



Via Email

Mr. Mason Mantla
Chair
Wek'èezhì Land and Water Board
1-4905 48 STREET
YELLOWKNIFE NT X1A 3S3

May 30, 2025

Dear Mr. Mantla:

Submission of the Water Licence (W2020L8-0001) Annual Report 2024 for the Tłıchų Highway (Tłıchų All-Season Road)

The Government of the Northwest Territories' Department of Infrastructure (GNWT-INF) is pleased to submit the attached Tłıchų Highway Type A Water Licence (WL) Annual Report 2024 for WL W2020L8-0001, which was issued by the Wek'èezhì Land and Water Board on November 19, 2020. The WL Annual Report 2024 has been prepared in compliance with Part B, Condition 14 and Schedule 1, Part B, Conditions 1, 2 and 3 of the WL. This report includes information on Operations and Maintenance-related activities from January 1 to December 31, 2024. The GNWT-INF, NorthStar Infrastructure, and GNWT Environment and Climate Change contributed to the report.

In accordance with Part B, Condition 23 and Schedule 1, Part B, Condition 1, Item P of the Water Licence W2020L8-0001, where necessary, summaries of activities used as sources of information for Traditional Knowledge have been included in the Annual Report.

Should you have any questions or concerns please contact me at (867) 767-9086 ext. 31117 or by email at Ziaur_Rahman@gov.nt.ca or Benjamin Bey at (867)767-9083 ext. 31058 or by email at Benjamin_Bey@gov.nt.ca at your earliest convenience.

Sincerely,

Ziaur Rahman
Manager, Surface Design and
Construction
Department of Infrastructure

Attachment

- c. Ms. Bertha Rabesca-Zoe, Tłıchų Executive Officer
Tłıchų Government

Document Name: 2024 Water Licence W2020L8-0001 Annual Report	0	
Reporting Period: January 1 st to December 31 st ,2024	Rev.	Total Pages

Dave Green – Sr. Project Environmental Manager

Signature :  Date : 2025-05-31

Table 1-1: Document Revision History

REVISION	REASON FOR ISSUE	REVISION DATE	DESCRIPTION OF REVISION
0	IFR	2024-05-31	Issued for review

Table 1-2: Document Approval

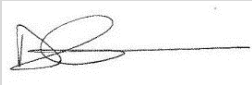
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Project Manager Approval Approved by:	Devon Stephenson		2024-05-16

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GLOSSARY AND ACRONYMS

ASR	All Season Road
CDC	Career Development Coordinator
CCL	Community Coordinator Lead
CWG	Community Working Group
DFO	Department of Fisheries and Ocean Canada
EMPs	Environmental Management Plans
GNWT	Government of Northwest Territories
GNWT -ECC	Government of Northwest Territories – Department of Environment and Climate Change
GNWT-INF	Government of Northwest Territories – Department of Infrastructure
NSMA	North Slave Metis Alliance
RoW	Right-of-way
SAR	Species at Risk
SCP	Spill Contingency Plan
TASR	Tłı̨chǫ All Season Road
TG	Tłı̨chǫ Government
TH	Tłı̨chǫ Highway
WLWB	Wek'èezhìi Land and Water Board
WMP	Water Monitoring Plan
WMMP	Wildlife Management and Monitoring Plan
WRRB	Wek'èezhìi Renewable Resource Board
YKDFN	Yellowknives Dene First Nation

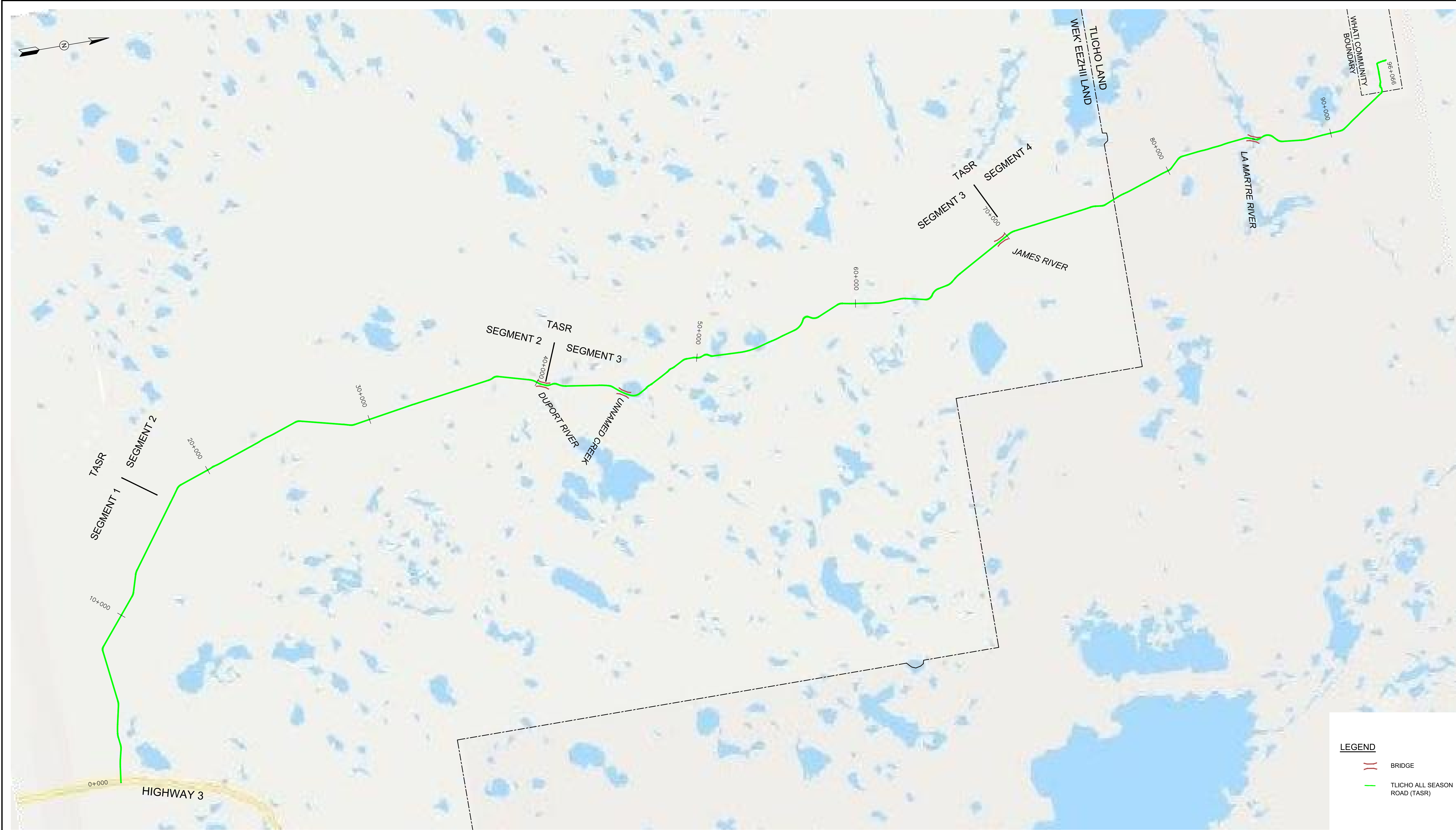
1. INTRODUCTION

Peter Kiewit Sons (ULC) was retained by the Government of the Northwest Territories (GNWT) to construct the Tłıchq All Season Road (TASR), also known as the Tłıchq Highway (Highway #9), which is a 97km long, two-lane gravel road connecting KM 196 along Highway 3 near Behchokǝ to the community government boundary of Whatı in the Northwest Territories (see Figure 1-1). Additionally, North Star Infrastructure has been awarded the Operations and Maintenance contract for a 25-year period which began after the opening of the road in November of 2021.

To satisfy reporting requirements outlined in Water License W2020L8-0001 issued October 5, 2020 and amended in June 2024 (replacing W2016L8-0001), Schedule 1, Part B, Condition 14 an annual report will include, but not be limited to:

- (i) Measuring and Reporting on Water and Waste
- (ii) Management Plan Activities
- (iii) Spills and Unauthorized Discharges
- (iv) Other Reporting Requirements
- (v) Wildlife Management and Monitoring

This report has been structured to clearly summarize the above noted environmental requirements/conditions as well as elements of the applicable Component Environmental Management Plans that were conducted and observed during the Operations and Maintenance period between January 1, 2024 and December 31, 2024.



REV.	DATE	DESCRIPTION / REVISION	AUTH. BY
0	2018.06.25	DRAFT	SJT



Northwest Territories Transportation



NORTH STAR INFRASTRUCTURE

Tliche All Season Road (TASR)			
KEY PLAN			
DATE	SCALE (HALF SIZE)	DRAWING No.	SHEET
2019.07.08	N/A	H355788-20-260-SEG0-0101	1 OF 1

2. MEASURES AND REPORTING ON WATER AND WASTE

2.1. CALIBRATION AND STATUS OF METERS

Schedule 1- Part B, Condition 1(a): No meters were used during 2024 that required calibration or maintenance. As was the case during the construction of the Tłıchq Highway, no flow meters or gauges were utilized to track water quantities in 2024. Rather, truck load counts were used to document consumptive water use. These water withdrawal load count records were provided to the Environmental Manager at the end of each day where they were entered into an Excel spreadsheet for tracking and compliance purposes.

2.2. MONTHLY AND ANNUAL WATER QUANTITIES

Schedule 1 - Part C, Condition 1(b): The following tables provides details of the water volumes (m³) that were withdrawn from all approved water sources in 2024.

As outlined in the Type A Water License W2020L8-0001, the WLWB set various requirements for GNWT-INF to comply with to withdraw water and minimize the impact to the environment. The following Conditions were adhered to when withdrawing water for use during project construction:

- The licensee may withdraw up to 299 m³/day of Water from the sources outlined on Part C, Condition 6, with the exception of the Water use outlined in Part C, Condition 2
- The Licensee may withdraw up to 900 m³/day of Water for the purpose of calcium chloride application for dust suppression, up to a maximum of 14 consecutive days per year. Water for this purpose may be withdrawn from the following sources: the James River, Whatidee (LaMartre River), Duport River and Peanut Lake.
- During the application of calcium chloride for dust suppression, as outlined in Part C, Condition 3, no more than a total of 4000 m³ of Water may be withdrawn from Whatidee in a given year.
- In any single year, the Licensee shall not withdraw greater than 10% of the available Water volume of any Water Source.
- In any single ice-covered season, the Licensee shall not withdraw greater than 10% of the available Water volume of any Water Source, as calculated using the appropriate maximum expected ice thickness.
- The Licensee shall not withdraw greater than 10% of instantaneous flow.
- Prior to locating a water intake in a fish-bearing watercourse, the Licensee shall obtain written authorization for the location from an Inspector.
- The licensee shall maintain the Water intake(s) with an approved screen to prevent impingement or entrainment of fish.

The monthly and annual quantities of water withdrawn from approved water sources is provided in Table 2-1. The consumptive use of water was only for the purposes of dust suppression including the annual application of calcium chloride. Water volumes extracted from approved sources were tracked and reported (see Appendix A). A breakdown of May and June daily water withdrawal volumes is detailed below in Figure 2-1 to demonstrate that no exceedance of the allowable limit (900 m³/per day) and a total of 4000 m³/year occurred during the 2024 reporting period. It should be noted that NSI did withdraw from all water sources during basic dust suppression. The operational approach to calcium chloride application led to water withdrawals from the LaMartre and James Rivers.

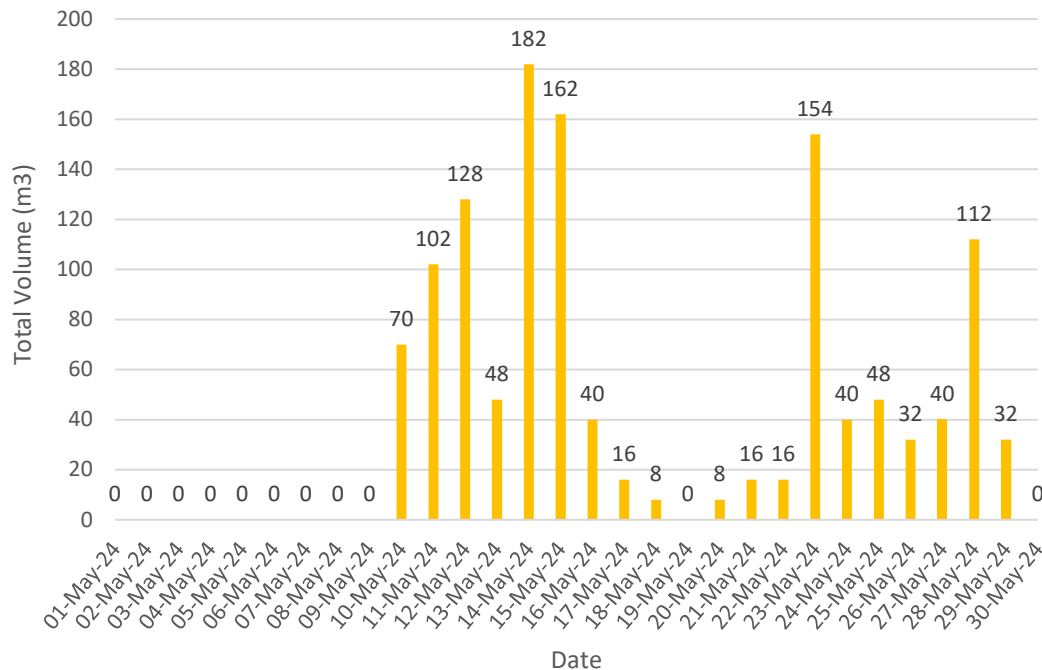
During the 2024 reporting period, standing ditch water was infrequently used for dust suppression whenever possible to adhere to the Land Use Permit (W2016E0004) condition 26(1)(f) to control or prevent ponding of water, flooding, erosion, slides and subsidence of land while simultaneously reducing the volume of water

required from natural sources. All extraction locations within the ditch lines were inspected and approved by the Environmental Department to ensure that there were no impacts to adjacent watercourses, lakes or ponds.

