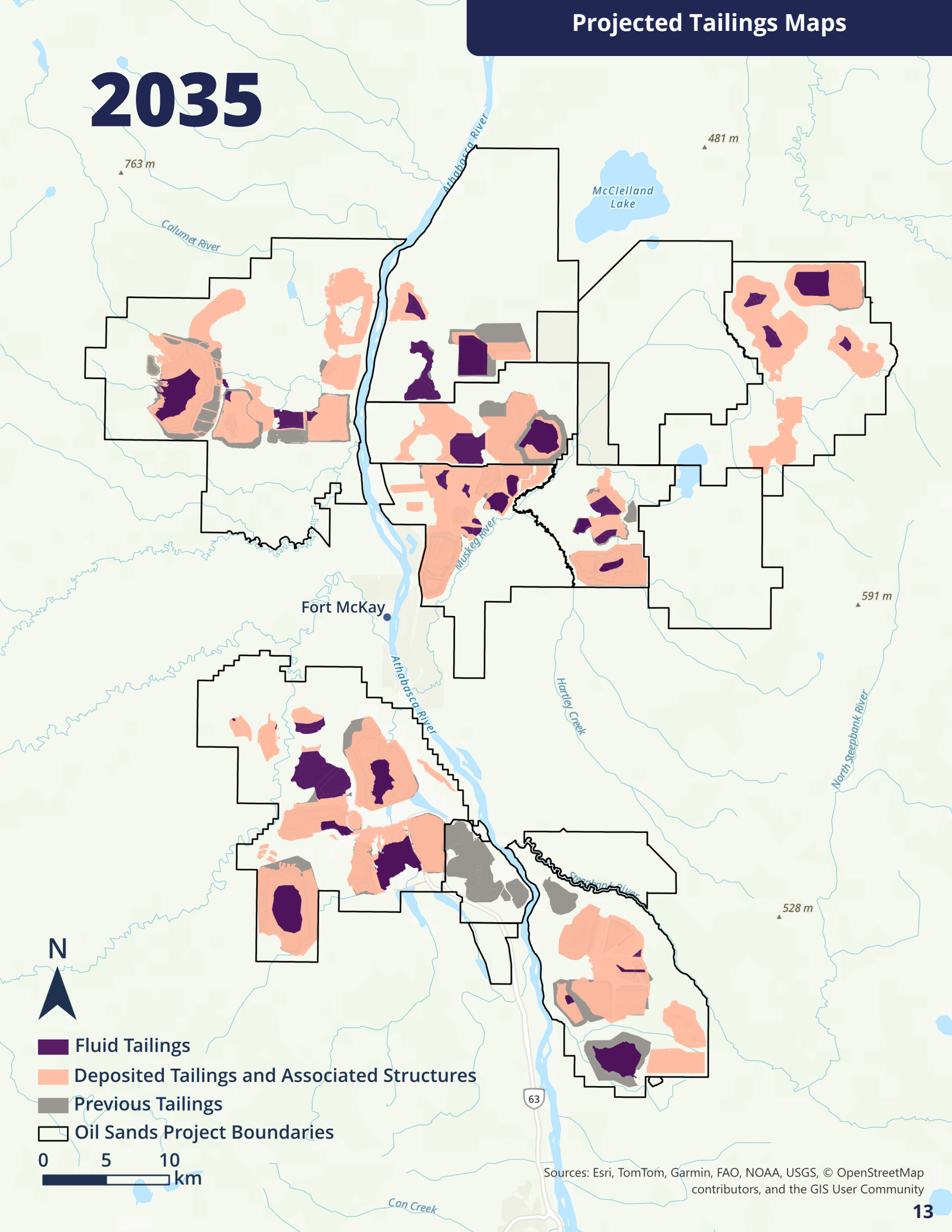
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2030



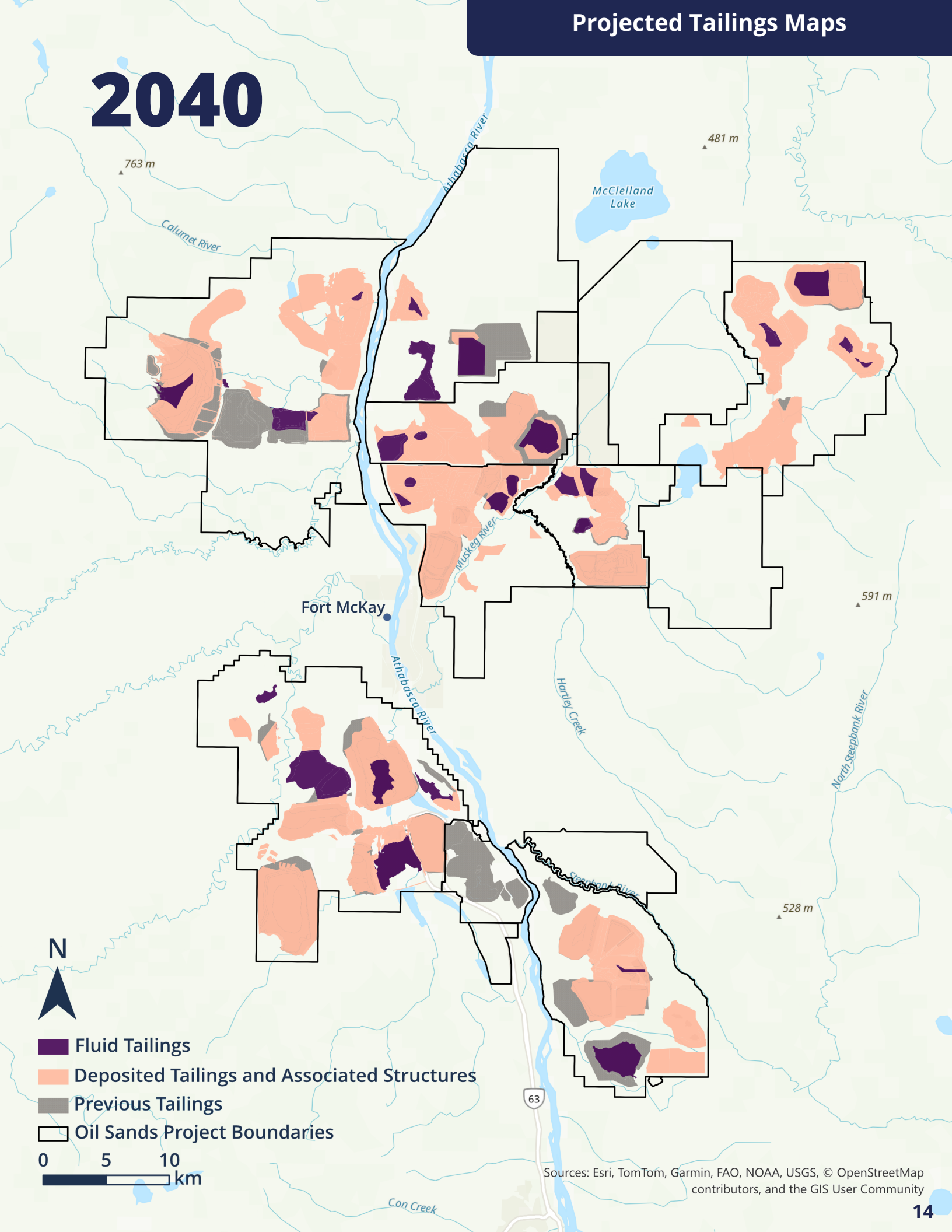
Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

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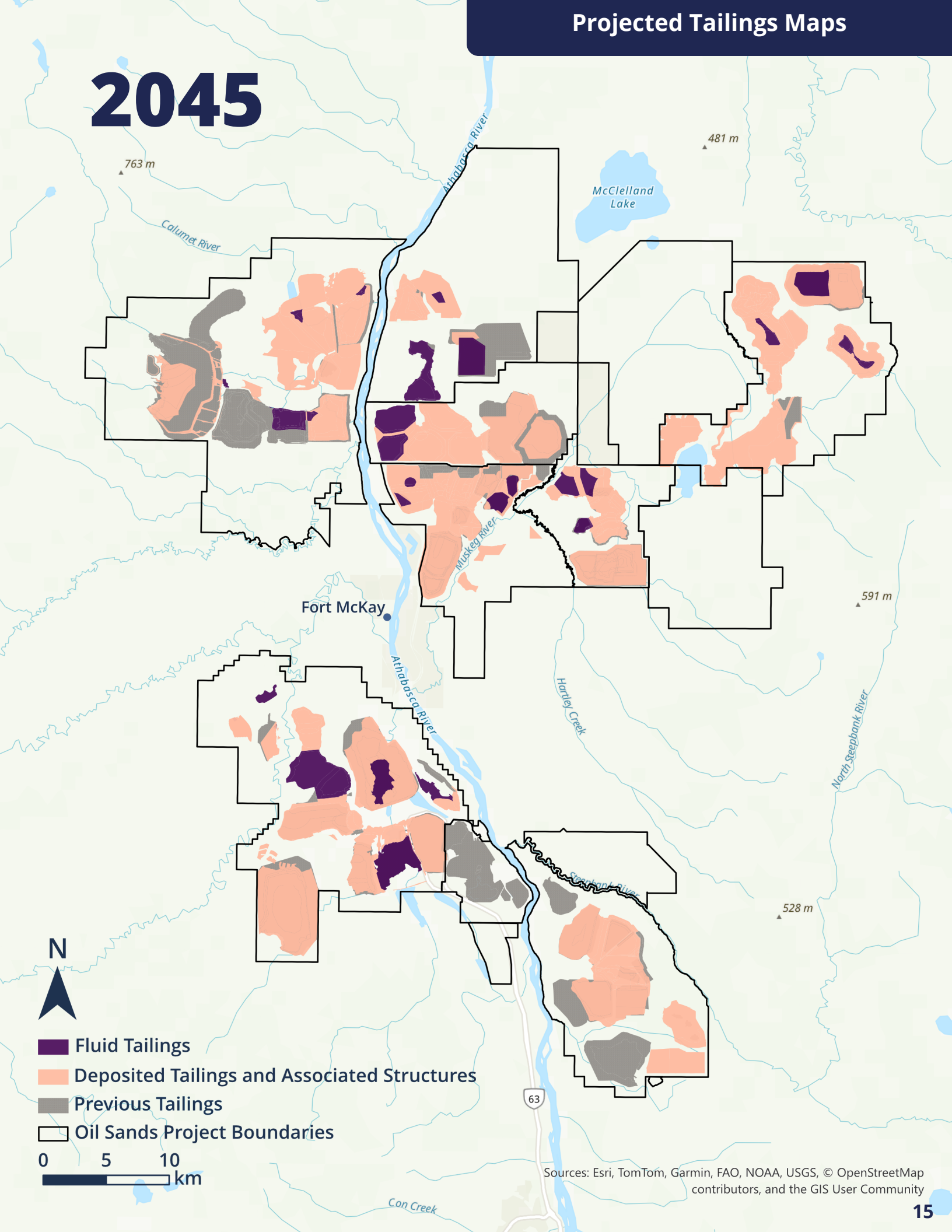
Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

2040



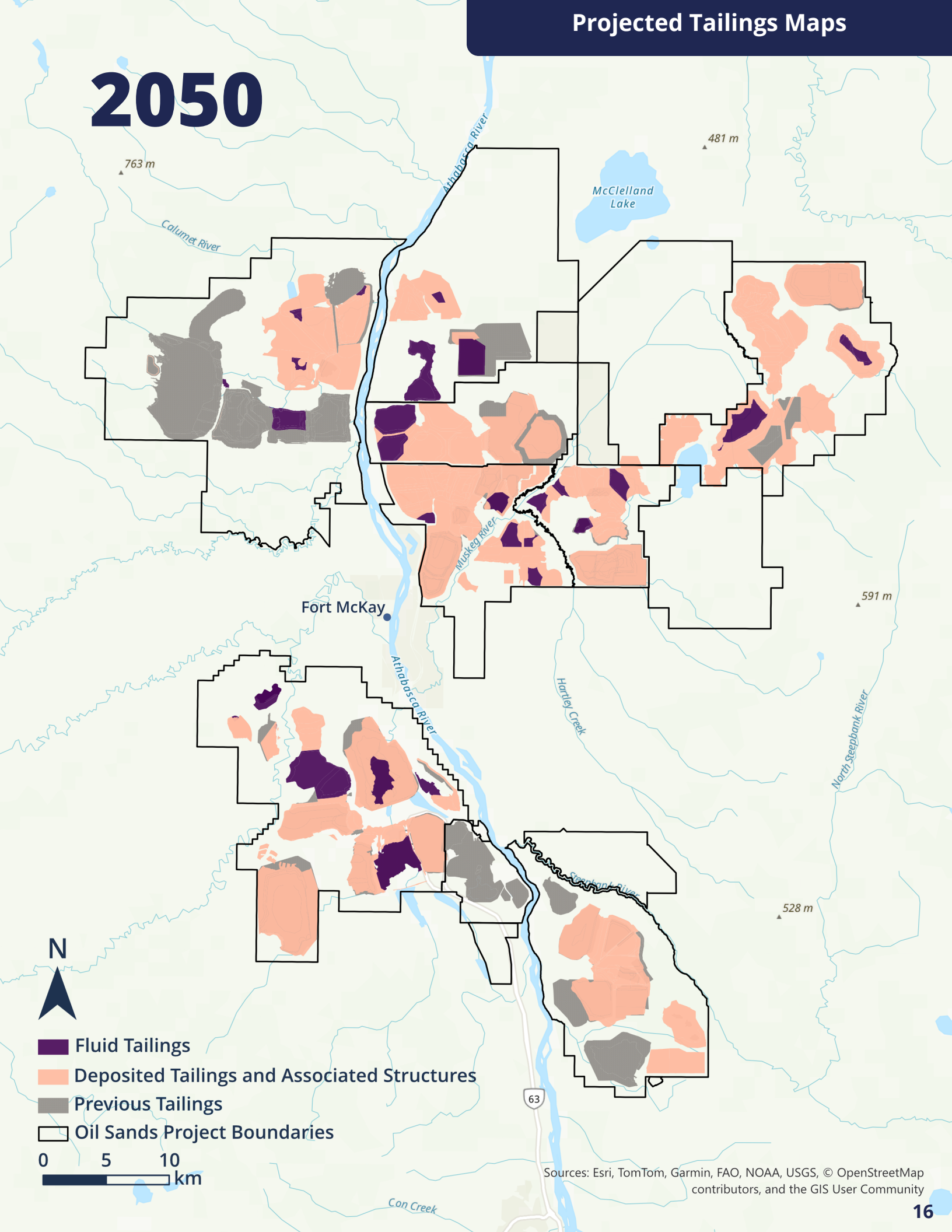
Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

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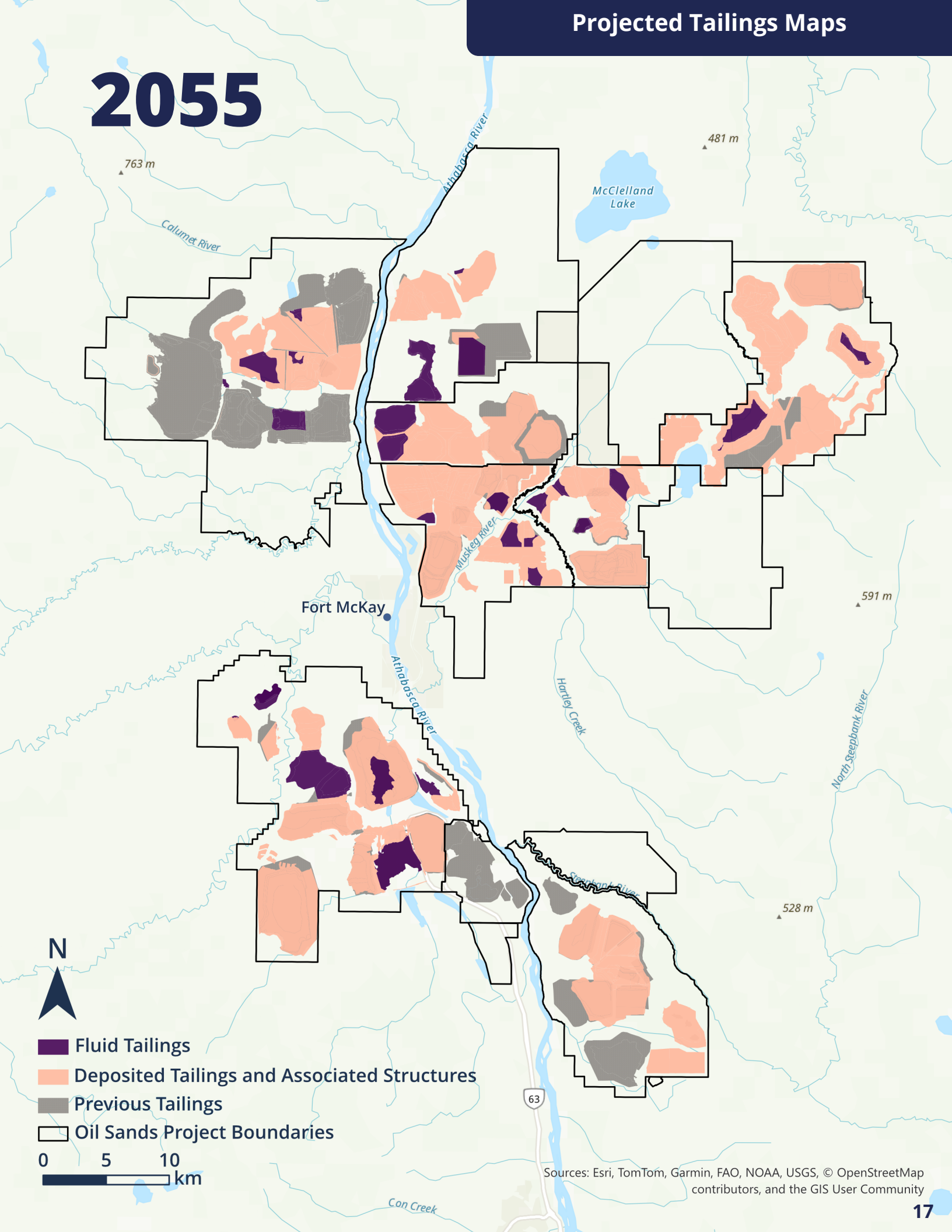
Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