Table 2-1: Monthly and Annual Water Quantities extracted from approved water sources

WATER QUANTITIES EXTRACTED FROM APPROVED WATER SOURCES IN METERS CUBED FOR CONSUMPTIVE PURPOSES													
Source	January	February	March	April	May	June	July	August	September	October	November	December	Annual Total Volume (m ³)
LaMartre River	-	-	-	-	798	416	-	-	-	-	-	-	1,214
Duport River	-	-	-	-	328	120	-	-	-	-	-	-	448
James River	-	-	-	-	128	-	-	-	-	-	-	-	128

May 2024 Combined Daily Water Withdrawal



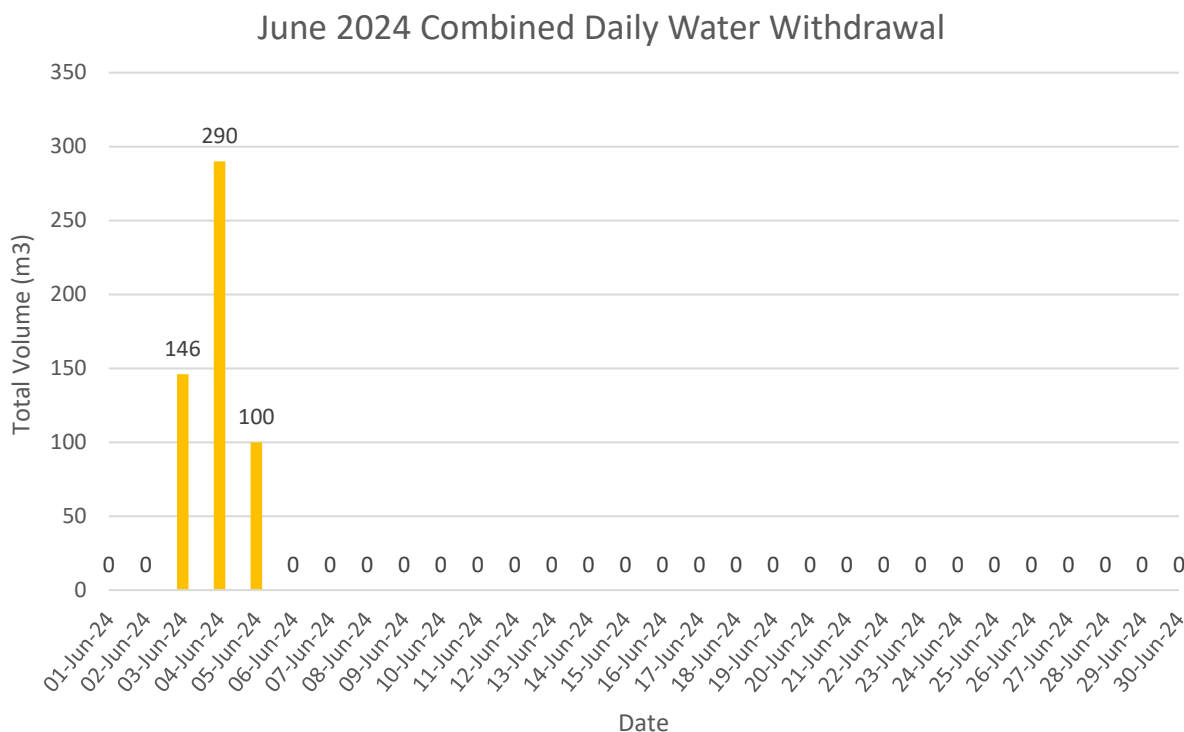


Figure 2-1: May and June 2024 Duport, James, and LaMartre Rivers Combined Water Withdrawal Volumes

3. WASTE STREAM MANAGEMENT AND QUANTITIES

The Waste Management Plan (Revision 1.3) developed for the TASR project was drafted to guide site personnel on the waste management goals, objectives and procedures to follow during construction and ultimately operation of the road. Adherence to the plan ensures the protection of the environment as well as aesthetic and land use values, ultimately meeting the regulatory requirements for the project. During the Operations and Maintenance phase, the plan requires the segregation of various waste streams and provides direction on how each of the streams should be managed and ultimately disposed of. As part of the Water License reporting requirements these waste streams are to be segregated and reported. The following sections detail the segregated waste streams (by type) generated during the reporting period.

3.1. TOTAL SOLID WASTE

Schedule 1 - Part B, Condition 1(c): Figure 3-1 shows the overall solid waste generated for the year 2024 during the Tłıchq Highway Operations and Maintenance program. The graph below illustrates the waste generated from all waste streams which are not associated with hazardous waste or sewage. These waste streams currently being landfilled have been characterized as solid mixed waste (including domestic) and construction and demolition waste. A total of 8.13 MT of all solid waste was generated or collected during the 2024 reporting period. Quantities for each of the waste stream applicable to Operations and Maintenance that is classified as solid waste are discussed in more detail below:

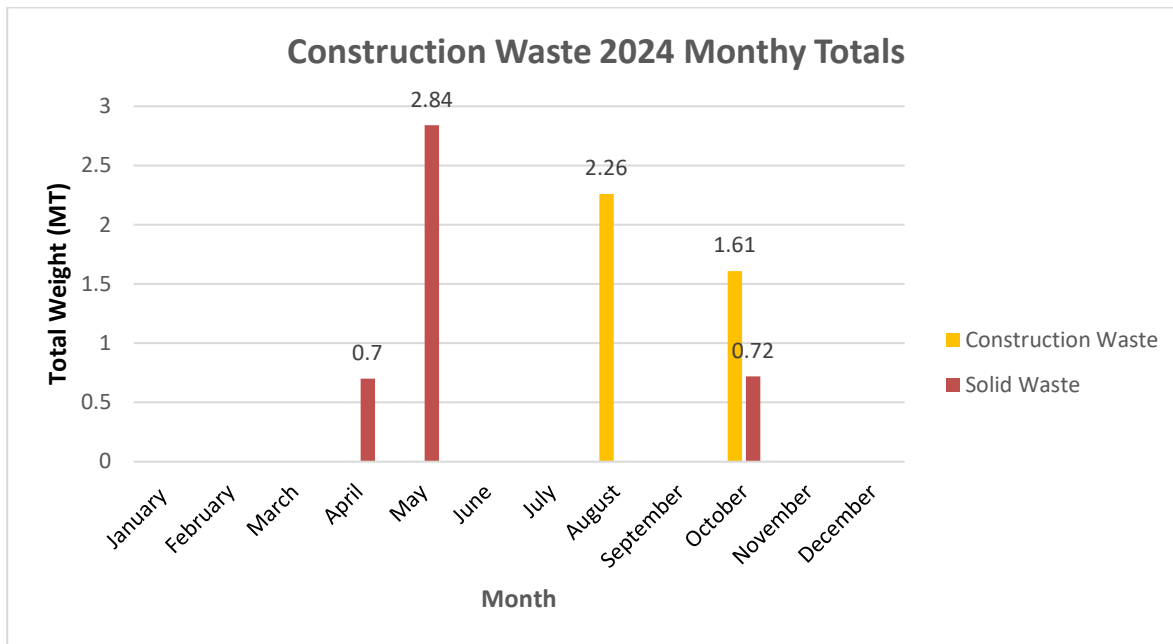


Figure 3-1: 2024 Monthly Construction Waste Quantities

3.2. SOLID MIXED WASTE

Schedule 1 - Part B, Condition 1(c): Figure 3-1 illustrates the overall construction waste generated during the reporting period. Mixed solid (including domestic) waste generated during the Operation and Maintenance of the Tłıchq Highway during the 2024 reporting period totalled 4.26 MT. The primary source of domestic and mixed waste was from the office facilities and from the garbage collected from the roadside pull outs.

3.3. CONSTRUCTION WASTE

Schedule 1 - Part B, Condition 1(c): Please refer to Figure 3-1 which illustrates the overall construction waste generated during the operation and maintenance of the Tłıchq Highway during the 2024 reporting period. A total of 3.87 MT of construction waste was generated or collected during the 2024 reporting period.

3.4. WOOD WASTE

Schedule 1 - Part B, Condition 1(c): No wood waste was generated during the Operations and Maintenance of the Tłıchq Highway during 2024.

3.5. RECYCLING

Schedule 1 - Part B, Condition 1(c): There was no hauling of recycled material from the Tłıchq Highway during 2024. The extremely small quantities of recyclable materials (plastics, cans, paper) were managed internally with this material being taken to Yellowknife as required.

3.6. HAZARDOUS WASTE

Schedule 1 - Part B, Condition 1(c): Figure 3-2 illustrates a total of 53,843kg hazardous waste was generated during the 2024 Operations and Maintenance program as a result of the clean-up of the 2023 diesel fuel tank leak, as reported in the 2023. All hazardous waste generated during the 2024 reporting period was collected by KBL Environmental Ltd, a registered hazardous waste carrier. The waste was transported and disposed at their approved facility for treatment/disposal.



Figure 3-2: 2024 Hazardous Waste Quantities

3.7. SEWAGE

Schedule 1 - Part B, Condition 1(c): Figure 3-3 shows the approximate volumes of sewage generated during the 2024 reporting period. Wastewater was collected by Kavanaugh Brothers and hauled to the sewage treatment facility in Yellowknife.

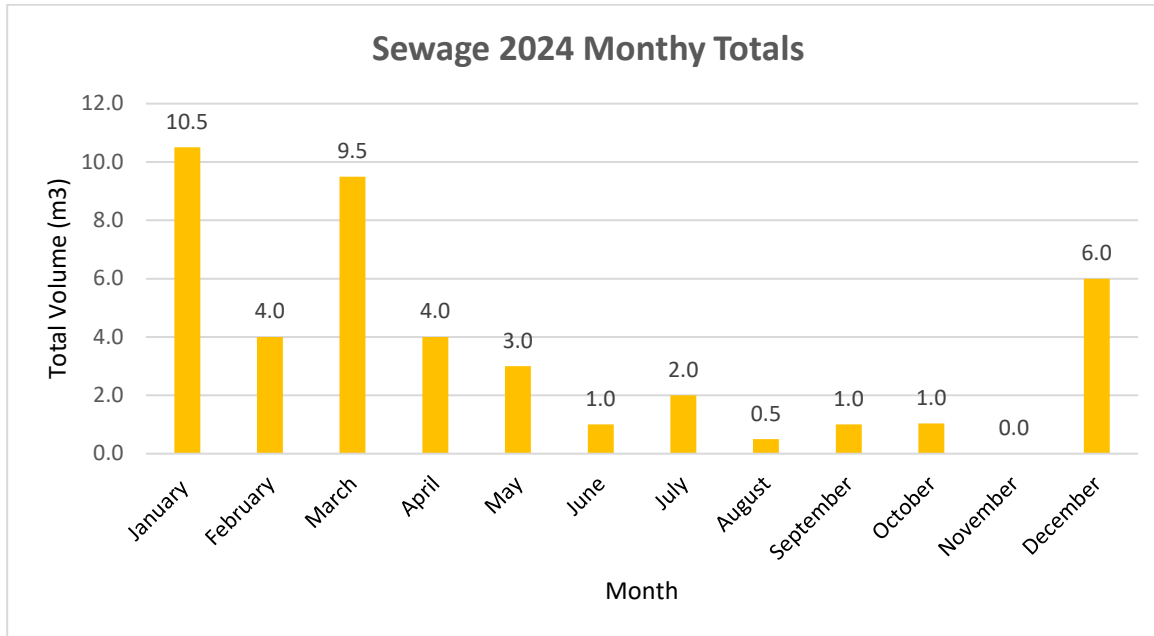


Figure 3-3: 2024 Sewage Monthly Quantities

3.8. WASTE MANAGEMENT METHODS

Schedule 1 - Part B, Condition 1(d), various waste streams are generated during the Maintenance and Operation of the Tłıchq Highway. It is essential that the waste is handled, stored and managed in a safe and environmentally responsible manner. The waste management program implemented during Operations and Maintenance of the Tłıchq Highway follows the principles of reducing the use of materials, reusing materials (whenever possible), recycling materials and recovering value from used materials. The management methods for each of the different waste streams that are generated on site are discussed in more detail below:

3.8.1. SOLID WASTE

The solid waste streams that are generated on site consist of:

- domestic waste,
- wood,
- metal,
- recyclables and
- construction waste

All the solid waste streams were stored in a designated location at Kilometer 19+800 (Maintenance Laydown) as outlined in Section 26 (1) Condition 57 of the Land Use Permit. Each waste stream is segregated and stored in 25 yd or 30 yd roll-off bins that are clearly labeled. The waste types are removed from site by Kavanaugh Brothers and offloaded at the City of Yellowknife Landfill or the recycle depot.

3.8.2. HAZARDOUS WASTE

Potentially hazardous waste generated at the site during Operations and Maintenance comes from various waste streams that under various categories including:

- Contaminated soils
- Waste oils
- Used oil filters
- Oily absorbent rags
- Contaminated plastic containers
- Antifreeze
- Solvents
- Batteries

These various hazardous waste streams are actively segregated and stored within the maintenance laydown area. All hazardous waste containers are covered from the elements and each container is clearly marked noting content and date of generation. The containers are inspected regularly to ensure waste is properly segregated and no leaks are detected in the containments. Secondary containment for storage containers is either integrated or supplemented externally and are also inspected and maintained to ensure effectiveness and maximum volume is available.

As noted in Section 3.0, the waste is removed from the laydown as requested by site and transported by KBL Environmental Ltd and Kavanaugh Brothers Ltd who are registered hazardous waste carriers. The waste is transported and disposed at their approved facility for treatment/disposal.

3.8.3. SEWAGE

The storage of sewage at the TASR project is primarily at the Maintenance Laydown (wash car) or in porta-potties stationed throughout the sites if and when they are required. Sewage waste is removed by Kavanaugh Brothers on an as-needed basis. Sewage was hauled to the City of Yellowknife sewage treatment facility for treatment/disposal. As per **Schedule 1 - Part B, Condition 1(e)** the sewage generated on the TASR project are not sent to the local communities of Whatì and Behchokò for disposal. Kiewit continued to use its established vendor to collect and dispose of the sewage generated from the project to the City of Yellowknife.

3.8.4. SOLID WASTE ACCEPTED BY LOCAL COMMUNITIES

Schedule 1 - Part B, Condition 1(e): The solid waste streams generated from the Tłıchq Highway Operations and Maintenance are not sent to the local communities of Whatì and Behchokò for disposal. Kiewit continued to use its established vendors to collect and dispose of the waste generated from the project to the City of Yellowknife.

3.9. WATER QUALITY AND ARD/ML TESTING

Schedule 1 - Part B, Condition 1(g): There are no water quality or acid rock drainage/metal leaching results arising from the operation and maintenance of the Tłıchq Highway.

3.10. SURVEILLANCE NETWORK PROGRAM

Schedule 1 - Part B, Condition 1(h): There has been no data or information collected during the operation and maintenance of the Tłıchq Highway during the reporting period.

4. MANAGEMENT PLAN AND ACTIVITIES

4.1. ENGAGEMENT

4.1.1. SUMMARY OF ENGAGEMENT ACTIVITIES

Schedule 1 - Part B, Condition 1(i): Throughout the reporting period, INF and NSI have conducted engagement on a variety of subjects with affected parties in accordance with the approved Engagement Plan. Engagement efforts have been centered around informing potentially affected parties of Water License cancellations and amendments. Additionally, NSI attends and contributes to the review and approval of management plans, collaboration on various plans as required by the Report of Environmental Assessment Measures, and the annual Tłıchq Highway Corridor Working Group meetings. Engagement methods have included written notification, telephone calls, face-to-face meetings, and workshops. Full details of the engagement undertaken can be found in Engagement Records found on the Wek'èezhìıı Land and Water Boards [website](#).

Face-to-face or virtual meetings and workshops that have taken place include:

- The Tłıchq Highway Corridor Working Group Meeting was on January 29, 2024, in the Behchokq. Representatives from organizations, departments and groups that attended the meeting included the YKDFN, NSMA, CGW, CGB, TG, WLWB, WRRB, GNWT-ECC, GNWT-FIN, ECE, DFO ECCC, and the GNWT-INF.
- Due to the 2023 evacuation order and its associated implications, the only meeting convened was on January 29, 2024 for the reporting period.
- NSI and GNWT-INF submitted a request and extended the Land Use Permit (LUP) W2016E0004 for two years. Affected parties were engaged through written notification between November 21 and December 11, 2023, with a follow-up on December 18-19, 2023. An engagement log was submitted with the LUP extension.
- Due to scheduling difficulties by the communities, the CWG meeting did not take place during the reporting period. The next meeting is scheduled for June 17, 2025 in Whati.
- NSI and GNWT submitted Engagement Plan Version 2.0 to the WLWB for approval. An engagement log was submitted with the revised Engagement Plan.
-

4.2. DETAILS OF WORK COMPLETED

Schedule 1 - Part B, Condition 1(j-k): The operations and maintenance of the Tłıchq Highway involves (as seasonally required):

- snow removal
- scarification of the road surface
- broadcasting winter grit
- cleaning and repairing/replacing signage and delineators
- collection of garbage from the roadside pullouts along with the right-of-way (RoW)
- managing debris arising from the collection of firewood and natural tree fall
- road grading and shoulder repairs
- loose material removal from bridge decks
- dust suppression activities including annual, calcium chloride application
- Duport crossing approach slab reset
- erosion and sediment control enhancements at Duport River crossing

4.3. MODIFICATIONS OR MAJOR MAINTENANCE WORK

Schedule 1 - Part B, Condition 1(l): The only major maintenance work that was completed during the reporting period was completed at the Duport River (Stations ~ 39+200 to 40+700). During the spring of 2023, evidence of erosion and sedimentation along with sediment controls reaching capacity at the river valley, necessitated enhanced erosion control measures and the creation/maintenance of sediment controls. A robust erosion and

sediment control plan for the Duport River was presented to GNWT-DOL for review and upon acceptance of the plan proceeded to implement the changes. Unfortunately, the full erosion and sediment control enhancements were not fully completed prior to the onset of winter. However, critical enhancements were made and diligent monitoring during the melt period in the spring of 2024. Further details on this work can be found in Section 4.5 below.