2050



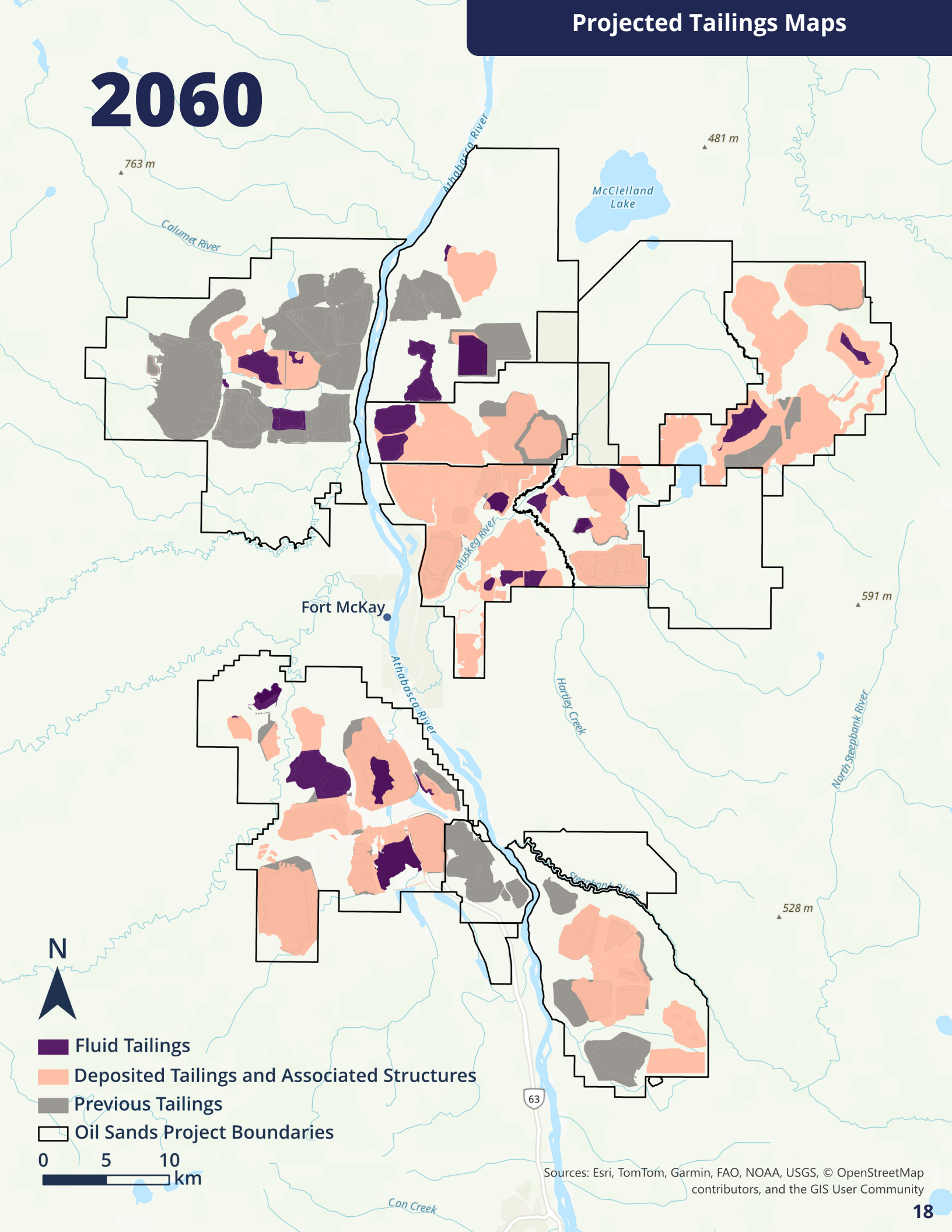
Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

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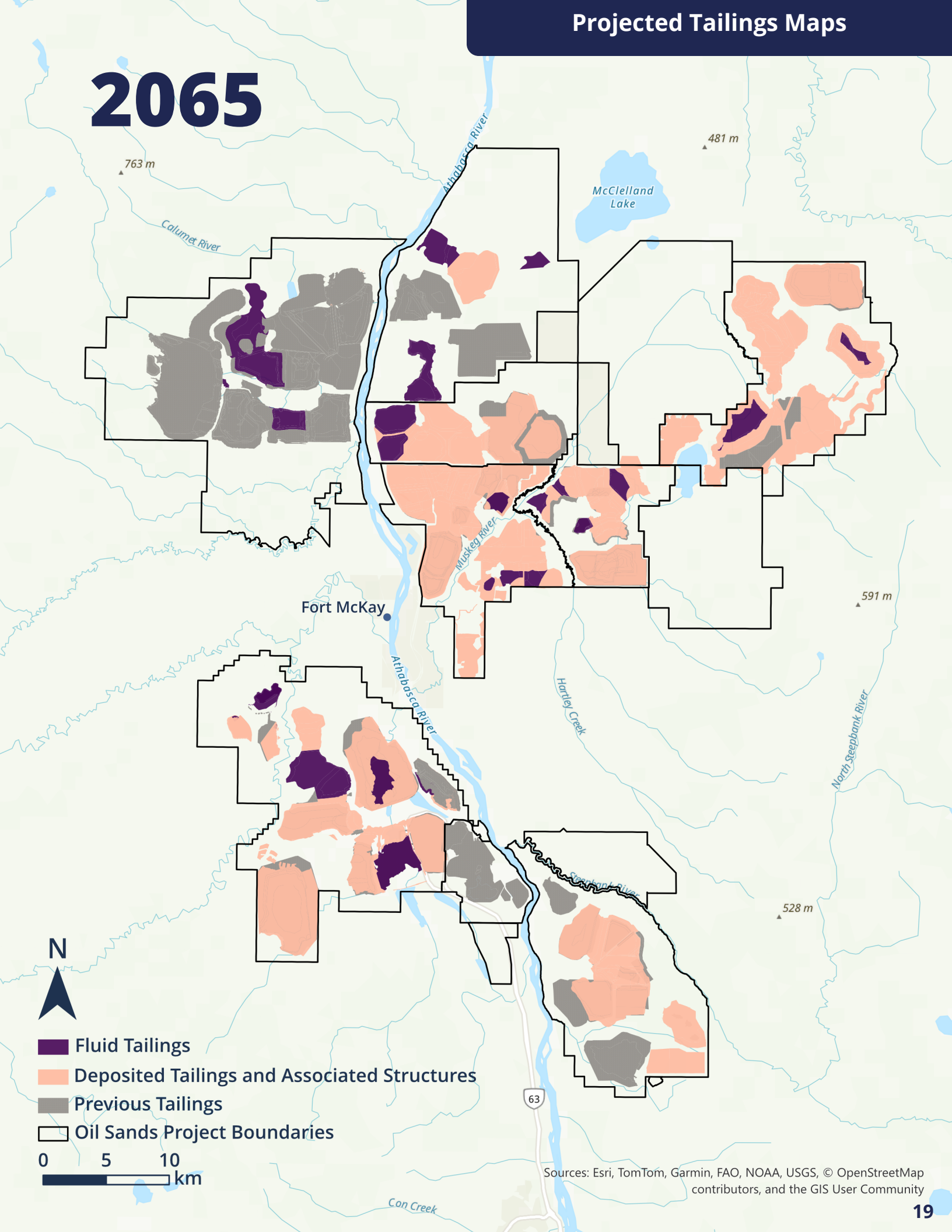
Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

2060



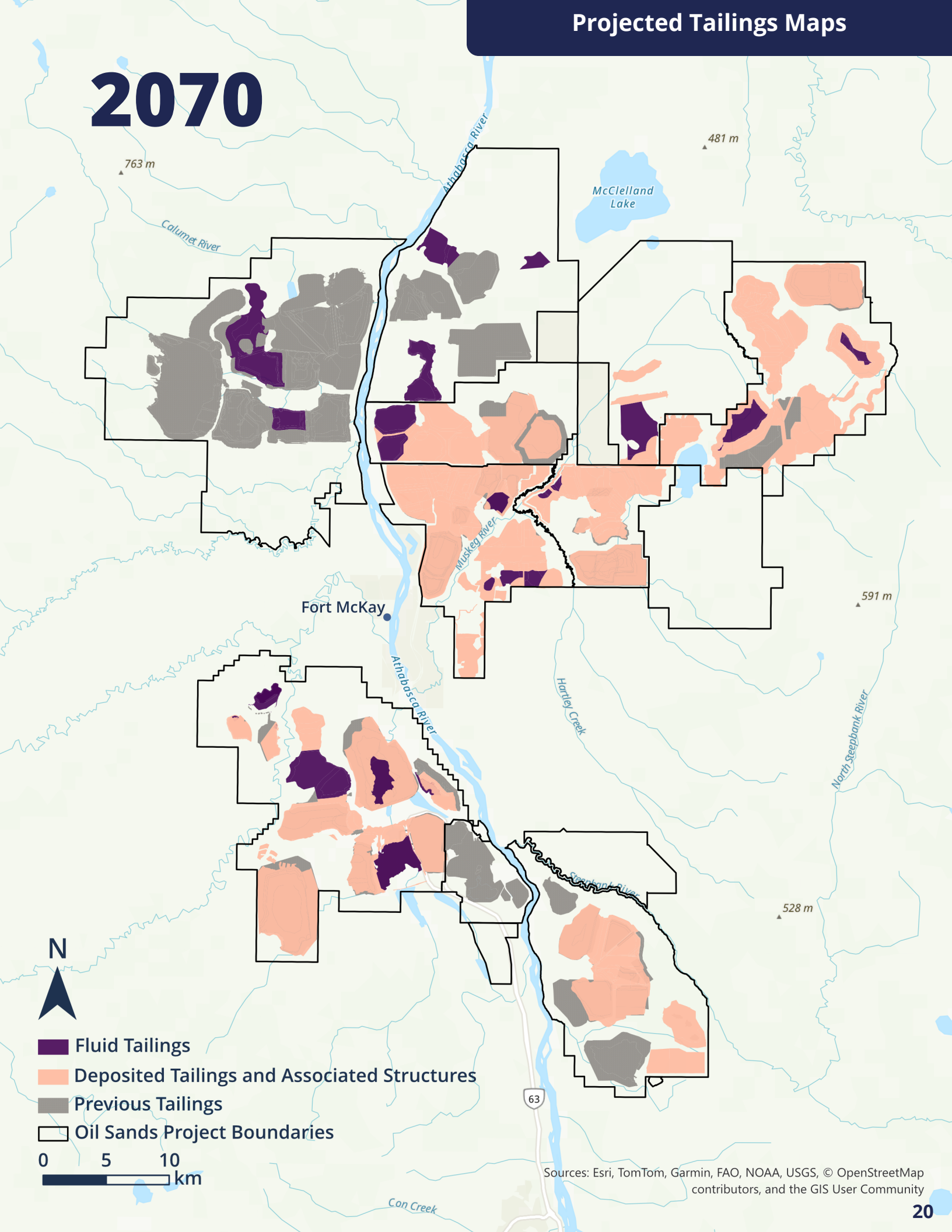
Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

2065



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

2070



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



From the earliest stages of oil sands development, Indigenous communities warned that large-scale industrial disturbance and the long-term storage of toxic waste would result in serious and lasting harm.

These warnings were not speculative. They were rooted in Indigenous knowledge systems that understand water as a living relative, ecosystems as interconnected, and contamination as something that moves through soil, water, air, and bodies over time[3].

Despite these warnings, tailings facilities were approved and expanded without Indigenous consent and without meaningful assessment of cumulative impacts on Indigenous lands, cultures, and health.

The prevous maps highlight a trajectory that would further ignore these warnings.

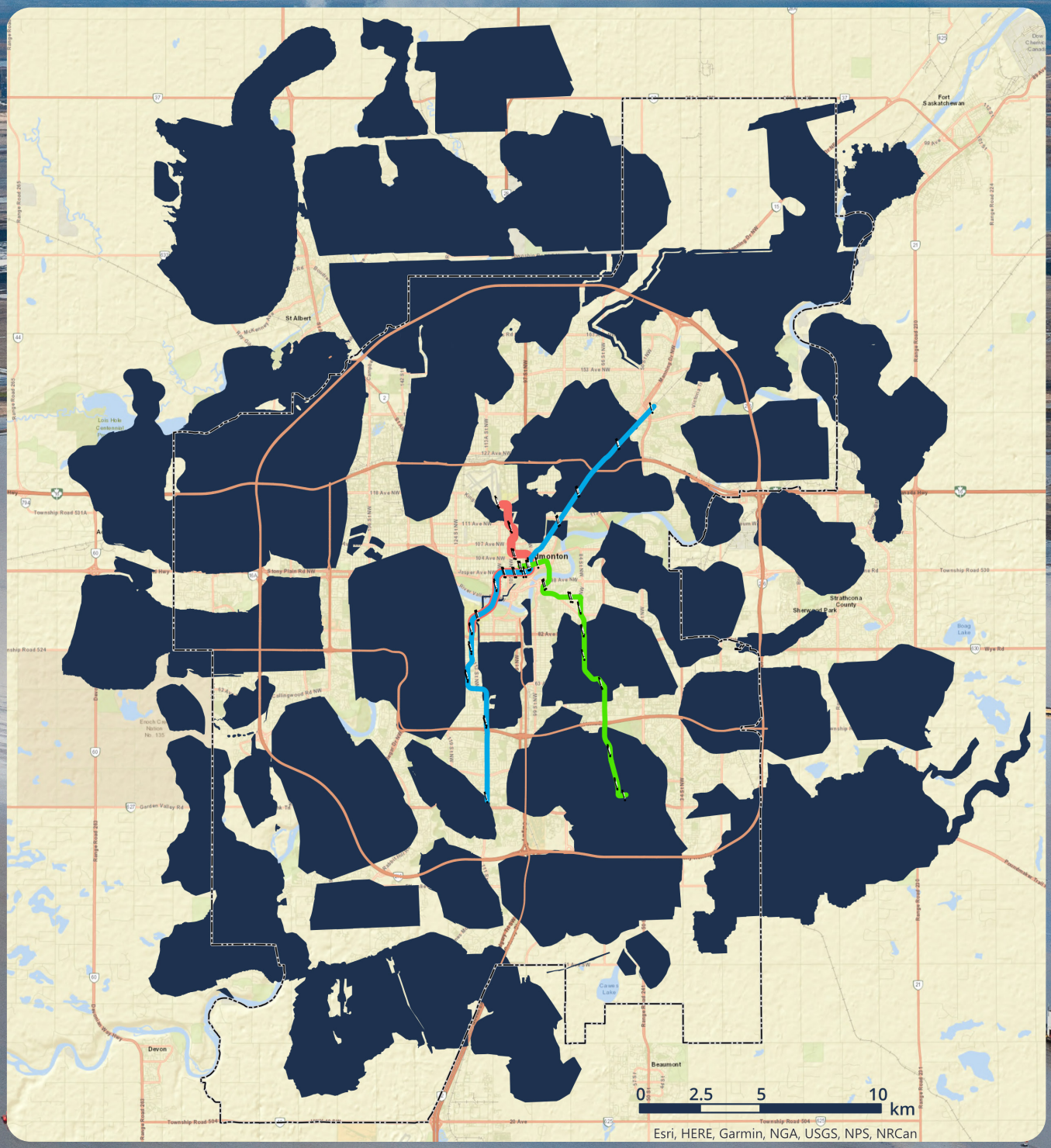
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Tailings Footprint

Across all operating oil sands mines, the projected tailings footprint is staggering in size. **By the year 2070, fluid tailings alone are approved to occupy roughly 10,000 hectares (100 km²).**

When all deposits, structures, dykes, dams, and related land disturbances are included, **the combined footprint is approved to surpass 85,000 hectares (850 km²) by 2070.**

The 2070 approved footprint compared to the extent of Edmonton:



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These projections reveal a troubling reality: **the long-term accumulation of toxic waste is not slowing—it has already been approved to continue growing.** Even as industry and government promote "treatment" and "reduction" technologies, the underlying plans still rely on the vast quantities of toxic fluid tailings throughout the next half-century.