4.4. CLOSURE AND RECLAMATION SUMMARY OF ACTIVITIES

Schedule 1 - Part B, Condition 1(m): All closure and reclamation activities were completed prior to the Tłıchq Highway opening in November of 2021. No activities occurred in 2024.

4.5. EROSION AND SEDIMENT PLAN ACTIVITY SUMMARY

Schedule 1 - Part B, Condition 1(n)(i): No updates or changes to the process or facilities required for the management of erosion and sedimentation occurred in 2023.

Schedule 1 - Part B, Condition 1(n)(ii): The movement of sediment in the east and west ditch line towards Duport River from the south approach was observed in 2024. In response, NSI advanced the second phase of ESC Enhancement Works at Duport River which has been described in greater detail below. It is important to note that the Tłıchq Highway culverts and structure crossings/approaches at James River and LaMartre River, along with road shoulders and slopes in the Highway RoW were all stable throughout 2024.

Schedule 1 - Part B, Condition 1(n)(iii): The erosion protection and some sediment control measures that were implemented on the south approach to Duport River (east and west sides) during the late fall of 2023 were expanded southward in the spring and completed by summer of 2024. The additional ESC measures were inspected and accepted by GNWT-DOL Inspector in August of 2024. All crossings continue to be diligently monitored for stability and sedimentation risk. .



Figure 4-1: Looking south at slope treatment completed in July 2024 at ~Station 40+066



Figure 4-2: Looking east at the erosion control matting installation on the east side south approach at ~Sta40+078.



Figure 4-3: Drone image looking north at the progression of erosion control matting installation on the, south approach to Duport River.

Schedule 1 - Part B, Condition 1(n)(iv): As noted above, no assessment of performance of mitigation measures can be offered in 2024 as no work occurred.

Schedule 1 - Part B, Condition 1(n)(v): As noted above, no monitoring results were collected and therefore a summary/interpretation of results and Action Level exceedances cannot be provided in 2024.

Schedule 1 - Part B, Condition 1(n)(vi): As noted above, there were no Action Level exceedances and therefore no description can be offered for 2024.

5. WILDLIFE MANAGEMENT AND MONITORING PLAN

Schedule 1 - Part B, Condition 1(o): The following section reports on the GNWT's activities undertaken with respect to Measures 6-1, 6-2, 6-3, 7-1 and 7-2 of the Report of Environmental Assessment (REA).

5.1. MEASURES 6-1, PART 1: DEVELOP AND IMPLEMENT RANGE PLANS

Schedule 1 - Part B, Condition 1(o)(i-ii):

Please refer to section 5.6

5.2. TRADITIONAL KNOWLEDGE

Schedule 1 - Part B, Condition 1(o)(iii): Please refer to section 5.9. Additionally, and as part of the CWG meetings, TK is always sought. However, no TK was provided during the reporting period at those forums. However, during the CWG meetings in 2022, it was agreed that monitoring of Bison movement along the alignment should continue, and if the need arises, GNWT-INF/ECC will seek TK during formal engagement with the communities to manage Bison movement into the Whatı Community.

5.3. TŁİCHQ HARVESTERS AND METHODS TO MONITOR THE STATE OF BARREN-GROUND CARIBOU WINTER HABITAT

Please refer to Section 5.9 reporting on Measure 7-1.

5.4. TŁİCHQ GOVERNMENT MONITORING PROGRAM

Please refer to Section 5.9 reporting on Measure 7-1.

5.5. RECREATIONAL, TRADITIONAL, OR NON-TRADITIONAL ACTIVITIES

Timber harvesting:

In early 2022, timber cutting permits for personal use became available on the Tłıchq Highway. No commercial harvesting is allowed off the Tłıchq Highway. From KM 0-5, any timber cutting permit holder is permitted to harvest timber. No timber harvesting is permitted from KM 5-8. From KM 8-12, a limited number (40 at any one time) of permits are available to non-aboriginal harvesters with a 2-month expiry date from issue date, and a 5-cord limit. KM 8-75 are open to all indigenous people with a permit for timber harvesting. All areas past KM 75 require Tłıchq Lands Authorization for timber harvesting. Timber cutting permit guidelines did not change in 2023. The GNWT passed a new Forest Act in October 2023, but regulations still need to be built to bring the Act into force. No new regulations under the Forest Act came into force in 2024.

Schedule 1 - Part B, Condition 1(o)(iv): No training sessions related to quarry operations were conducted in 2022 as all the pits and quarries had been closed prior to the Tłıchq Highway opening in November of 2021.

Schedule 1 - Part B, Condition 1(o)(v): In the WMMP, traffic levels were estimated at 20 to 40 vehicles per day, including potential traffic from a proposed mine north of Whatì. Monitoring and measuring changes in distribution and abundance of moose, bison, and caribou for up to five years after completion of road construction was required, and possibly longer if traffic levels increase substantially beyond predicted levels. If traffic levels averaged over a three-year period indicate a 100% increase (40-80 vehicles per day) above the predicted annual average (20-40 vehicles per day), or maximum daily traffic levels during sensitive periods exceed 200 vehicles per day, the need for extending or reinstating programs in the WMMP beyond the first five years of the operational phase of the road will be considered (WMMP 5.2.1).

Traffic Monitoring Results:

Traffic counter data from the TASR alignment (now Tłıchq Highway) are downloaded in the spring after the ground thaws, and data is then compiled for the previous year.

The Department of Infrastructure has two traffic counters on the Tłıchq Highway at KM 18 and KM 60. Daily traffic totals at those locations in 2022 to 2024 are shown in Figure 5-1. From January 1 to December 31, 2022, traffic at KM 18 averaged 37 vehicles per day (range 4-131 vehicles). During the same period, the traffic at KM 60 averaged 22 vehicles per day (range 3-82 vehicles). These traffic counts are of vehicles travelling in both directions.

From January 1 to December 31, 2023, traffic at KM 18 averaged 38 vehicles per day (range 8-96 vehicles). During the same period, the traffic at KM 60 averaged 20 vehicles per day (range 2-76 vehicles). These traffic counts are of vehicles travelling in both directions.

From January 1 to December 31, 2024, traffic at KM 18 averaged 31 vehicles per day (range 0-114 vehicles). During the same period, the traffic at KM 60 averaged 23 vehicles per day (range 3-74 vehicles). These traffic counts are of vehicles travelling in both directions.

The three-year (2022-2024) average daily traffic level is 28.4 vehicles per day (both stations combined), which is within the predicted traffic levels for the road of 20-40 vehicles per day. Traffic levels have been higher on the southern portion of the road (KM 18: 3-yr mean = 35.2 vehicles per day) than the northern portion (KM 60: 3-y mean = 21.7 vehicles per day).

Higher daily traffic counts in late winter are associated with the open winter road to Gamètì and further on to Wekweètì, which continues northward from the Tłıchq Highway near Whatì. In 2022 the winter road to Gamètì opened February 16 and closed April 22, and the winter road to Wekweètì opened March 11 and closed April 22. In 2023, the winter road to Gamètì opened February 27 and closed April 14, and the winter road to Wekweètì opened March 20 and closed April 14. In 2024, the winter road to Gamètì opened February 22 and closed April 8, and the winter road to Wekweètì opened March 21 and closed April 8 (Figure 5-2). Figure 5-3 shows the variation in monthly traffic in each year at KM 18 and KM 60.

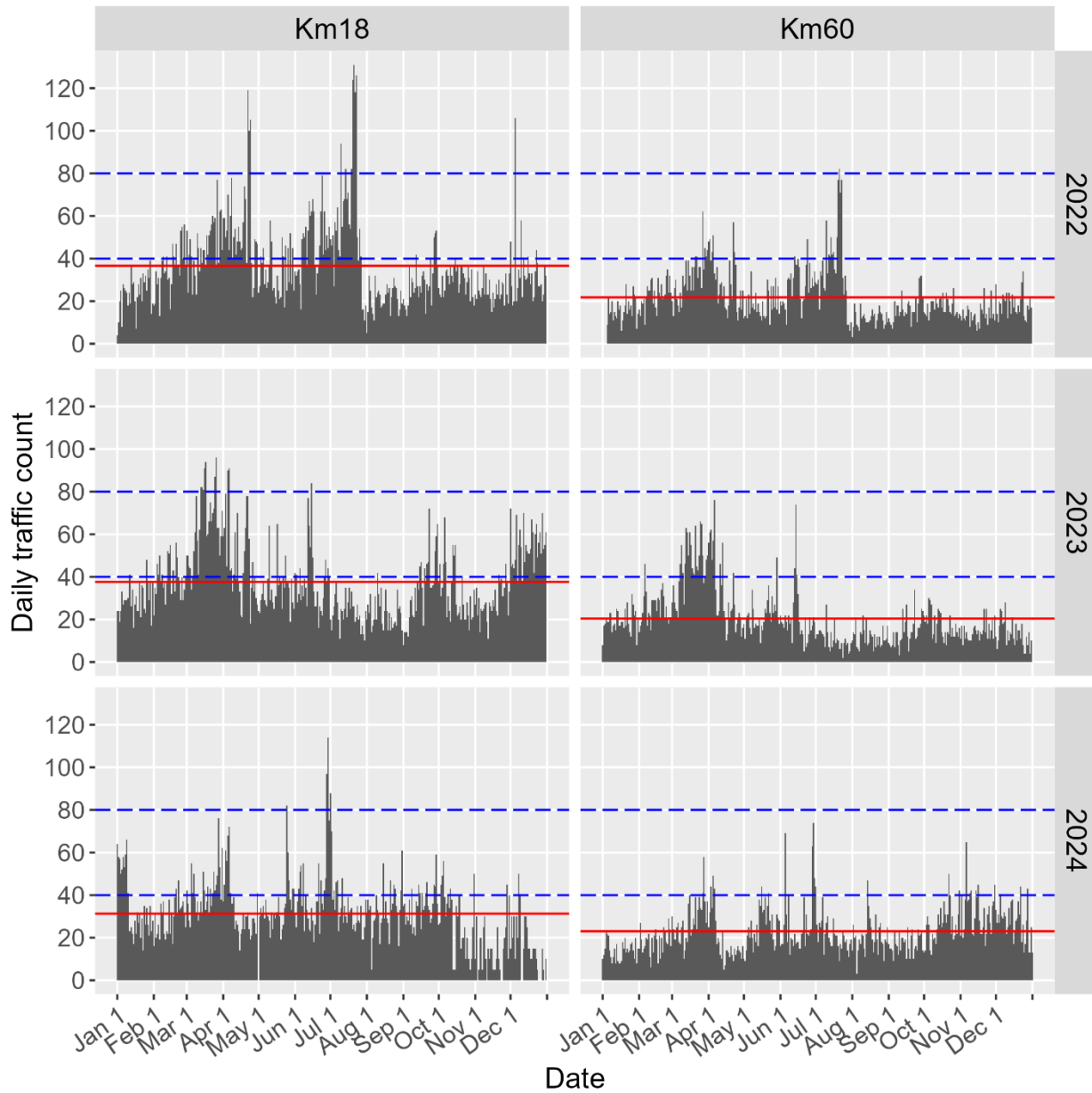


Figure 5-1. Daily traffic counts in 2022, 2023 and 2024, recorded at two Department of Infrastructure traffic counters on the Tłıchq Highway at KM 18 and KM 60. The red lines show the annual average daily traffic at each counter for each year. The blue lines indicate the threshold of an annual average of 40-80 vehicles per day that would trigger the need to continue or reinstate wildlife monitoring programs under the Wildlife Monitoring and Management Plan.

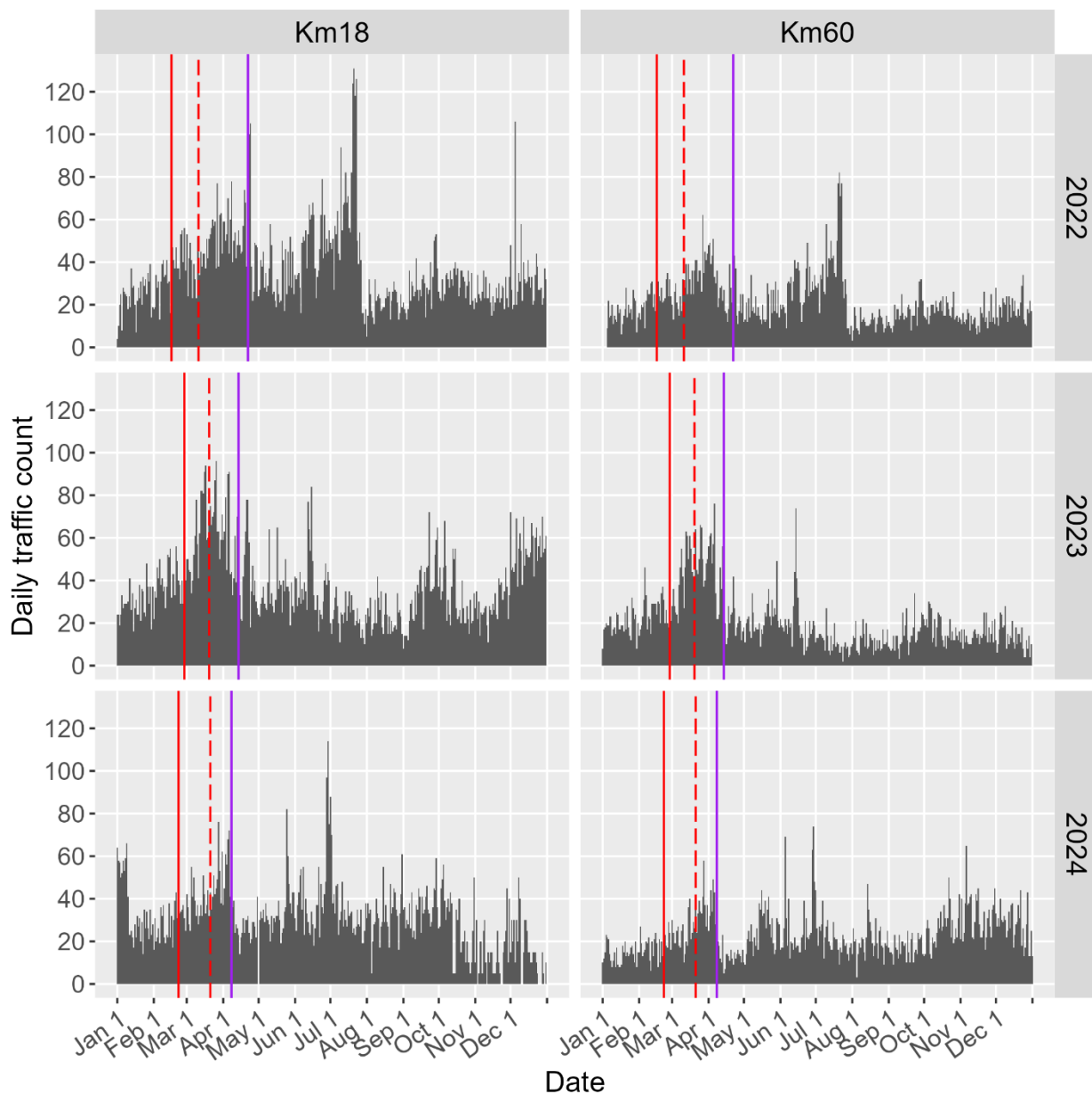


Figure 5-2. Daily traffic counts in 2022, 2023, and 2024, recorded at two Department of Infrastructure traffic counters on the Tłı̨chq̓ Highway at KM 18 and KM 60, and the time period the winter road continuing north from the Tłı̨chq̓ Highway was open for travel to Gamètì and Wekweètì. The solid red line indicates the Gamètì winter road open date, the dashed red line indicates the Wekweètì winter road open date, and the purple line indicates the close date of both winter roads each year.