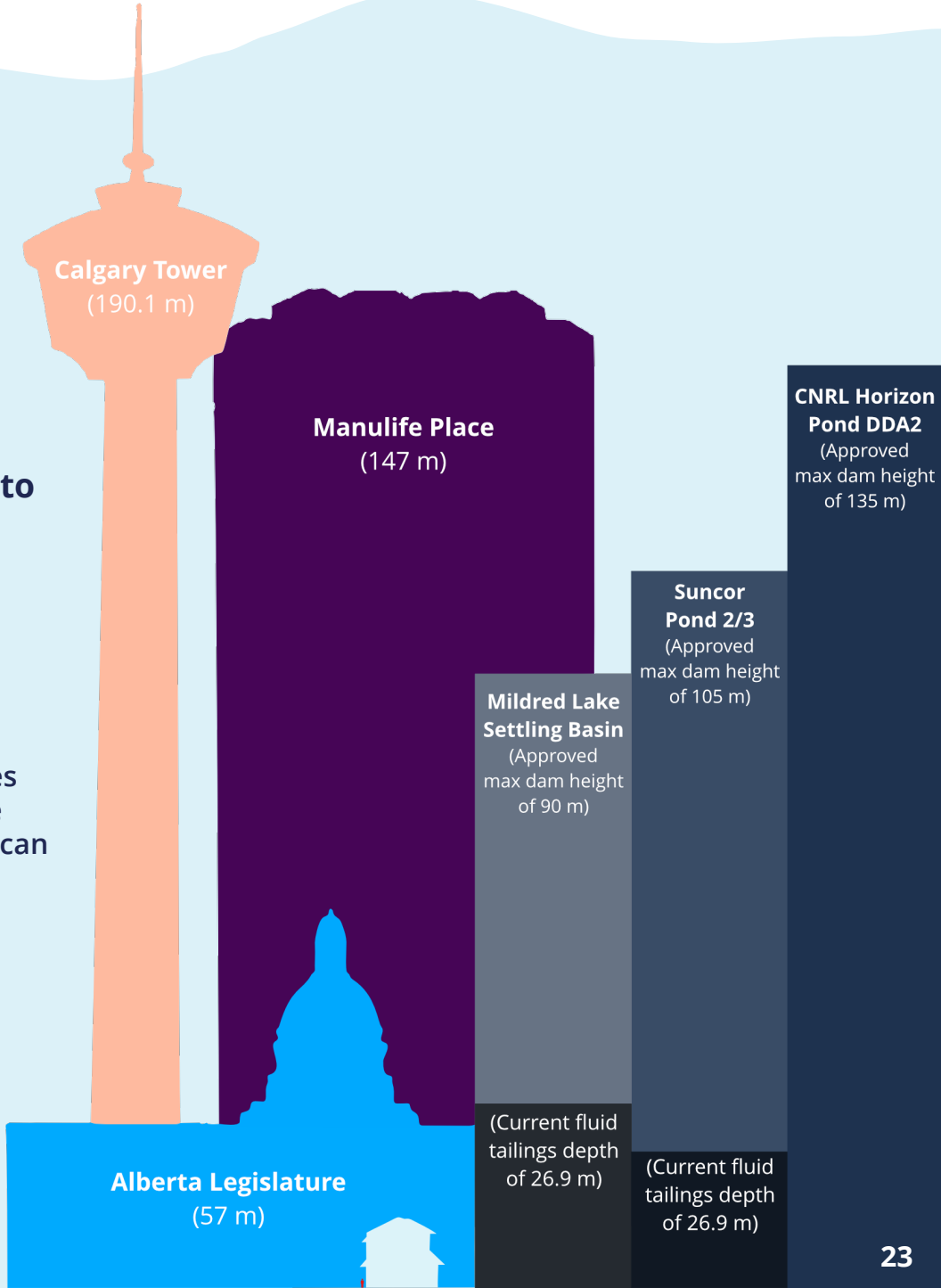
For Indigenous communities, this means future decades of risks to water, wildlife, and cultural practices—added to the fifty years of harm already experienced.

For nearby and downstream regions, it means decades more exposure to contaminated seepage, air pollution, and uncertainty regarding long-term reclamation.

For Canadians as a whole, it represents a deepening financial and ecological liability with no proven solution. It threatens vulnerable boreal ecosystems which support clean drinking water and fresh air, climate mitigation, and habitat for biodiversity.

Approved tailings pond structures in comparison to landmarks

The depth of fluid tailings and approved tailings dam heights were sourced in 2025 from the Alberta Energy Regulator[12]. We found that the depth of fluid tailings across mine sites ranges from 0 to over 26 metres. More details on the depth of tailings can be found in Appendix 2.



The View From Downstream



Indigenous Peoples whose territories are within and downstream of the oil sands hold deep, place-based expertise regarding the lands and waters now affected by tailings.

This expertise is grounded in generations of observation, responsibility, and lived experience. Long before tailings ponds dominated the landscape, Indigenous Nations along the Athabasca, Peace, Slave, and Dehcho river systems relied on these waters for drinking, travel, food harvesting, ceremony, and the transmission of language, law, and cultural teachings[7].

The expansion of tailings ponds has coincided with the dispossession of Indigenous Peoples from large portions of their traditional territories. Since operations began, communities in and downstream of the oil sands have seen continuous infringement of their Treaty Rights. Areas once used for hunting, fishing, trapping, and gathering medicines have become inaccessible, contaminated, or unsafe. Many communities report growing concern about the safety of consuming fish, wildlife, and water from traditional territories, alongside the erosion of confidence in regulatory assurances[10,13]. These losses are not limited to physical access; they disrupt cultural practices, knowledge transfer, andrelationships to land that are central to Indigenous identity.

Indigenous knowledge holders have consistently identified changes in water quality, including altered taste, smell, and appearance, as well as declines in fish health and changes in wildlife behaviour[7]. These observations align with peer-reviewed scientific findings linking oil sands development to polycyclic aromatic hydrocarbons and trace metals in the Athabasca River and its tributaries downstream of mining operations[10,14]. Indigenous knowledge systems emphasize long time horizons and cumulative effects, making them particularly relevant when assessing tailings that are projected to remain toxic for centuries[4].

The understanding reflected in this section is consistent with, and reinforced by, decades of Indigenous-led and community-grounded work undertaken by Indigenous Nations and organizations whose territories are affected by oil sands development. First Nations within and downstream of the oil sands region have documented changes to land, water, wildlife, and human health through traditional knowledge studies, community monitoring, and formal submissions to regulatory and legal processes. This body of work affirms that the impacts of oil sands tailings are cumulative, long-term, and experienced across interconnected watersheds, and that concerns have not been adequately addressed by existing regulatory frameworks.

What Happens When the Mining Ends?

Reclamation is the process of restoring lands disturbed by mining once operations have ended. As part of the approval process, oil sands companies are required to submit reclamation plans to the Alberta Energy Regulator describing how they intend to return the landscape to an equivalent land capability—a condition that can support uses similar to those that existed before development[15].

On paper, reclamation is presented as the final stage of mining. It is often used to reassure the public that the impacts of oil sands development are temporary and that disturbed lands will eventually be restored.

However, after more than fifty years of oil sands development, significant questions remain about how the vast quantities of tailings stored across the region will be managed over the long term.

Despite decades of research and technological development, there is still no safe, scientifically verified, and community-approved large-scale solution for eliminating tailings from the landscape.

Gateway Hill: A Small Example in a Vast Landscape

Industry frequently points to one site as evidence that reclamation is possible. Located near Fort McMurray, Gateway Hill became the first and only area in the oil sands region to receive a reclamation certificate from the Alberta government.



Yet the total area certified as reclaimed only covers 1.04 km², less than 0.01% of the current tailings footprint.

The area reclaimed was also primarily used to store overburdened soil, which still does not address the challenge of reclaiming large fluid tailings sites[16,17]. While it is a first step, it represents only a small fraction of the overall oil sands footprint[18].



More than fifty years after oil sands development began, no tailings pond in Alberta has received a reclamation certificate. With the analysis in this report, we see that footprint could triple in size.

This raises an important question: **If only one square kilometre of overburden soil has been certified, what will it take to reclaim the hundreds of square kilometres that remain?**