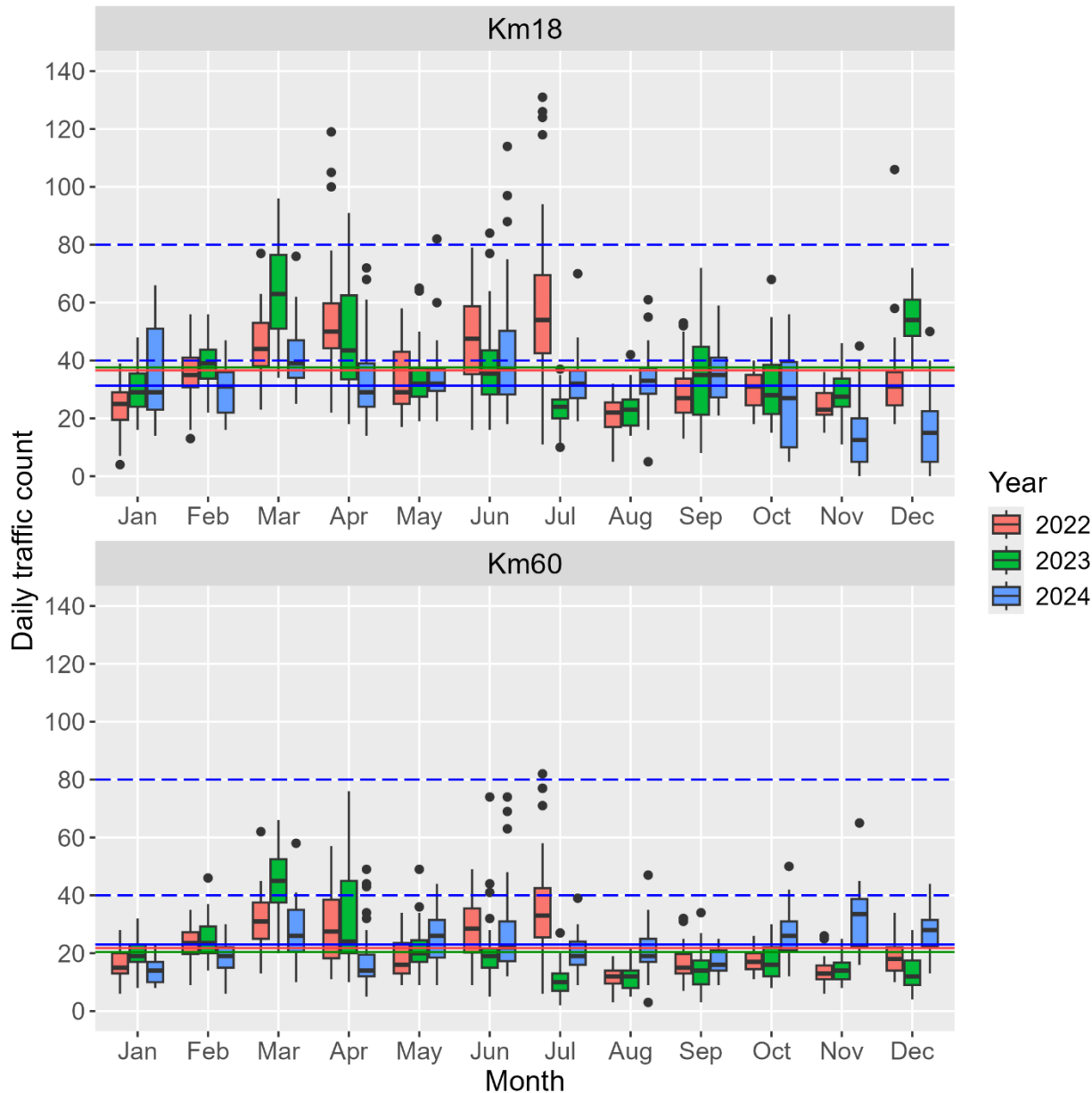


Figure 5-3. Box plots of daily traffic each month recorded at two Department of Infrastructure traffic counters on the Tłıchq Highway at KM 18 and KM 60. Each data point (coloured box) shows the monthly traffic at that location each year (2022, 2023 and 2024). The bottom and top of the box represents the 25th and 75th percentiles, the black line shows the median (middle) value, and the bars represent the 10th and 90th percentiles. Dotted blue lines indicate the threshold values (40-80 vehicles/day) indicating a 100% increase from predicted average daily traffic levels of 20-40 vehicles per day. Solid horizontal lines indicate the annual mean daily traffic at each location for each year (red for 2022; green for 2023, and blue for 2024).

Wek'èezhìi Boreal Caribou Range Plan:

Participants of the Wek'èezhìi range planning working group include the Wek'èezhìi Renewable Resources Board (WRRB), Tłıchǫ Government (TG), Yellowknives Dene First Nation (YKDFN), North Slave Métis Alliance (NSMA), Environment and Climate Change Canada (ECCC) and the GNWT departments of Environment and Climate Change, Industry, Tourism and Investment, Lands and Executive and Indigenous Affairs. A final draft of the interim Wek'èezhìi range plan was completed by the working group at the end of June 2021, and following a public review period, was approved by the WRRB on December 09, 2021. The final interim Wek'èezhìi range plan is available at:

<https://www.enr.gov.nt.ca/en/interim-wekeezhii-boreal-caribou-range-plan-plan-provisoire-pour-la-repartition-du-caribou>

The Wek'èezhìi working group (WG) continued to work in 2024 on completing the full Wek'èezhìi Boreal Caribou Range Plan (Wek'èezhìi range plan). On March 21, 2024, the WG met to review the management class map and revisit previous decisions regarding Basic, Enhanced and Intensive management classes. Along with a discussion about potential offsetting guidelines that GNWT was preparing, the WG discussed how the Southern NWT WG is treating protected areas as a fourth management class in their range plan. This same approach was proposed to the Wek'èezhìi WG. The WG members indicated they would discuss this first with their respective leadership and members/communities and report back at the next meeting. ECC committed to preparing a draft map including a protected area management class, for the WG to discuss at the next meeting.

The WG met again on June 27, 2024. ECC had produced a draft map that contained slightly altered percentages (by 2.9%) of the management classes from the interim range plan, which would allow for protected areas to be included in the map. The WG members said they would meet with their communities over the summer to discuss these new percentages and the potential for a protected areas management class. It was also decided that in the fall, the Tłıchǫ government would present their members' findings to ECC so that ECC could create a revised map that integrated the most recent TK from the communities.

The communities' feedback and traditional knowledge was presented again by Tłıchǫ Government at a WG meeting on December 18, 2024. This was the final WG meeting before the Wek'èezhìi range plan goes for public review. Integrating the TK gathered from Tłıchǫ communities, the Wek'èezhìi WG agreed to have a protected areas management class and added some very minor edits to the map. This became the final draft map for the full Wek'èezhìi range plan. It was sent to the WG for approval in early 2025 and public review of the range plan is expected to take place in summer 2025.

5.6. MEASURE 6-1, PART 2: INFORMATION AND ADAPTIVE MANAGEMENT REQUIREMENTS:

a) Monitoring to determine population trends, abundance, and distribution [of boreal caribou]

Boreal Caribou Population Trend

ECC initiated a boreal caribou monitoring program in the North Slave region focused on the TASR corridor in March 2017, with the deployment of 20 GPS collars on adult female caribou. Additional collars were deployed in subsequent years to replace collars scheduled to drop off, any mortalities, any premature collar releases, and to bring the target sample size up to 30 collars. Five additional collars were deployed in March 2018, seven were deployed in March 2019, there were no deployments in 2020, and 23 were deployed in March 2021. The 2021 deployment was larger than typical because the collars deployed in 2017 were scheduled to drop off in March 2021. Ten collars were deployed in February 2022, and seven collars were deployed in 2023, and 10 collars were deployed in 2024. No collars were scheduled to drop off in 2024. There were 39 active collars in the TASR

study area as of December 2024, with 17 collars scheduled to drop in April 2025. GNWT-ECC intends to maintain the number of collared females within the TASR (North Slave Tłıchǫ Highway) study area at 30 individuals annually for at least 5 years during the operational period of the road, to obtain more precise estimates of female survival. The current sample size is higher than 30 because 17 collars are scheduled to drop in April 2025, and it is better to replace those collars over multiple years rather than in a single year. Five new collars will be deployed in 2025.

Annual survival rates of collared female caribou, as well as spring classification surveys used to estimate calf: cow ratios conducted in February or March each year, are used to estimate annual rates of population trend (λ = adult female survival/[1-female calf recruitment]) following Latham et al.'s (2010) modification of Hatter and Bergerud's (1991) equation. The 2024 spring classification survey took place February 26-28, 2024. Table 5-1 below provides the annual adult female survival rate, calf: cow ratios and population trend index for the first 7 years of the monitoring program. To date ECC has observed high annual female survival rates, and an increasing population trend in all years, with the lowest population trend index in 2021-22.

Table 5-1: Adult female survival and calf: cow ratios are used together to estimate the annual population growth rate, or lambda (λ). A value of 1.0 indicates a stable population; a value less than 1 indicates a declining growth rate; values higher than 1 indicate an increasing growth rate.

YEAR (APRIL 01-MARCH 31)	ADULT FEMALE SURVIVAL	CALF:COW RATIO	POPULATION TREND (LAMBDA)
2017-18	0.95	32.6 : 100	1.10
2018-19	1.00	37.2 : 100	1.19
2019-20	0.97	26.2 : 100	1.09
2020-21	0.96	31.0 : 100	1.11
2021-22	0.89	27.3 : 100	1.01
2022-23	0.92	33.2 : 100	1.07
2023-24	0.92	33.9 : 100	1.07

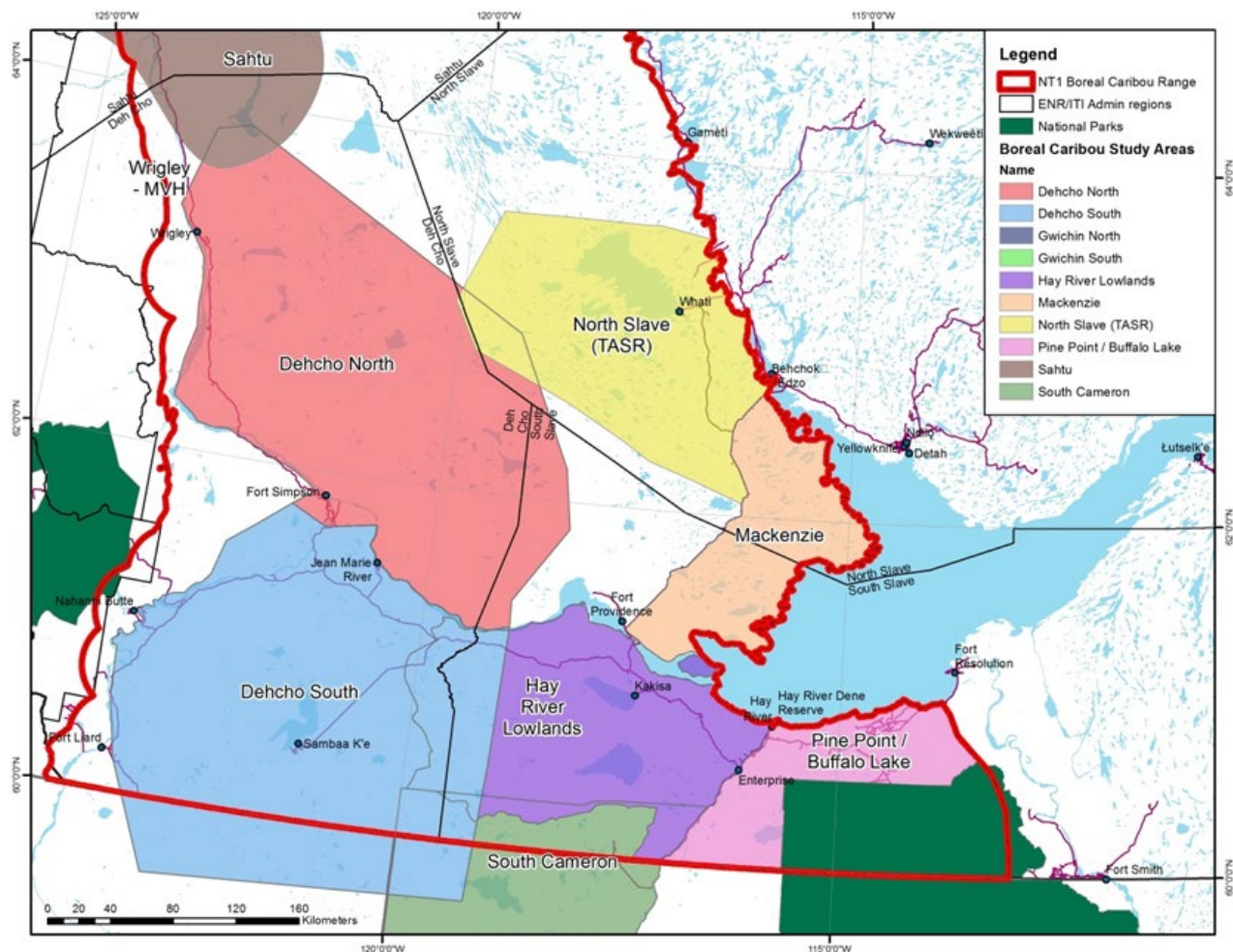


Figure 5-4: Boreal Caribou North Slave (TASR) Study Area, and other adjacent boreal caribou study areas in the southern NWT.

No boreal caribou abundance surveys took place in 2024.

b) Determination of population thresholds and triggers to inform adaptive management.

No updates

c) Harvest monitoring and reporting

The Tłı̨chǫ Government developed a proposal for a monitoring program to address Measures 7-1 and 9-1 of the Report of EA. In August 2020, GNWT-INF committed funds to support the Tłı̨chǫ Government to undertake this program. Measure 9-1 relates to the development of a non-mandatory harvest monitoring and reporting program. The information from this program will provide information that will also support implementation of Measures 6-2 and 7-2, as well as inclusion of traditional knowledge as required by Measures 9-3 and 10-2. Further information on implementation of this program is provided in Section 13.5 of this report.

In addition to the program led by the Tłı̨chǫ Government, GNWT-ECC Renewable Resources Officers (RROs) from Whatı and Behchokǫ conducted 26 patrols on the Tłı̨chǫ Highway in 2024. Formal patrols were conducted from May to December. No formal patrols were conducted from January to April, as RROs from the region were actively involved in monitoring the Tibbitt to Contwoyto Winter Road (TCWR). However, the RRO from Whatı did drive the Tłı̨chǫ Highway when transiting to and from shifts on the TCWR, providing some informal patrols at that

time of year. Typically, the highest frequency of RRO patrols along the Tłıchq Highway is late August to mid-October when hunting seasons open and people are cutting firewood. Some compliance checks for timber harvesting permits were conducted between June to October. RROs were not called out to respond to any wildlife-vehicle collisions along the Tłıchq Highway in 2024. There was one report of bison north of the La Martre River bridge, around km 80, as well as a muskox observed at km 70. RROs were called out to deter a bear from an existing cabin around km 6.

d) Determining sustainable harvest levels

See Measure 6-2 regarding activities related to determination of sustainable harvest levels.

e) Identifying critical habitat

GNWT-ECC completed a range-wide (NT1) habitat selection analysis (resource selection functions) project using boreal caribou collar data from across the NWT to model and generate predictive maps of boreal caribou habitat selection during different seasons (NWT CIMP Project #202). The predictive habitat selection maps are being used to assist with identifying important areas for boreal caribou to support range planning and were also used in the draft TASR habitat offset plan for boreal caribou.

f) Ongoing habitat disturbance monitoring

ECC measures and updates fire disturbance on an annual basis and contributes this data to the National Burn Area Composite (NBAC) and Canadian National Fire Database (CNFDB) datasets maintained by Natural Resources Canada (NRCan). ECC uses a combination of the NBAC (1986-2023) and CNFDB (pre-1986) datasets to calculate fire disturbance within the NWT boreal caribou range. Including fire polygons from the 2023 fire season, the NT1 range as a whole had 24.7% fire disturbance (≤ 40 yrs old; 1984-2023), 10.11% human disturbance (including 500 m buffer; data current to 2020 [source ECCC]) and 32.2% total disturbance. Disturbance statistics current to 2024 for the NT1 range as whole cannot be provided until the NBAC dataset is updated to 2024. This ensures that fires within the Yukon territory portion of the range are included in the calculation.