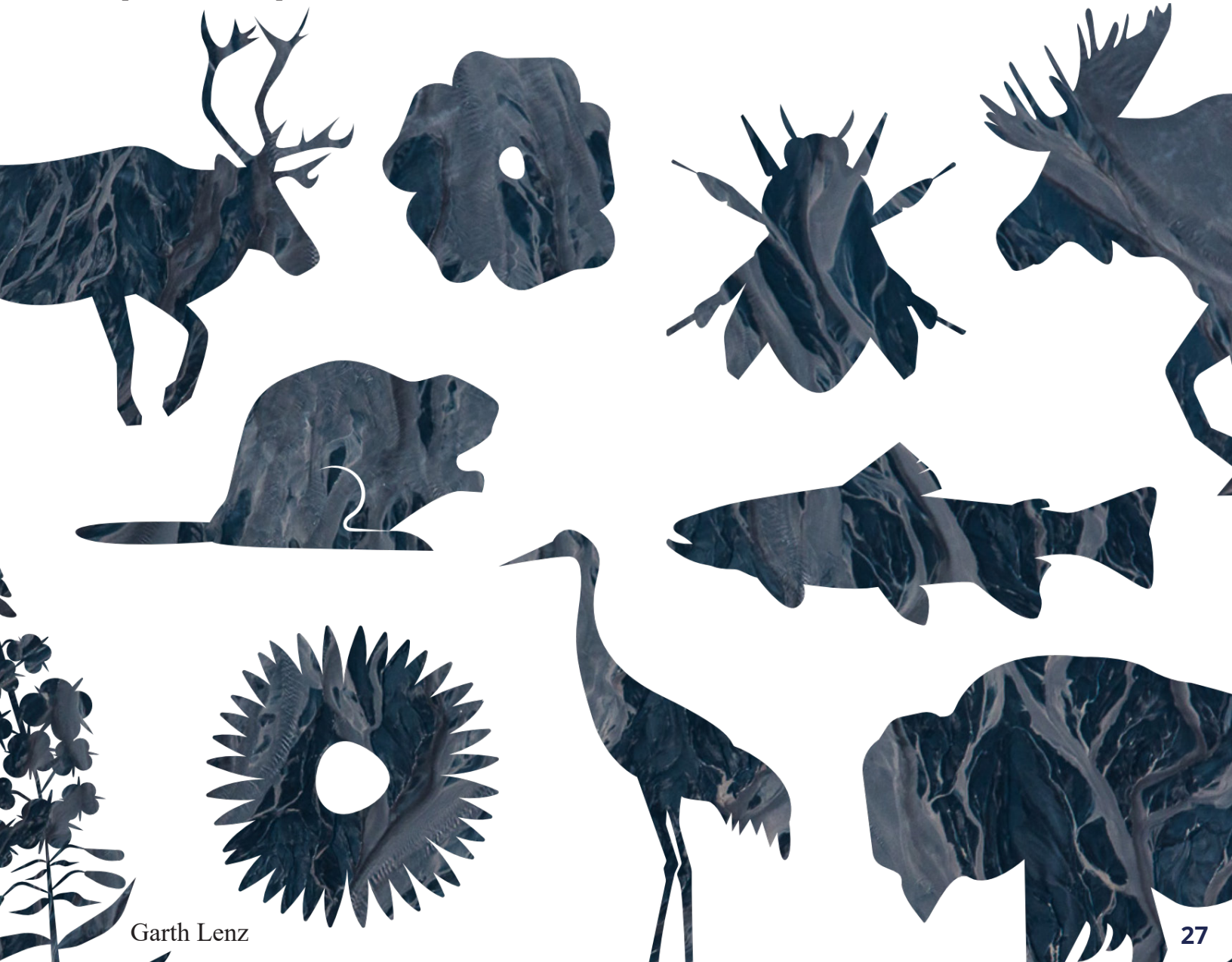
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End Pit Lakes: The Future of Tailings?

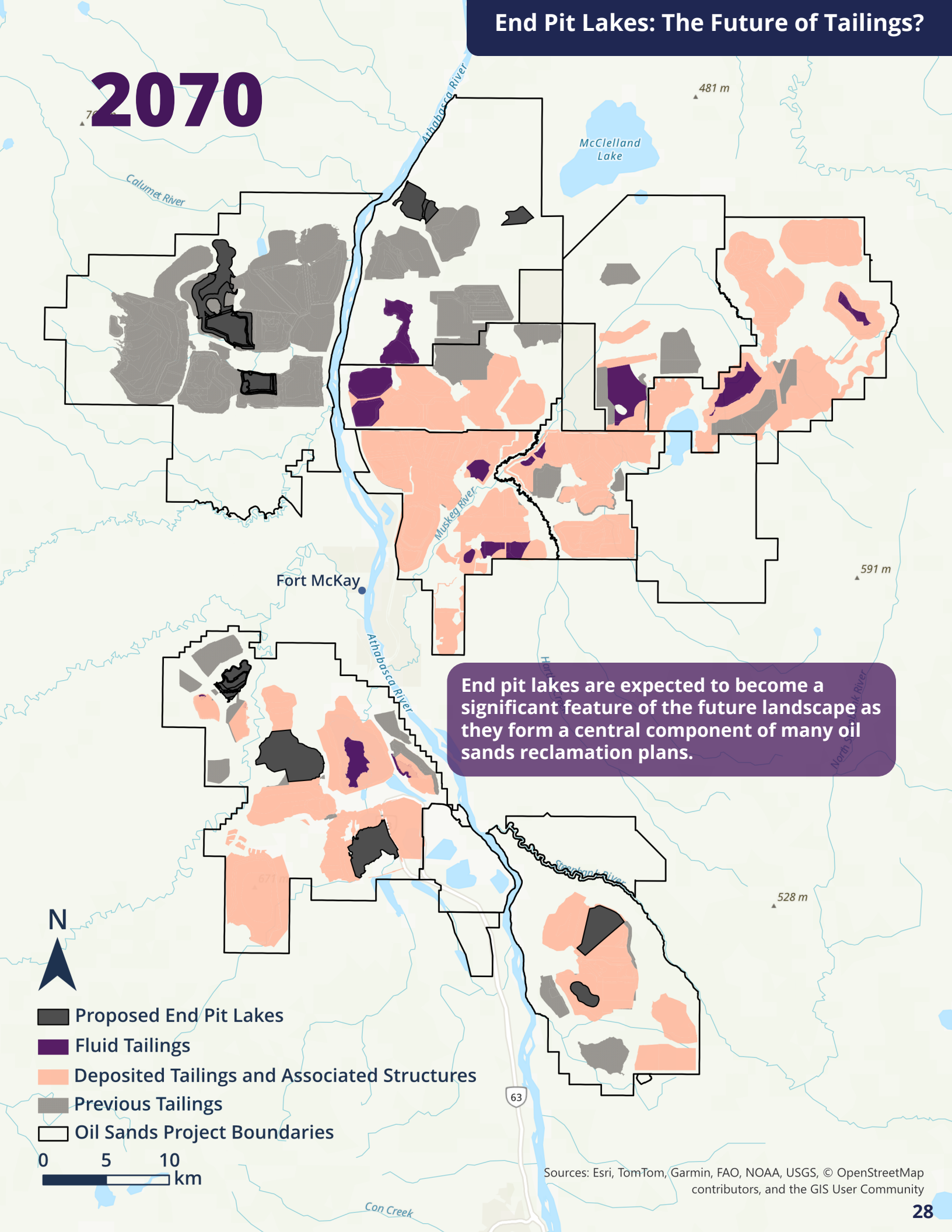
One of the primary reclamation strategies proposed by oil sands operators is the creation of **end pit lakes.** Their use may either increase or decrease depending on the effectiveness of other tailings reclamation measures.

An end pit lake is exactly what it sounds like: a human-made lake that is created in a former mine pit after mining is finished. As mining progresses, solid tailings materials are placed into these excavated areas and covered with a layer of freshwater. The goal is to create a lake-like environment while permanently containing tailings within the former mine site. Over time it is expected that suspended solids will settle to the bottom of the end pit lake. While fluid tailings may be treated, consolidated, or managed in various ways before placement, the remaining tailings and associated contaminants remain on the landscape[19]

Industry sees end pit lakes as a practical way to manage the enormous volumes of tailings produced by oil sands mining. Critics and independent scientists have raised questions about how these lakes will perform over the long term, including whether they will ever function as healthy aquatic ecosystems or if contaminants could seep into surrounding waterways[20,21].



Garth Lenz



End pit lakes are expected to become a significant feature of the future landscape as they form a central component of many oil sands reclamation plans.

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Forecasting 800 Years into the Future

While the maps in this report stop at 2070, **oil sands mine plans project impacts nearly nine centuries into the future.**

For example, bitumen extraction at Canadian Natural Resources Limited's Muskeg River Mine is projected to end around 2062, but the company suggests that the physical impacts of this mine could persist for up to 800 years. Canadian Natural Resources Limited estimates that ground settlement from the Muskeg River Mine may not become negligible until sometime between 2326 and 2876[5].



What does this tell us? In simple terms, this means that the landscape is expected to continue shifting and settling long after mining operations have ended. When the land is excavated, reshaped, filled with mine waste, and companies walk away, the impacts are not over.

These long timelines raise important questions about reclamation, long-term monitoring, and who will be responsible for managing environmental risks far beyond the lifespan of the mine itself.

To visualize this timeline, lets go back 800 years

- **2026** Present day
- **1899** Signing of Treaty 8
- **1788** Fort Chipewyan is established
- **1670** Hudson's Bay Company lays claim over present day Alberta
- **1450** Printing press is developed around this decade
- **1300s** Approximate beginning of the Little Ice Age
- **1200s** Great Plains inhabited by Indigenous nations long before European contact

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Who's paying for this?

Who will cover the bill to clean up the oil sands? While the answer should be the oil sands operators who have profited billions of dollars from the mines, there is growing concern that it will be Albertan taxpayers who are left to pick up the cheque.

The Mine Financial Security Program is intended to protect Albertans from paying for the closure and reclamation of oil sands and coal mines. As of September 2025, Alberta held $1.8 billion in financial security for oil sands mines against an estimated $51.9 billion in reclamation liabilities[22].

Garth Lenz

Hope Remains Strong

The information presented in this report is heavy. The scale of existing and proposed tailings facilities, the long timelines for reclamation, and the forecasts of continued oil sands expansion can feel overwhelming. Yet the future shown in these maps is not inevitable.