As of fall 2023, the Wek'èezhì portion of the boreal caribou range had 32.6% fire disturbance (≤ 40 yrs old; 1984-2023 fires), 1.01% human disturbance (including 500 m buffer; data current to 2020 [source ECCC]), and 33.1% total combined fire/human disturbance. After the 2024 fire season, there was 35.8% fire disturbance (≤ 40 yrs old; 1985-2024 fires), 1.01% human disturbance (including 500 m buffer; data current to 2020 [source ECCC]), and 35.8% total combined fire/human disturbance. These regional numbers include the footprint of the cleared right of way of the TASR project that was visible on 2020 satellite imagery used by ECCC (road alignment and borrow sources plus a 500 m buffer).

Disturbance mapping within 10 km of the Tłıchq Highway

During the development of the Tłıchq Highway Boreal Caribou Habitat Offset Plan in 2021, using imagery dated prior to any Tłıchq Highway construction disturbance, GNWT-ECC began mapping the amount of existing disturbance on the landscape within 10 km of the proposed Tłıchq Highway alignment and the existing Highway 3 corridor. Mapping was completed using ESRI ArcMap and included ECCC's Cumulative Impact Monitoring Program (CIMP) land and water board permit registry data to ensure no data duplication occurred from what has already been mapped. All existing disturbance, including the Old Airport road route, logging operations, linear corridors, and polygonal disturbances such as borrow sources or clearings were delineated at map scales between 1:5,000 and 1:1,000, where imagery was of sufficient resolution to do so. Spatial data attributes for the existing disturbance mapping were as follows:

- Linear feature (roads, trails)

- Polygonal feature (landings, cutblocks, quarries)
- Old Airport Road (existing Old Airport route alignment)
- Hwy 3 (existing Highway 3 corridor including cleared right-of-way)

In 2023, following construction, the as-built disturbance was mapped using the same methods as the pre-disturbance mapping (Associated Environmental 2023). Initially, GNWT-ECC began mapping with Planet Labs imagery that was expected to have 3.0 m resolution. The available image resolution from Planet Labs was not sufficient to map at as fine a scale as the pre-disturbance mapping; however, ESRI incidentally updated their available imagery to be higher resolution and better quality than previously. The ESRI imagery was used instead of Planet Labs because the updated version included the entire Tłıchq ASR alignment following construction (i.e., the as-built disturbance was visible along the entire length). Some shifts in the imagery between the Planet Labs and ESRI imagery used for pre-construction, and the post-construction ESRI imagery was evident when comparing the two products; in these instances, the ESRI imagery took precedent over the Planet Labs imagery. Once the as-built disturbance of Tłıchq Highway was completed, GNWT-ECC mapped any new trails or disturbance that was visible in the imagery and coded these new disturbances separately from the as-built disturbance (to meet one of the monitoring requirements of Section 5.2.2 of the WMMP – Access and Harvest Monitoring).

Spatial data attributes for the as-built disturbance mapping were as follows (Table 5-2, Figure 5-4):

- As-Built (the total new disturbance, including quarries/borrow sources, resulting from the Tłıchq Highway construction).
- Highway 3 (existing Highway 3 corridor including cleared right-of-way).
- Linear disturbance (all roads and trails existing pre-construction of the Tłıchq Highway).
- New trail (any new trails created since construction began).
- Old Airport road (existing Old Airport road route pre-construction of the Tłıchq Highway).
- Polygonal disturbance (all landings, cutblocks, quarries existing pre-construction of the Tłıchq Highway).

In total, the Tłıchq Highway cleared right of way and borrow sources resulted in 550.0 ha of new footprint development to previously undisturbed habitat. This was less than the estimated footprint of 784 ha in the Report of Environmental Assessment (page 1): "The estimated footprint of the proposed road corridor is approximately 564 hectares, with an additional 220-hectare footprint estimated for the borrow sources and access roads (PR#7)."

As of 2023, new trails originating from the Tłıchq Highway were not extensive, based on the imagery available, and only 0.3 ha (2,968.5 m²) new trails were identified in the updated mapping. It appears that the new trail may have been used as access to water sources and it is not clear if these new trails were a component of construction or a result of other human activities. In reviewing the disturbance footprint data, GNWT-ECC noticed some minor disturbance features that were not captured in the dataset, and based on the date of the underlying imagery (2021), it is likely that these features were associated with the Tłıchq Highway project.

As of 2024, the ESRI imagery available along the Tłıchq Highway alignment is still only current to August 2021. A side-by-side comparison was made to Google Earth imagery which is generally current to 2023 and 2024 along the alignment, and no new features intersecting the Tłıchq Highway alignment were visible that were not already visible on the 2021 imagery.

Table 5-2. Breakdown of disturbances mapped within 10 km of the Tłıchǫ Highway.

Disturbance Footprint Type	Area (ha)
Tłıchǫ Highway As-Built	549.97
HWY 3	555.62
Linear Disturbance	386.28
New trail	0.30
Old Airport Rd	73.48
Polygonal Disturbance	305.56

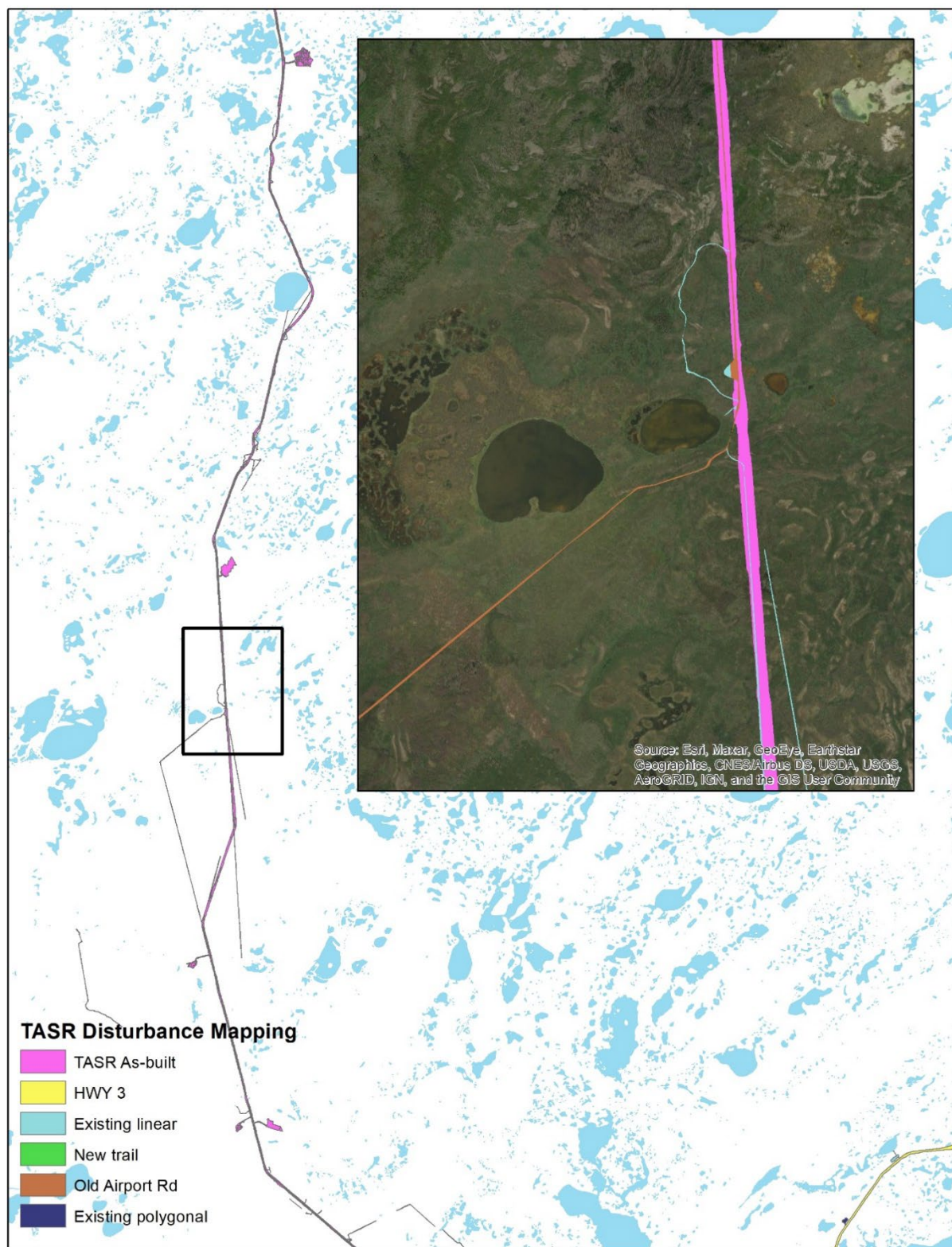


Figure 5-5. Example of disturbance mapping completed within 10 km of the Tłıchq HWY corridor. The inset map displaying satellite imagery in the background corresponds to the area within the black rectangle on the map.

g) Setting disturbance thresholds for critical habitat and, to the greatest extent possible, managing habitat towards meeting these disturbance thresholds for each range planning region

Disturbance limits and human disturbance management thresholds have been defined for each boreal caribou range planning region within the NWT Framework for Boreal Caribou Range Planning.

h) Monitoring predator populations including densities, movements and predation rates

As part of the TASR WMMP and a research program in partnership with Laval University (funded by the Sentinel North program), ECC deployed 2 GPS collars on black bears in the study area between Fort Providence and Behchokq, and along the TASR corridor, in 2022. A total of 7 bears were captured and fitted with GPS collars in the study area in 2021. The purpose of this program is to evaluate the influence of the TASR and Highway 3 on black bear movements and to assess predation rates of black bears on boreal caribou, moose and bison calves. The broader purpose of the Sentinel North project is to study food web dynamics between boreal caribou, moose, bison, wolves and bears and to understand how the food web is influenced by natural and human landscape disturbance as well as climate change. The black bear collars are equipped with a video camera to capture short video clips at regular intervals to document black bear predation events as well as to learn more about their behaviour and food habits. Both bear collars deployed in 2022 were retrieved in 2023. One bear slipped its collar off at its den site in the spring, and the collar on the other bear released on schedule in July 2023. There were no collars on bears at the end of 2023.

In 2022, GPS collars were used to begin monitoring wolves to assess predator movements. GPS collars allow for monitoring the movements, distribution and habitat selection of wolves, including their use or avoidance of the Tłıchq Highway and of other linear features. Wolf collars are programmed to release approximately 1.5 years after deployment. In March 2022, four wolves were captured and fitted with GPS collars (Telonics model TGW-4577-4) in the boreal caribou range of the North Slave area. Two of those collared wolves were still wearing active collars at the beginning of 2023 and both collars released on schedule in June 2023. An additional two boreal wolves (one male and one female from the same pack) were captured and fitted with GPS collars in March 2023, near the Highway 3 / Tłıchq Highway junction. The project objectives were to collar up to 5 wolves in the study area, but due to weather delays the crew was not able to spend time searching for additional wolf packs to deploy the remaining collars. One of these collared wolves was still active at the end of 2024.

5.7. MEASURE 6-2: DETERMINE SUSTAINABLE HARVEST LEVELS FOR BOREAL CARIBOU (TQDZI) AND IMPLEMENT MEASURES TO ENSURE HARVEST IS SUSTAINABLE IF REQUIRED

ECC hired a contractor to conduct population modeling to evaluate sustainable harvest levels using available demographic data from boreal caribou monitoring programs in the Dehcho, South Slave and North Slave regions. The report was completed as of March 31, 2020. On September 27, 2021, GNWT circulated the report to Indigenous Governments and Organizations (IGOs) and released the report on ECC's website. The findings of the report were presented on November 10, 2021 at the *Wildlife Act* Section 15 meeting, as well as at specific meetings with the Tłıchq Government and North Slave Métis Alliance on October 28, 2021. ECC also held meetings to discuss the report with four other Indigenous Governments and Organizations from the South Slave and Dehcho regions in fall 2021. Copies of the full report, plain language summary and fact sheet can be found at:

https://www.enr.gov.nt.ca/sites/enr/files/resources/gnwt_boreal_caribou_population_model_report_final_bil_1.pdf

https://www.enr.gov.nt.ca/sites/enr/files/resources/plain_language_summary_boreal_caribou_sustainable_harvest_report_sep2021_0.pdf

https://www.enr.gov.nt.ca/sites/enr/files/resources/boreal_caribou_sustainable_harvest_fact_sheet.pdf

There are no updates for the reporting period.

5.8. MEASURE 6-3: HABITAT OFFSET AND RESTORATION PLAN

A Final Caribou Habitat Offset Plan ([The Final Plan](#)) was completed and submitted to the WRRB on July 16, 2021 prior to opening of the road to the public as directed by Measure 6-3. The WRRB approved the [Final Plan](#) on September 2, 2021, paving the way for opening the road to the public on November 30, 2021 after completion of construction.

Funding was secured for Implementation Plan development in 2024.

As part of the Implementation Plan Development, engagement sessions were held with the Tłıchq Government on October 28, 2024 and North Slave Métis Alliance on October 29, 2024. During the engagement, local knowledge holders identified suitable restoration areas for the offsetting. See Appendix A for the engagement progress report. The next steps involve field verification of the candidate sites to confirm what the knowledge holders identified during the workshops. Land users and the local knowledge holders will be participating in the field verification process in the summer of 2025. The final Implementation Plan will be ready by the summer of 2026.

5.9. MEASURE 7-1: INCORPORATE TRADITIONAL KNOWLEDGE INTO MONITORING OF BARREN-GROUND CARIBOU (ʔEKWŦ)

The following update was provided by the Tłıchq Government:

Regarding the implementation of Measure 7-1 from the Tłıchq Highway (formerly known as the Tłıchq All Season Road) EA, incorporating Traditional Knowledge into monitoring of ʔekwŦ (barren-ground caribou), the following key actions were undertaken by the Tłıchq Government in 2024 and are described in greater detail below:

Tłıchq Tłıi Deè Committee Meetings

Established in January 2021, the Tłıchq Tłıi Deè Committee advises the monitoring of habitats and wildlife populations along the highway to guide the Wildlife Monitoring Program. The annual Tłıchq Tłıi Deè Committee meeting was held on December 4-5, 2024. The purpose of the annual meetings is to share the results of ongoing monitoring work, decide if activities continue to be appropriate for the measures, identify other concerns, and share information about the other research occurring along the Tłıchq Highway.

The 2024 Committee meeting focused on:

1. Discussion of recent wildfires and how climate change may be affecting wildfires in the region.
2. Reviewing the results of ongoing monitoring work (wildlife information collected by Tłıchq Highway Monitors and dustfall monitoring), concerns, and discussing if current monitoring activities are still appropriate for addressing the REA measures.
3. Discussion of dechłta gojie / ejie (bison) and dechłta gojie / ejie movements along the Tłıchq Highway.

Vegetation Surveys

The summer of 2023 was the third year of collecting vegetation data, and the second year of data after the Tłıchq Highway opened to the public. An additional year of sampling allowed for comparisons across 2022 and 2021 (baseline) data. The surveys focused on collecting species abundance and composition data from established transects along the highway and at different distances from the road. In addition to sampling vegetation, site health and arboreal lichen loads were measured and recorded. The analysis and report were completed in October 2023 and shared with the Tłıı Dee Committee during the meeting.

No further updates for 2024.

Ongoing Wildlife Monitoring

In 2024, Tłıchq Highway Monitors continued to monitor the highway daily for wildlife and harvesting events. Data was collected via survey maps on a field tablet and stored in an online repository. Additional training with Monitors was held in March 2024 to ensure high-quality data collection.

Wildlife observations continue to be tracked and reported quarterly. The Tłıchq Government is preparing a comprehensive analysis of data and trends to date for distribution to the GNWT in 2025 Q1.

Dust Monitoring

A dust monitoring program is currently underway. Two different dustfall collectors, a canister dust collector and a passive dust monitoring unit, are being used to monitor dust at different distances from the highway. Canister dust collectors are replaced monthly and sent to ALS laboratory for analysis. The passive dust collectors are replaced every three months and are sent to NRCan for analysis under the current Memorandum of Understanding between NRCan and the Tłıchq Government.

Tłıchq Highway Monitors were retrained in March 2024 on how to collect, replace, and handle the canisters and passive units for accurate results. The Tłıchq Government is preparing a technical memo with dustfall data from March 2024 to January 2025, which will be distributed to the GNWT in 2025 Q1.

Harvesting Program

Based on direction from the Tłıchq Tłıı Dee committee, the Tłıchq government is working on developing and implementing a comprehensive harvesting program. The program aims to interview Tłıchq community members who actively hunt on the land to understand how this activity has changed over time. The interviews will also address whether the Tłıchq Highway has impacted harvesting activities for community members and will provide a Traditional Knowledge perspective of the population size of key species.

In 2024, Tłıchq Government finalized the voluntary harvester reporting program, including the creation of both physical and digital forms for harvesters to report their Tłıchq Highway harvests. Participation has been incentivized through a monthly gas gift card draw and information on the reporting program has been widely shared through the Tłıchq Government social media, two new road signs on the Tłıchq Highway (one in each direction), and distribution of informant pamphlets at the 2024 Tłıchq Research Expo and Tłıchq Government offices.

Harvester interviews in Behchokò and Whatı were also completed in 2024. Local active and previously active hunters and trappers were interviewed to collect information on their harvesting activities along the Tłıchq Highway and surrounding areas to determine the factors that influence harvesting success and how that has changed over time. The Tłıchq Government is preparing a report summarizing the findings of these harvester interviews for distribution to the GNWT in 2025 Q1.

5.10. MEASURE 7-2: BARREN-GROUND CARIBOU MITIGATION AND POLICY CHANGES

5.10.1. MEASURE 7-2, PART A: COMPLETE THE BATHURST CARIBOU RANGE PLAN

The Bathurst Caribou Range Plan (BCRP) was released on August 21, 2019. The BCRP was developed by a multi-stakeholder working group and will help decision-makers manage activities on the land in a way that supports the recovery of the Bathurst herd, while providing clarity on land use and access for developers, regulators and residents of the Northwest Territories (NWT). It includes guidance for managing the overall amount of disturbance on the land, as well as seven management tools to reduce and manage impacts to caribou and caribou habitat. Actions are currently underway to support implementation of the recommendations contained in the BCRP. The BCRP is available on ECC's website at

[https://www.enr.gov.nt.ca/sites/enr/files/resources/bathurst_caribou_range_plan_2019 -
_plan_pour_la_repartition_des_caribous_de_bathurst_2019.pdf](https://www.enr.gov.nt.ca/sites/enr/files/resources/bathurst_caribou_range_plan_2019_-_plan_pour_la_repartition_des_caribous_de_bathurst_2019.pdf)

In 2022, GNWT-ECC finalized a draft Implementation Framework and Operational Guidance for the implementation of Mobile Caribou Conservation Measures (MCCMs). The Implementation Framework describes the intent of the MCCMs and how they would operate, whereas the Operational Guidance clearly sets out the methodology, monitoring, and reporting expectations for land use operators to implement MCCMs at their project site. In 2023, GNWT-ECC worked with Mountain Province Diamonds (Kennady North Regional Exploration Project), Rio Tinto (Diavik Diamond Mine), and Blue Star Gold Corp (Ulu Gold Project) to conduct pilot projects using the MCCMs. Mineral exploration at the Kennady North Regional Exploration Project was cancelled, but mineral exploration near Diavik Diamond Mine was completed in April/May 2023. Outcomes and feedback of the pilot project was provided by Rio Tinto. Blue Star Gold Corp provided data and feedback on the implementation of MCCMs for 2019-2022. Results of the pilot projects will be included in the draft Operational Guidance and will show how often caribou interacted with the sites, how long they resided nearby, what type of mitigation measures was triggered and for how long. In 2024, GNWT-ECC started working with proponents to fully implement MCCMs at their project site. North Arrow Minerals Inc. (Loki Diamond Project), Blue Star Gold Corp. (Ulu Gold Project), and B2Gold (Back River Project) implemented the MCCMs during summer field operations and provided reporting to GNWT-ECC.

In 2023, GNWT-ECC hired WSP to conduct a literature review of 60 industry reports and scientific articles on the impacts of roads on barren-ground caribou and the mitigation measures currently applied to mitigate these impacts. In 2024, GNWT-ECC rehired WSP to conduct interviews with Subject Matter Experts and incorporate the literature review as part of a draft report on best management practices for roads. The objective of the best management practices is to identify mitigation measures applied in the NWT (but also throughout the Arctic) used to avoid and/or minimize direct and indirect impacts of roads on barren-ground caribou, as well as identify mitigation measures that are deemed effective as a best management practice either through mitigation monitoring or by expert opinion, including Indigenous knowledge. The draft best management practices will be finalized in 2025.

In 2023 GNWT-ECC hired Associated Environmental Consultants Inc. to draft guidelines for offsetting and compensatory mechanisms for both boreal caribou and barren-ground caribou habitat. This document will guide the application, design, implementation, and management of offsetting as a conservation tool for barren-ground caribou and boreal caribou in the NWT. The draft guidelines are undergoing internal GNWT review.

In 2023, the Bathurst Caribou Advisory Committee (BCAC) held a workshop in January 2023 and agreed to a 2-year workplan to identify key caribou habitat as conservation areas. GNWT-ECC supported Tłıchq Government, Athabasca Denesuline Néné Land Corporation, and Deninu Kųę First Nation to continue their work on identifying

key caribou habitat areas (such as water crossings and land bridges). A 3-year funding proposal to further habitat conservation submitted to Environment and Climate Change Canada was successful in 2024. Over the next 3 years, the BCAC will continue to identify key caribou habitat (such as water crossings and land bridges) within the annual range of Bathurst caribou to propose as conservation areas.

5.10.2. MEASURE 7-2, PART B: CONSIDER PROTECTING BARREN-GROUND CARIBOU HISTORIC WINTER HABITAT FROM FIRES:

The BCRP contains a recommendation to: “On an annual basis, identify large, strategically-located patches of forest in the central Bathurst winter range for the GNWT fire management “Values at Risk” database. Response to fires in these areas would be based on an analysis of the current fire load, fire environment, resource availability and similar considerations of the management options at the time of the fire event.”

ECC has been exploring ways to identify areas as values at risk for boreal and barren-ground caribou based on habitat selection models, areas identified as important habitat by communities, availability and location of fire management resources, and logistical constraints. ECC staff met in summer and fall 2019 to discuss different options and this work is ongoing. The Tłıchǫ Government held a workshop to identify areas of critical winter habitat for boreal and barren-ground caribou and shared the spatial data from the workshop with ECC in late summer 2019 (Figures 5-6).

Priority areas for fire management for boreal caribou were identified in the interim Wek’èezhì plan in 2021. Priority areas were identified based a late-winter habitat selection model and predictive map to target patches of highly selected habitat >60km² in size (Figures 5-7). These maps of key late-winter habitat patches were provided to GNWT-ECC Forest Management Division, along with the priority areas identified by Tłıchǫ Government in 2019 and the map of Basic, Enhanced and Intensive management areas defined in the interim range plan, for incorporation into their fire management decision mapping support tool called “SPARCS” (Spatial Precipitation and Risk Calculation System).

2024 Wildfire Activity and Response

The wildfire season of 2024 saw a total of **52** fire instances within the boundaries of the North Slave Region, which is consistent with the 10-year average of **53** fires occurring annually within this Region. These fires burned a total of **317,631** hectares, which represents not quite double the 10-year average of **170,345** ha. Of these ignitions, **38** were started by natural causes (lightning), while **14** were reported to be human caused in origin. Most of these fires received a fire response of “being monitored” due to fire management resources being dedicated to protecting human life and property in other higher risk areas of the region, while the remaining **21** fires were “actioned” in some way by fire personnel or resources.

The Tłıchǫ Government has identified two tiers of Fire Protection Priority Areas within their territory in the North Slave Region (Figure 5-6). In 2024 a total of **12** fires burned within Priority 1 Areas, with **6** occurring in the Taiga Shield ecozone and **6** within the Taiga Plains portion. The Priority 2 Areas saw **3** fires in total, with **2** burning in the Taiga Shield, and **1** in the Taiga Plains. Specifically, these fires were:

- Fire **ZF012** which was located about 75 km SSW of the community of Wekweeti and consumed 98 ha; and fire **ZF013** which was 1,757 ha and 115 km ESE of Wekweeti.
- Fires **ZF014** and **ZF015** were both located 120-125 km NW of Gamètì and were 0.1 ha and 72,955 ha respectively.
- Fire **ZF016** was 0.1 ha and burned 30 km SW of Wekweeti, while nearby **ZF019** burned over it and eventually grew to 41,461 ha by the end of the season. F020 was a smaller fire of 6 ha about 80 km SW of Wekweeti.
- About 45 km WNW of the community of Whatì fire **ZF026** grew to 28,302 ha;
- Fire **ZF030** burned about 73 ha some 50 km NW of Wekweeti;
- Fire **ZF037** burned to a final size of 479 ha about 90 km WSW of Gamètì;

- Fire **ZF039** burned 50,161 ha and was located about 80 km due W of Wekweeti; and,
- Fire **VQ008**, which started in the Sahtu Region and burned southward into the North Slave approximately 140 km NW of Gamèti, eventually burned about 1,800 ha in the Priority 1 Area.

Along with these Fire Protection Priority Areas, the Tłı̨chǫ Government has also identified Caribou Habitat of Cultural Importance, as well as Caribou Habitat in Forested Areas. In 2024 there were **2** fires that occurred in the Area of Cultural Importance, the aforementioned **ZF014** and **ZF015**.

In the much larger Forested Habitat Area, there was a total of **16** fire instances, which included the previously noted **VQ008** on the northern boundary of the North Slave, as well as the 0.1 ha **ZF005/ZF008** which are both less than 10 km N of Yellowknife. Fire **ZF022**, about 30 km NNE of Behchokǫ, was actioned and held to 1 ha, while 16 km N of Yellowknife **ZF025** was also actioned and extinguished at 0.5 ha. **ZF026** was a 28,302 ha fire 45 km WNW of Whati; **ZF030** was 73 ha and 50 km NW of Wekweeti; **ZF038** grew to 33,234 ha 65 km NE of Gamèti; and the 50,161 ha **ZF039** was located 75 km E of Gamèti. **ZF040** was located 50 km W of Wekweeti and burned 62 ha; while fire **ZF041** was 13,181 ha and situated 100 km WNW of Gamèti. Fire **ZF042**, located 20 km NE of Yellowknife was actioned and held to 0.5 ha, while **ZF045** was also responded to with initial attack, and held to 1 ha approximately 25 km NW of the city. **ZF051** was yet another occurrence close to Yellowknife and was located 15 km WSW and had a final size of 0.5 ha. And finally, fire **ZF049** located 150 km NNW of Gamèti burned 2,095 ha before self-extinguishing.

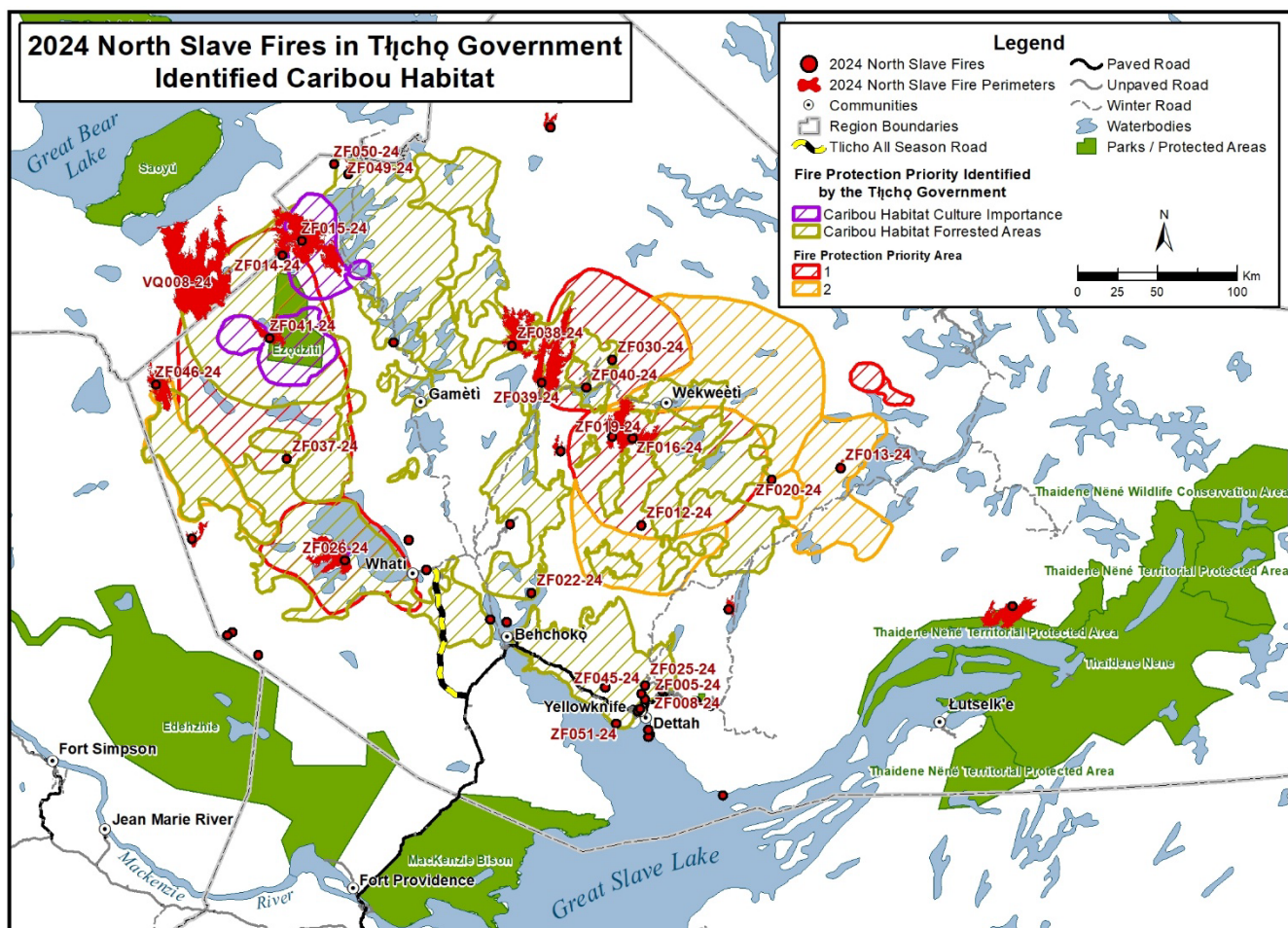


Figure 5-6. Forest fires within the North Slave region in 2024, and fire protection priority areas identified by the Tłı̨chǫ Government in 2019.

An additional consideration in the Taiga Plains are areas identified as key late-winter boreal caribou habitat (Figure 5-7). A total of 10 fires occurred in these key areas. All were natural-caused fires (from lightning) and all were monitored response occurrences, once again largely due to fire management resources being dedicated to protecting human life and property in other higher risk areas of the region.

Of these ZF014, ZF015, ZF026, ZF041, and ZF049 have been mentioned previously. The rest included:

- **ZF006**, a 989-hectare fire 110 km WSW of Whati;
- **ZF028** located 135 km W of Whati with a size of 6,590 ha;
- **ZF046** which was a larger fire of 18,473 ha situated 165 km W of Gamèti;
- **ZF050** which was 144 ha and located 160 km NNW of Gamèti; and,
- **ZF052** which was 36 ha and located 110 km WSW of the community of Whati.