The maps and projections in this report are based on existing approvals and industry plans. If Alberta's oil sands production continues to grow as forecast, the footprint of mining and tailings across the region could expand significantly over the coming decades. The decisions being made today will shape the waters, lands, wildlife, and communities of the Athabasca region for generations to come.

The tailings ponds, end pit lakes, and disturbed landscapes shown in this report are projected to remain on the landscape long after today's decision-makers are gone.

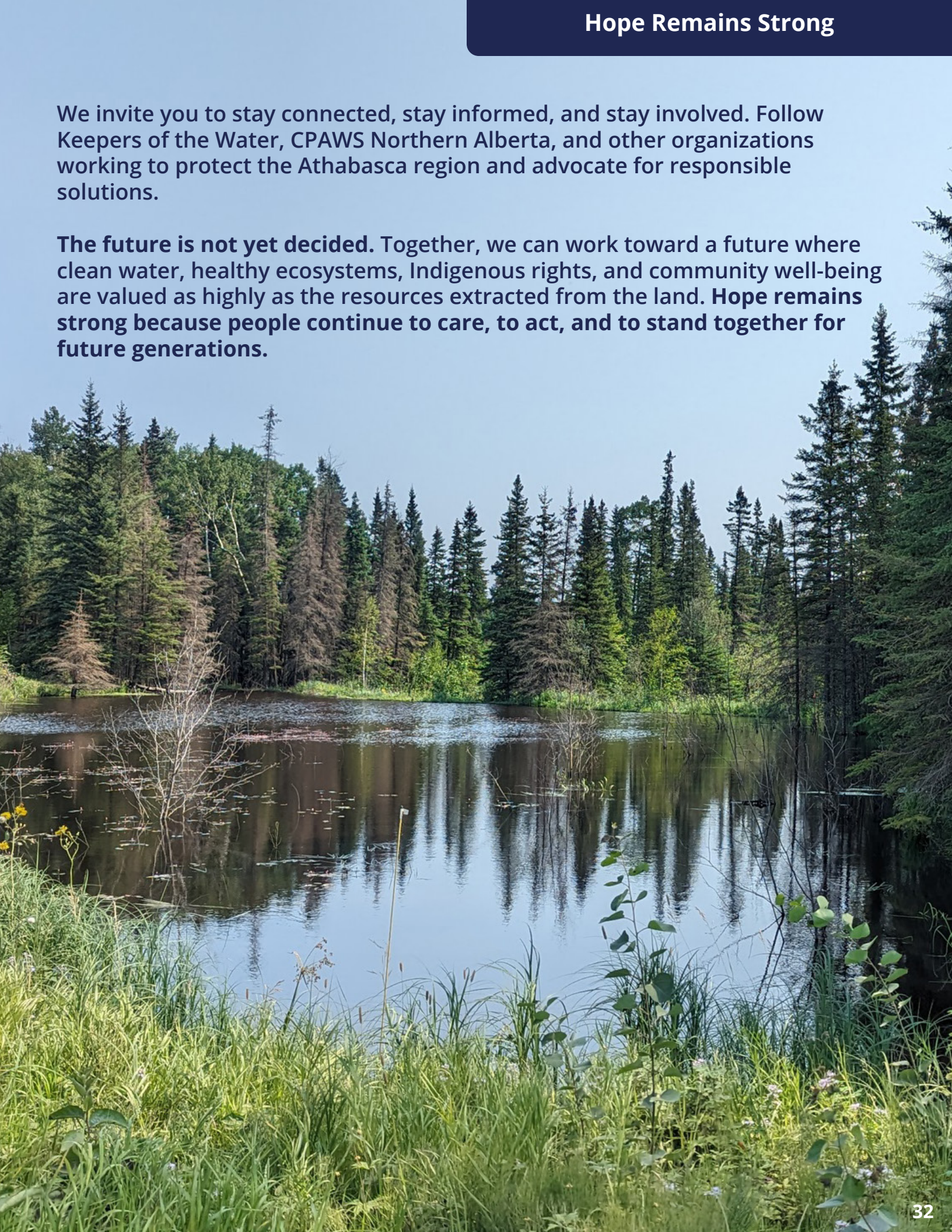
We have a responsibility to future generations to ask difficult questions now and pursue solutions that leave them with clean water, healthy lands, and meaningful choices about their future. Across the North and throughout Canada, Indigenous Nations, local communities, scientists, advocates, and concerned citizens are working together to protect the Athabasca watershed. Their efforts remind us that meaningful change is possible when people come together, speak up, and demand accountability.

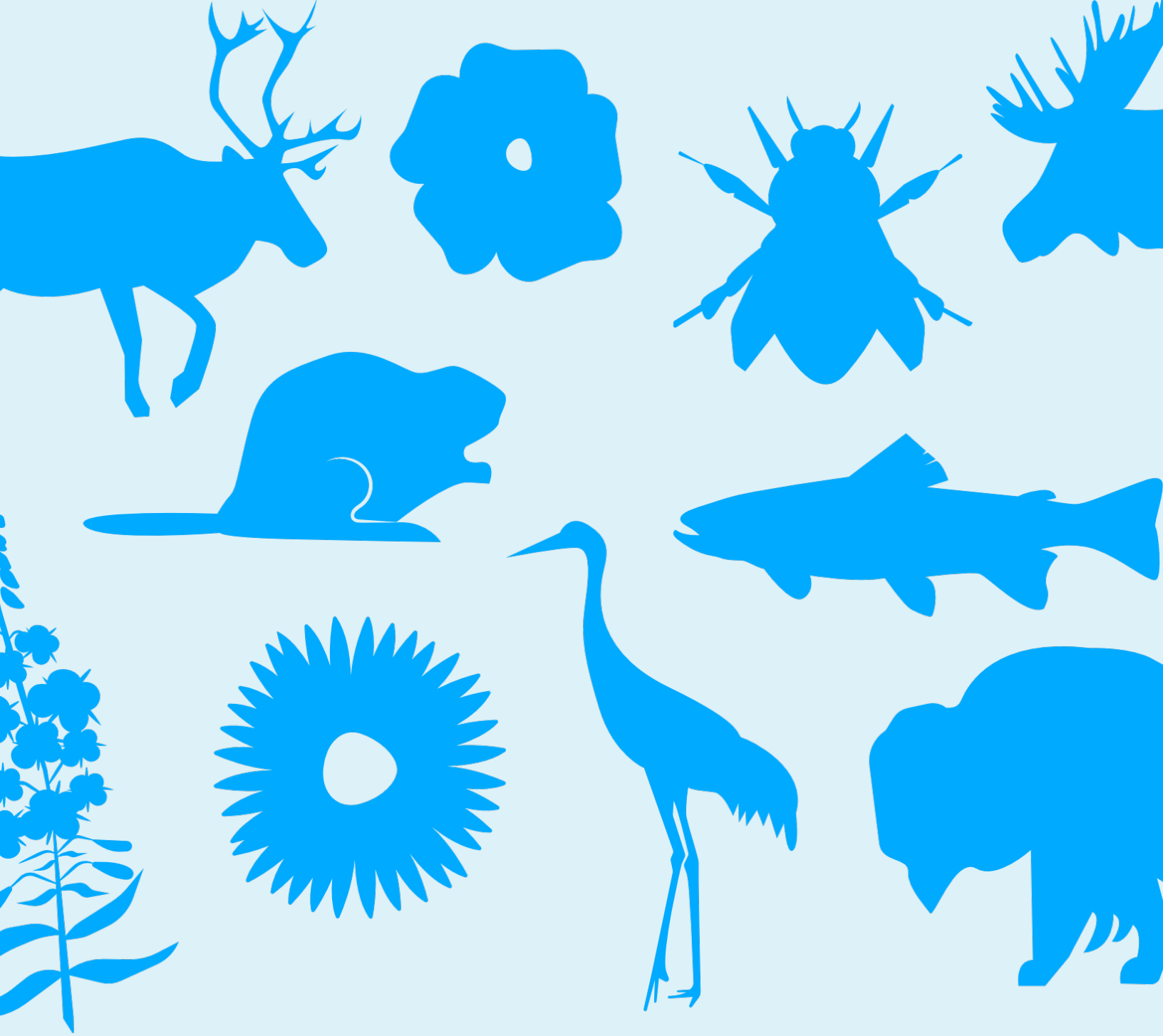
Public awareness and engagement matter. Governments and industry pay attention when people raise concerns, participate in decision-making processes, support Indigenous-led initiatives, and call for stronger environmental protections. Every voice helps build momentum for a different future.



We invite you to stay connected, stay informed, and stay involved. Follow Keepers of the Water, CPAWS Northern Alberta, and other organizations working to protect the Athabasca region and advocate for responsible solutions.