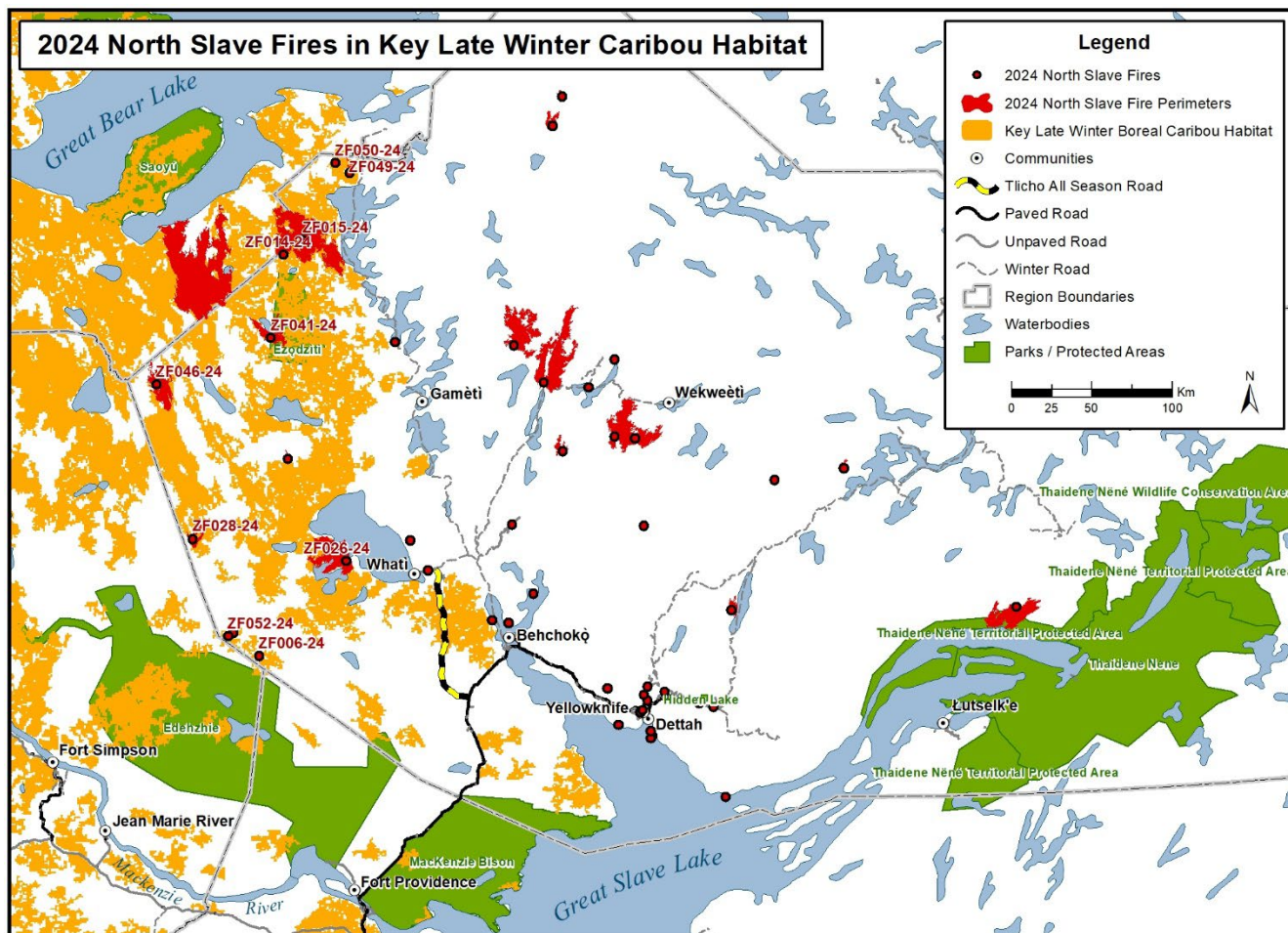


Figure 5-7. Forest fires within the North Slave region in 2024, and key late-winter boreal caribou habitat identified in the interim Wek'èezhì boreal caribou range plan.

6. MANAGEMENT PLAN UPDATES AND REVISIONS

Schedule 1 - Part B, Condition 1(p): Updates were required to one (1) of the plans guiding the Tłıchq Highway Operation and Maintenance during the 2023. The list below details the primary and pertinent management plans for the Tłıchq Highway and revisions completed and approved in 2023.

- **Engagement Plan** - The Engagement Plan was revised, updated, and submitted for approval on August 20, 2024. Version 2.0 of the plan was approved by the WLWB on April 23, 2025.
- **Erosion and Sediment Control Plan** – updates/revisions not required to Revision 1.2 in 2023.
- **Waste Management Plan** – Version 1.3 remained unchanged for 2021 but the authorization from the City of Yellowknife to allow for the continuation of solid waste and wastewater to their facilities was extended to December 31, 2023.
- **Spill Contingency Plan** – updates/revisions not required to Revision 1.0 in 2023
- **Water Monitoring Plan** – updates/revisions not required to Revision 1.2 in 2023.
- **Quarry Operations Plan** – updates/revisions not required to Revision 5.0 in 2023.
- **Permafrost Management Plan** – updates/revisions not required to Revision 2.0 in 2023.
- **Fish and Fish Habitat Management Plan** – updates/revisions not required to Revision 1.1 in 2023
- **Wildlife Management and Monitoring Plan** – Version 6.1 of the WMMP was approved by WRRB on April 13, 2023. Version 6.2 was approved by the WLWB and ECC on October 16, 2023 and February 19, 2024, respectively.
- **Archaeological Chance Find Protocol** - updates/revisions not required to Revision 1.0 in 2023
- **Closure and Reclamation Plan** - updates/revisions not required in 2023

6.1. WMMP UPDATES

For the reporting period and in compliance with EA Measure 10-2, Part 3, the WMMP was revised and updated in collaboration with ECC and submitted to the WLWB and ECC for public review. A 30-day public review period was undertaken, with submissions made to the WLWB's Online Review System by Environment and Climate Change Canada, North Slave Metis Alliance, and WRRB. In consultation with ECC staff, INF developed responses to comments received, revised the WMMP to address the comments.

Version 6.0 was submitted to the WLWB and ECC on January 20, 2023, respectively to commence the public review process. Version 6.0 was posted to the WLWB's Online Review System (ORS) for public comments. Following the public comment period, Version 6.1 was submitted to the WRRB on April 13, 2023 for their review and approval. The WRRB posted Version 6.1 to their website for public comments. The public comment period ended on May 15, 2023, and the WRRB indicated its approval of Version 6.1 on April 13, 2023 and the WRRB indicated its approval of Version 6.1 on April 13, 2023. Version 6.2 was submitted to the WLWB and ECC on June 12, 2023 for final approval. Version 6.2 of the WMMP was approved by the WLWB and ECC on October 16, 2023 and February 19, 2024, respectively.

No further updates to the WMMP were made in 2024.

6.2. WASTE MANAGEMENT PLAN

The Waste Management Plan (Version 1.3) remained unchanged during the reporting period. Authorization from the City of Yellowknife to continue receiving waste at the Yellowknife Solid Waste Facility was extended until December 31, 2024, and further extended till December 31, 2025, at the time of this reporting.

6.3. QUARRY OPERATIONS PLAN

During the reporting period, the Quarry Operations Plan Version 5.0 not updated nor required as part of the Operations and Maintenance phase of the project.

6.4. PERMAFROST MANAGEMENT PLAN

No update to the Permafrost Management Plan was required during the reporting period.

7. SPILLS AND UNAUTHORIZED DISCHARGES

As required in Part 1 of the Water Licence (2020L8-0001), a Project specific Spill Contingency Plan (SCP) including prevention planning and response of hazardous material spill and unauthorized discharge of waste was developed for the Tłıchq Highway. The SCP was developed in accordance with the Guidelines for Spill Contingency Planning prepared by Indian and Northern Affairs Canada (INAC 2007) and the Spill Contingency Planning and Reporting Regulations issued under the Environmental Protection Act (EPA).

The purpose of the SCP is to provide a guide to all site personnel in the event of an accidental release of fuel or other materials during the operation and maintenance of the Tłıchq Highway. All Project personal and contractors are required to read and be familiar with the SCP, which is required to meet the minimum standards set out in the Project specific SCP.

All reporting, remediation and documentation of hazardous material releases and unauthorized discharges of waste is carried out as per the requirements outlined in the Project specific SCP.

7.1. SPILLS

Schedule 1 - Part B, Condition 1(q): A total of seven (7) spills were documented since the start of the Operations and Maintenance phase of the Tłıchq Highway in 2023. The releases were a result of human-error or mechanical failure. All impacted soils resulting from these releases were fully remediated and the contaminated materials were disposed offsite at a licensed facility. These spills (EIR-SP-007 to EIR-SP-011) were small volume spills (<10L) of hydraulic fluid (1), coolant (1), diesel (1) and hydraulic oil (2). There was also one 10L hydraulic oil spill (EIR-SP-12) and the legacy diesel spill (EIR-SP-006 now referenced as EIR-SP-013) that was noted at the diesel fuel tank at the Maintenance Yard in 2023 was determined to be ~90L has been fully remediated and approved by GNWT-DOL inspector in August of 2024.

7.2. UNAUTHORIZED DISCHARGES

Schedule 1 - Part B, Condition 1(q): There was no unauthorized discharge of materials that were reportable to the 24-Hour NWT – Nunavut Emergency Spill Reporting Line during the reporting period (January 1st – December 31, 2024).

7.3. SPILL TRAINING AND COMMUNICATION

Schedule 1 - Part B, Condition 1(r): Spill training was limited to remote support provided by the Environmental Manager and Operation and Maintenance staff familiarity with the Spill Contingency Plan.

8. OTHER REPORTING REQUIREMENTS

Schedule 1 - Part B, Condition 1(s): No annual inspection was conducted during the 2024 Operation and Maintenance period.

Schedule 1 - Part B, Condition 1(t): No studies required by the Board related to this water license were required during the 2024 Tłıchq Highway Operation and Maintenance period.

Schedule 1 - Part B, Condition 1(u): No construction activities occurred during the 2024 Operation and Maintenance period that required a schedule update.

9. WATER MONITORING PLAN REPORTING

Schedule 1 - Part B, Condition 1(v)(i): All water-crossing activities that represented a risk of sedimentation to watercourses were completed during the construction season in 2020. No in water or near water activities occurred during the reporting period and therefore no further water quality monitoring was required.

Schedule 1 - Part B, Condition 1(v)(ii): Discussed in Section 2.1 of this report, no calibration of meters and devices were required during the 2024 Operation and Maintenance period as there was no water quality data collected.

Schedule 1 - Part B, Condition 1(v)(iii): Please see Section 2.2 of this report for the annual quantity of water (m³) obtained from each of the approved sources.

Schedule 1 - Part B, Condition 1(v)(iv): No actions under the response framework of the Water Monitoring Plan were required during the 2024 Tłıchq Highway Operation and Maintenance period.

Schedule 1 - Part B, Condition 1(v)(v): No water sampling was required during the 2024 Tłıchq Highway Operation and Maintenance period as all the in water or near water construction activities were completed by November of 2021.

Schedule 1 - Part B, Condition 1(v)(vi): There were no changes to any procedures related to water sampling as no sampling was required in 2024.

Schedule 1 - Part B, Condition 1(v)(vii): As discussed above, no water sampling was conducted and therefore QA/QC interpretation was not required in 2024.

10. SUMMARY OF WILDLIFE MONITORING

Schedule 1 - Part B, Condition 2(a): Please refer to section 5.9.

Schedule 1 – Part B, Condition 2(b): Survey and monitoring results haven't triggered additional mitigation measures that requires updating the applicable sections of the WMMP.

Schedule 1 - Part B, Condition 2(c): There was no active management or protection of migratory birds and bird species at risk required during the 2024 Tłıchq Highway Operation and Maintenance period.

Schedule 1 - Part B, Condition 2(d): With a financial support from GNWT-INF, TG has put in place a daily monitoring program with monitors patrolling the Tłıchq Highway, but the hasn't been any TK recommendations for harvesting, mitigation, monitoring, and adaptively management.

Schedule 1 - Part B, Condition 2(e): There were no construction activities during the 2024 Tłıchq Highway Operation and Maintenance period that occurred during any sensitive periods for wildlife.

Schedule 1 - Part B, Condition 2(f): No relevant monitoring plans were updated for the reporting period. The updated Engagement Plan Version 2.0 was submitted to WLWB in August 20, 2024, and approved on April 23, 2025. .

10.1. WILDLIFE ROAD SURVEYS

No wildlife road surveys were conducted by NSI during the 2024 Tłıchq Highway Operation and Maintenance period.

10.2. WILDLIFE SIGHTINGS

The maintenance of a wildlife sighting log is not a requirement of the Operation and Maintenance of the Tłıchq Highway. With a financial support from GNWT-INF, TG has put in place a daily monitoring program with monitors patrolling the Tłıchq Highway. All sightings are documented by the TG.

10.3. WILDLIFE SURVEILLANCE SURVEY

Wildlife surveillance monitoring is not a requirement of Operation and Maintenance of the Tłıchq Highway as there are no active camps.

10.4. WILDLIFE INCIDENTS / MORTALITIES

During the annual reporting period a total of one (1) wildlife incidents occurred on the Tłıchq Highway during the 2024 Operation and Maintenance period. Details of this incident can be found in Table 10-1 below. This incident was reported to the appropriate regulatory agency following the established protocol. It is important to note that Wildlife Incident Reports (EIR-WL-003, EIR-WL-004, and EIR-WL-005) were documented in 2022 when 3 separate moose carcasses had been left within the Tłıchq Highway RoW by hunters after field dressing. However, these reports were not required to be provided to GNWT-ECC and therefore not reportable in 2022 Water Licence Annual Reporting

Table 10-1: Wildlife Incidents

DATE	INCIDENT ID	DISCHARGE TYPE	DESCRIPTION	ACTION TAKEN
12 Jan 2024	EIR-WL-007	Lynx Mortality	A dead lynx was observed by NSI operations crew near KM 73.0 along the edge of the running surface which appeared to have been struck by a road user. Three (3) cubs were observed in the vicinity of the carcass.	GNWT-ECC was notified of the mortality on January 12, 2024. A wildlife incident report EIR-WL-007 was prepared by NSI

10.5. MITIGATIONS TRIGGERED BY BOREAL CARIBOU COLLAR DATA MAPS

Procedures to mitigate impacts to boreal caribou from construction of the TASR is not a requirement of the Operation and Maintenance of the Tłıchq Highway.

11. TASR CROSSINGS BY COLLARED BOREAL CARIBOU

The 97km Tłıchq All-Season Road (Tłıchq ASR), was divided into 1 km segments to help characterize clusters of boreal caribou crossings. Hourly boreal caribou collar locations from April 01, 2017, to December 31, 2024, that occurred within the 10 km “geofence” around the Tłıchq ASR alignment and HWY3 were converted into movement paths, and the intersections between movement paths and the Tłıchq ASR alignment were converted to points to count the number of crossings per 1 km segment (Figure 11-1).