The future is not yet decided. Together, we can work toward a future where clean water, healthy ecosystems, Indigenous rights, and community well-being are valued as highly as the resources extracted from the land. **Hope remains strong because people continue to care, to act, and to stand together for future generations.**





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Appendices

Appendix 1: Mapping methodology and tailings management plans used in this analysis

The *Alberta Energy Regulator's Directive 085: Fluid Tailings Management for Oil Sands Mining Projects* lists data oil sands companies are required to provide in their tailings management plans. This information includes: "... status maps (beginning, milestones, and end) identifying the location and size of treated tailings deposits and fluid tailings ponds, both existing and proposed, in the mine area (maps must clearly illustrate the progression of the treated tailings deposits and fluid tailings ponds until ten years after the end of mine life)" (AER 2022).

These documents are publicly available information from the Alberta Energy Regulator website and form the base of this analysis. They are available for download through the Intergrated Application Registry. Documents available through the portal were reviewed to obtain the most current versions containing the mining activities and tailings milestone maps.

Fluid tailings maps were extracted from the reports and georeferenced. Maps from the reports were selected to best create a time series based on 5 year increments extending until the year 2070 (Table 1). Based on the milestone timing used by the companies, certain projects will show a more expansive or limited tailings footprint for a given year as a milestone footprint may represent several time increments.

Polygons of the tailings areas were digitized at 1:5000 in an additive process, where tailings areas were added/subtracted from the previous 5 year increment. This ensured that the outer polygon boundaries were consistent throughout the time series. Categories of tailings were then combined to create maps displaying "Fluid Tailings" and "Deposited Tailings and Associated Structures".

The purpose of the mapping exercise is to identify tailings impacted areas over time. As such, we have not included final closure maps to indicate where tailings deposition areas have been reclaimed. There is a section of this report which addresses reclamation.

List of tailings management plans used in this analysis

1. Imperial Oil Resources Limited. (2022, March). *Kearl Oil Sands Mine: Mine plan amendment and tailings management plan integrated application.* Alberta Energy Regulator.

2. Shell Canada Limited. (2016, October 7). *Shell Canada Energy Jackpine Mine fluid tailings management plan.* Alberta Energy Regulator.

3. Shell Canada Limited. (2016, October 7). *Shell Canada Energy Muskeg River Mine fluid tailings management plan.* Alberta Energy Regulator.

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5. Suncor Energy Inc. (2016, April). *Millennium operational amendment application.* Alberta Energy Regulator.

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8. Syncrude Canada Ltd. (2016, April). *Syncrude Aurora North Mine tailings management plan application.* Alberta Energy Regulator.

Table 1: Oil sands projects and reference years used to digitize the tailings extent for each of the projected time series maps.

	Map Time Series Period (Year)								
Project Name	**2030**	**2035**	**2040**	**2045**	**2050**	**2055**	**2060**	**2065**	**2070**
Suncor Fort Hills	2030	2035	2040	2045	2050	2055	2060	2063	2063
Syncrude Mildred Lake East Extension	2030	2035	2036	2036	2046	2046	2056	2056	2066
Syncrude Mildred Lake West Extension	2030	2035	2036	2036	2046	2046	2056	2056	2066
Syncrude Mildred Lake	2024	2032	2038	2038	2046	2046	2046	2046	2046
Suncor Millennium	2030	2033	2038	2043	2043	2046	2043	2043	2043
CNRL Horizon	2030	2035	2040	2045	2050	2043	2060	2065	2065
Imperial Oil Kearl	2030	2035	2040	2045	2050	2055	2055	2063	2063
Syncrude Aurora North	2024	2032	2040	2045	2050	2050	2050	2050	2050
Shell Muskeg River	2030	2030	2040	2040	2050	2050	2058	2058	2058

Appendix 2: Additional data tables

Table 2: Depth of fluid tailings calculated for the year 2020 using data from the Alberta Energy Regulator's *State of Fluid Tailings Management for Mineable Oil Sands* Report.

Company	Project	Pond Name	Fluid Tailings Volume (Mm^3)	Area (m^2)	Depth (m)
Canadian Natural Resources Limited	Horizon Mine	Pond 1	0	13,334,142	0
		Recycle Water Pond	0	214,094	0
	Jackpine Mine	DDA	11	1,232,525	8.9
		IPD2	0	848,577	0
		SC1	10.3	1,379,825	7.5
		SC2	4.6	1,484,186	3.1
		Seepage Pond	0	90,641	0
	Muskeg River Mine	Cell 2 Pond	30	2,168,266	13.8
		Cell 3 Pond	29.9	1,634,910	18.3
		ETF	43.1	3,386,589	12.7
		Inpit Cell 1	30.3	1,909,596	15.9
		SEA	0	35,549	0
		Seepage Pond	0	77,737	0
Imperial Oil Resources	Kearl Mine	East External Tailings Pond	3	1,484,397	2
		West External Tailings Pond	62.1	3,980,385	15.6
Suncor Energy Inc.	Oil Sands Base Mine	Dyke 11 Seepage Collection	0	353,751	0
		Pond 1A	10.4	515,712	20.2
		Pond 2/3	37.3	1,833,619	20.3
		Pond 4G	0	80,747	0
		Pond 4G2	0	138,624	0
		Pond 6	37	2,660,973	13.9
		Pond 7	77.4	4,747,909	16.3
		Pond 8A	0	35,763	0
		Pond 8B	12.5	4,160,641	3
		Sand Dump 8 - TFT Pond	0.8	405,707	2
		South Tailings Pond	95.9	8,371,379	11.5
		System 3 (Pond 8A)	0	30,846	0
		System 5	0	77,876	0
		System 6 (Pond 8A)	0	38,812	0
		System 7	0	130,239	0

Company	Project	Pond Name	Fluid Tailings Volume (Mm^3)	Area (m^2)	Depth (m)
Suncor Energy Operating Inc.	Fort Hills Oil Sands Project	OPTA	30	3,886,545	7.7
Syncrude	Aurora North	Aurora East Pit North - East	34	2,574,118	13.2
		Aurora East Pit South	23.8	5,471,357	4.3
		Aurora Settling Basin	86	4,683,668	18.4
	Mildred Lake	Base Mine Lake	171.5	7,397,410	23.2
		Mildred Lake Settling Basin	133.7	4,965,966	26.9
		North Mine South Pond	51.5	7,743,234	6.7
		South West Sand Storage	137.7	16,868,586	8.2

Table 3: Environmental Protection and Enhancement Act approval deadlines according to the tailings mangement plans from different mining companies. Downloadable from https://avw.alberta.ca/

Approval Holder	Effective Dates	Description	Estimated Mine Closure / End of Mine Life Date
Syncrude Canada Limited Approval #: 00000026-03-00 Application #: 040-00000026	2020-06-18 until 2030-05-31	Construction, operation and reclamation of the Mildred Lake Oil Sands Processing Plant and Mine, Aurora North Oil Sands Processing Plant and Mine, and Aurora South Oil Sands Processing Plant and Mine is subject to the attached terms and conditions.	Oil sands mining is complete at MLX-E and MLX-W by 2036 Mildred Lake Extension West revegetation complete by 2118, Mildred Lake Extension East revegetation complete by 2093
Imperial Oil Resources Limited Approval #: 46586-01-00 Application #: 008-46586	2018-10-15 until 2028-10-14	Construction, operation and reclamation of the Imperial Oil Resources Kearl Oil Sands Processing Plant and Mine (Lease 6, 31A, 36, 87, 88A and 88B) is subject to the attached terms and conditions.	2056
Canadian Natural Upgrading Limited Approval #: 20809-02-00 Application #: 014-20809	2017-05-30 until 2027-05-29	Construction, operation and reclamation of the the Muskeg River (Lease 13, 30, and 90) Oil Sands Processing Plant and Mine is subject to the attached terms and conditions.	2058

Approval Holder	Effective Dates	Description	Estimated Mine Closure / End of Mine Life Date
Canadian Natural Upgrading Limited Approval #: 00153125-02-00 Application #: 023-00153125	2025-03-10 until 2035-03-09	Construction, operation and reclamation of the Canadian Natural Upgrading Limited Jackpine Oil Sands Processing Plant and Mine is subject to the attached terms and conditions.	2105
Suncore Energy Inc. Approval #: 94-03-00 Application #: 077-94	2019-06-12 until 2029-05-31	Construction, operation and reclamation of the Suncor Energy Inc Oil Sands Processing Plant and Mine is subject to the attached terms and conditions.	2033 (Millennium Mine)
Fort Hills Energy Corporation Approval #: 00151469-02-00 Application #: 024-00151469	2025-09-12 until 2035-11-15	Construction, operation and reclamation of the Fort Hills Oil Sands Processing Plant and Mine is subject to the attached terms and conditions.	2063
Canadian Natural Resources Limited Approval #: 149968-01-00 Application #: 008-149968	2015-08-05 until 2026-07-31	Construction, operation and reclamation of the Horizon Oil Sands Processing Plant and Mine is subject to the attached terms and conditions.	2065