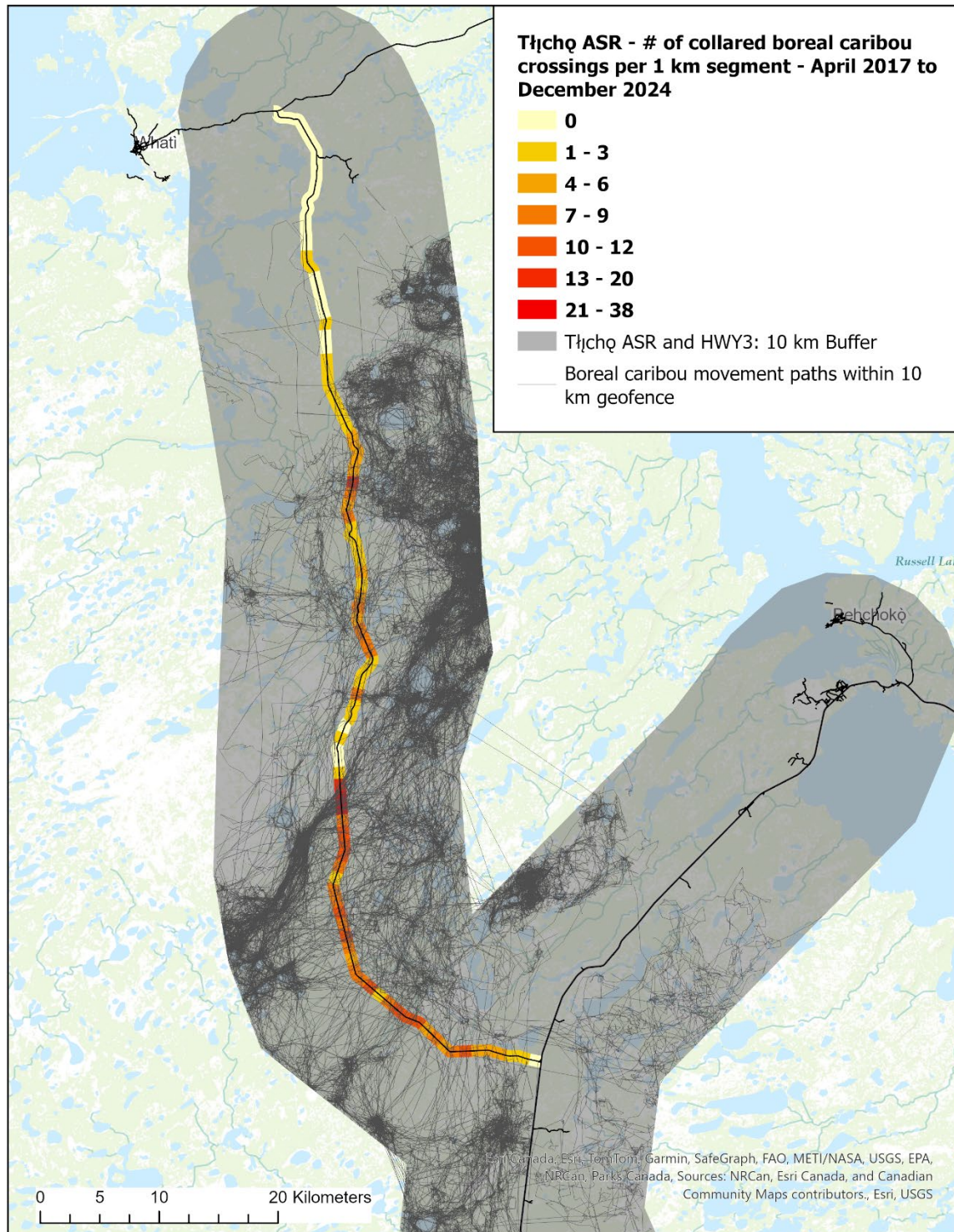


Figure 11-1: Number of collared boreal caribou road crossings along the Tłı̨chǫ ASR alignment broken down into 1 km segments, which occurred between April 01, 2017, and December 31, 2024.

The total number of crossings by collared caribou occurring between April 01, 2017, and December 31, 2024, is 478, with 80 crossings occurring from 15 different collared caribou during the 2024 calendar year. Generally, most caribou crossings have occurred between kilometers 5 and 37, and fewer crossings are occurring along the northern half of the road (Figures 11-1 & 11-2). In 2024, crossings occurred in 25 of the road segments, and the maximum number of crossings in any segment was 14.

Table 11-1 provides a summary of the number of crossings by collared caribou during each phase of the project, and the number of individual collared caribou that crossed the road on at least one occasion during each project phase. Table 11-2 provides a breakdown of the number of crossings by each individual collared caribou by project phase. One individual (BWCA22602) has crossed the road 56 times during the period the road has been open for public use.

Table 11-1. Number of crossings by GPS collared boreal caribou, and number of individual collared caribou that crossed the road on at least one occasion, during the pre-construction, construction, and operations ("road open") phase of the Tłıchq ASR.

Project phase	Total number of crossings by collared boreal caribou	Number of Collared Caribou that crossed the road at least once
Pre-construction (April 01, 2017 – August 31, 2019)	101	15
Construction (September 1, 2019 - November 30, 2021)	172	24
Road open (December 01, 2021 - December 31, 2024)	205	23
Total	478	36

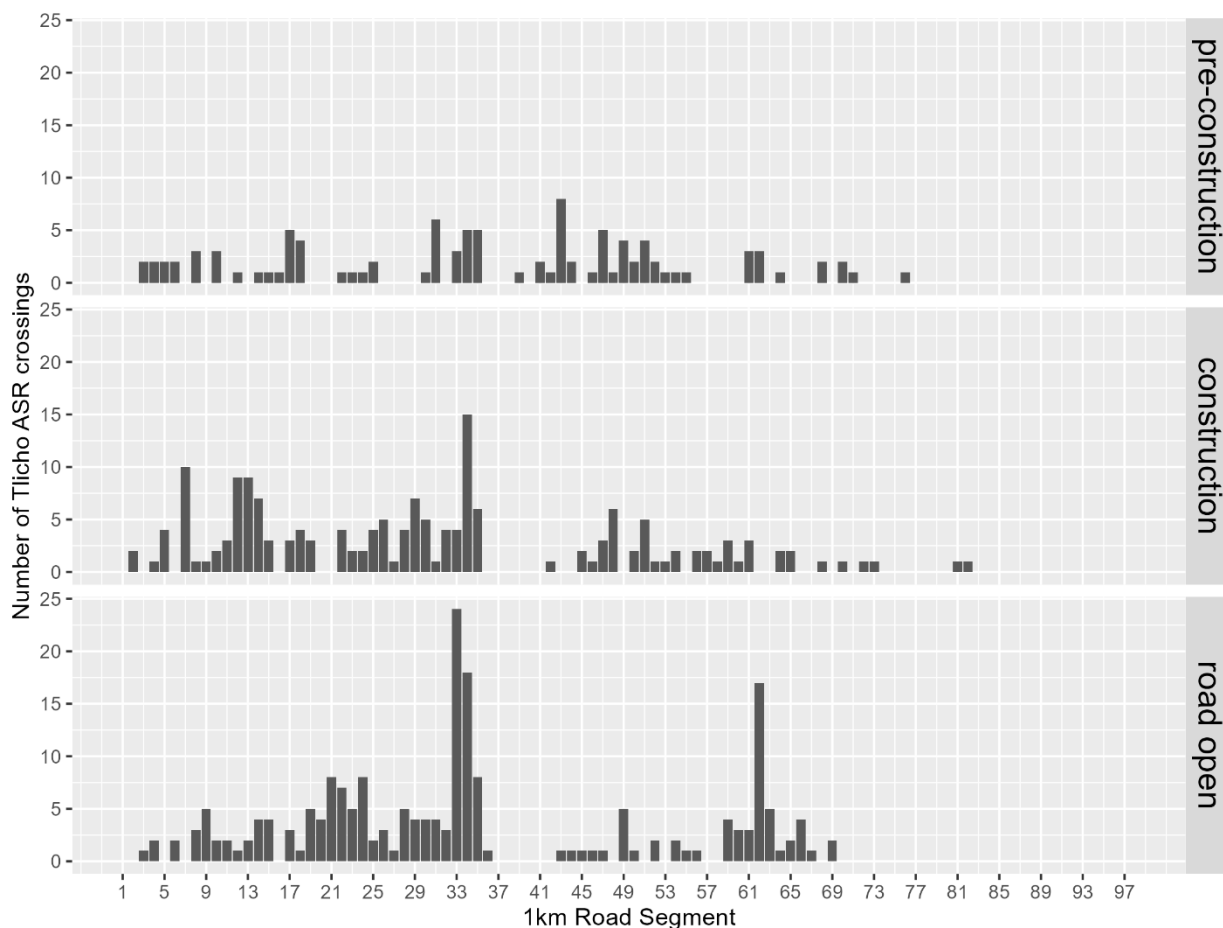


Figure 11-2. Number of crossings by collared boreal caribou within each 1-km segment of the Tłıchǫ ASR, during each phase of the project.

Figure 11-3 shows the number of the Tłıchǫ ASR crossings from April 01, 2017, to December 31, 2024, as a function of month to assess whether there are times of year that boreal caribou cross the road more frequently. When looking at the pre-construction, construction, and operations phase combined, boreal caribou appear to cross the alignment more frequently during the months of April to May and October to December, and less frequently during March, and June to September. However, when looking at the three phases separately, there appears to have been a shift in the timing of crossings during the operations phase of the road, with more crossings now occurring in August and September, and fewer during May, when compared to the pre-construction and construction phases (Figure 11-4).

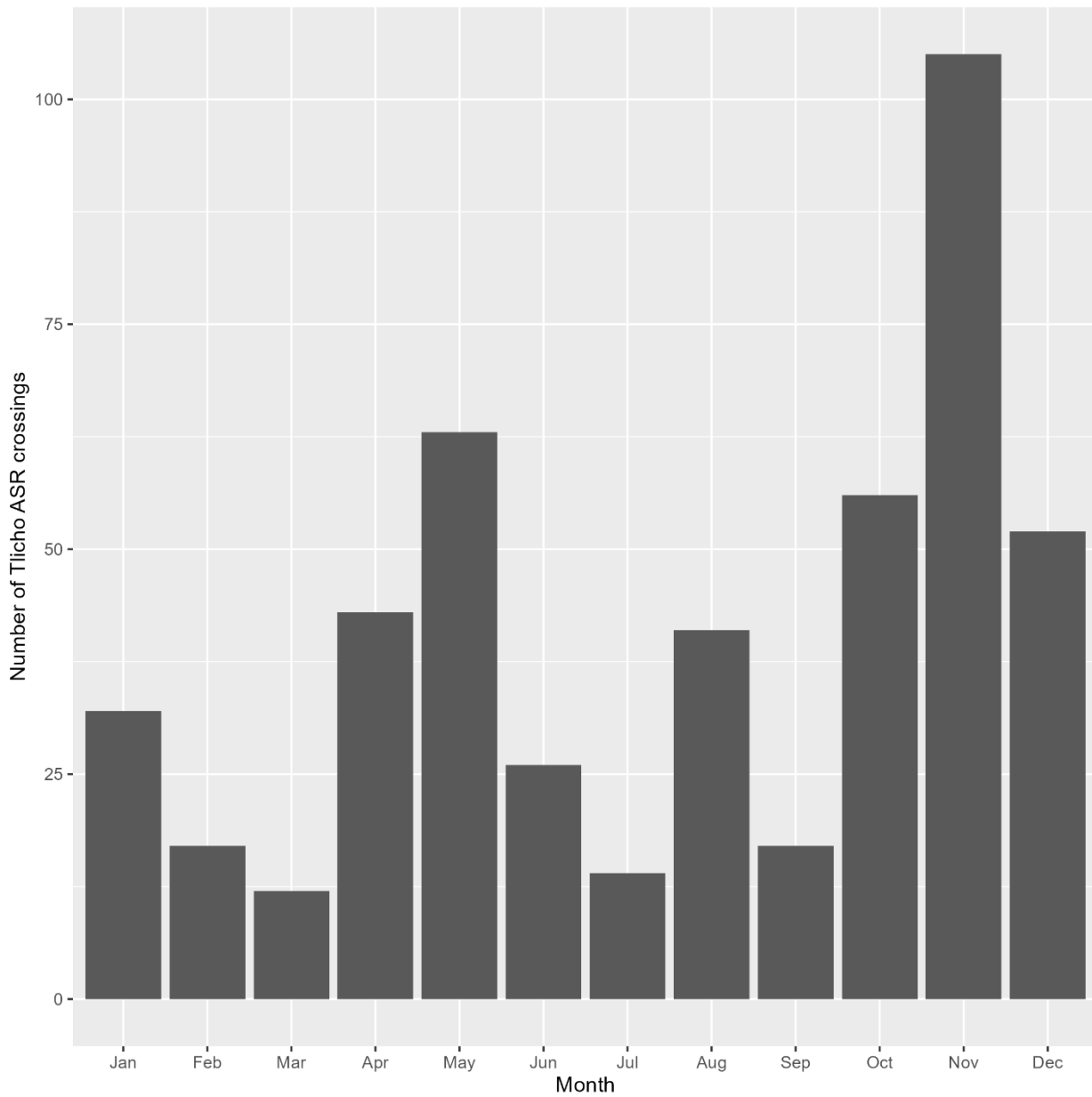


Figure 11-3. Total number of collared boreal caribou Tłıchǫ ASR crossings during each month, based on movement paths from collar data collected between April 01, 2017 to December 31, 2024.

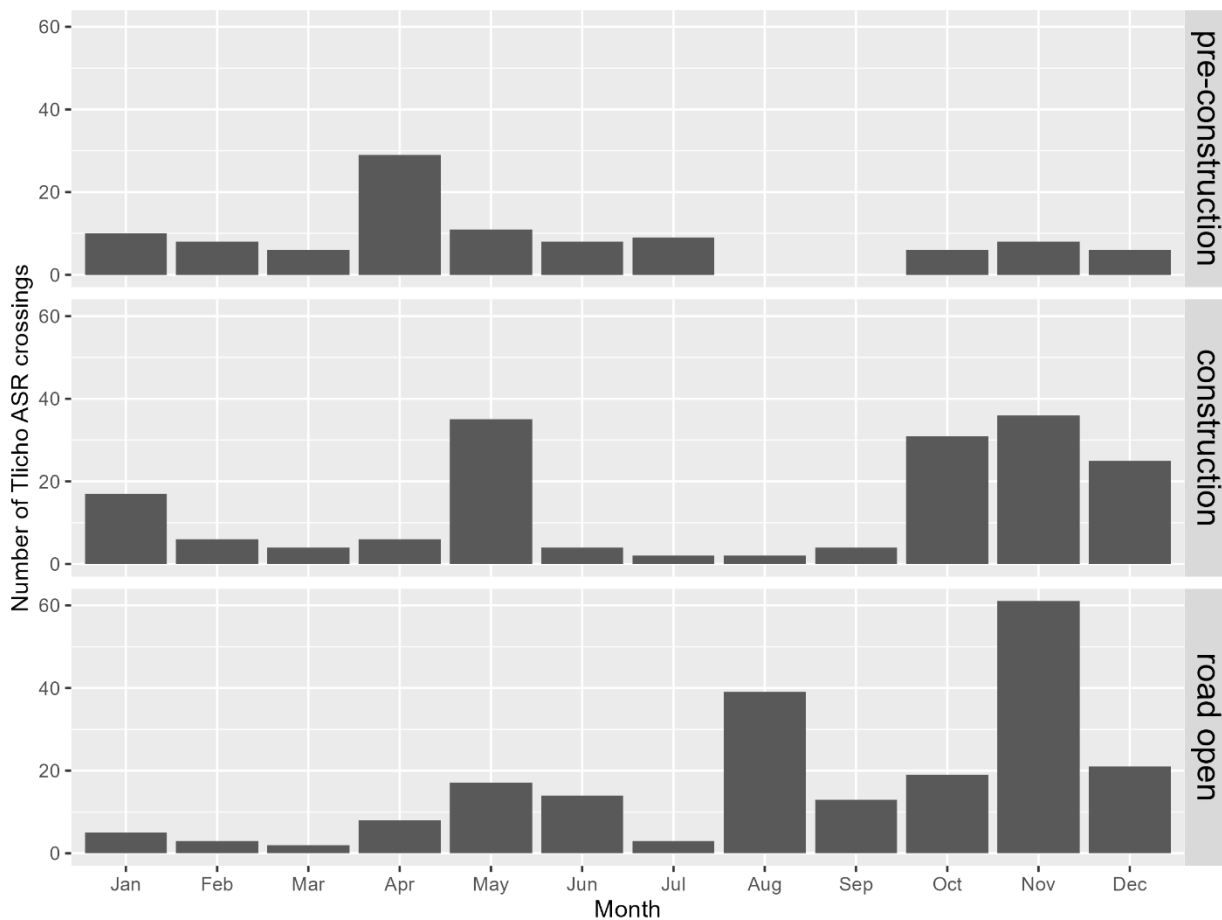


Figure 11-4. Total number of collared boreal caribou Tłıchǫ ASR crossings during each month, based on movement paths from collar data, broken down by project phase.

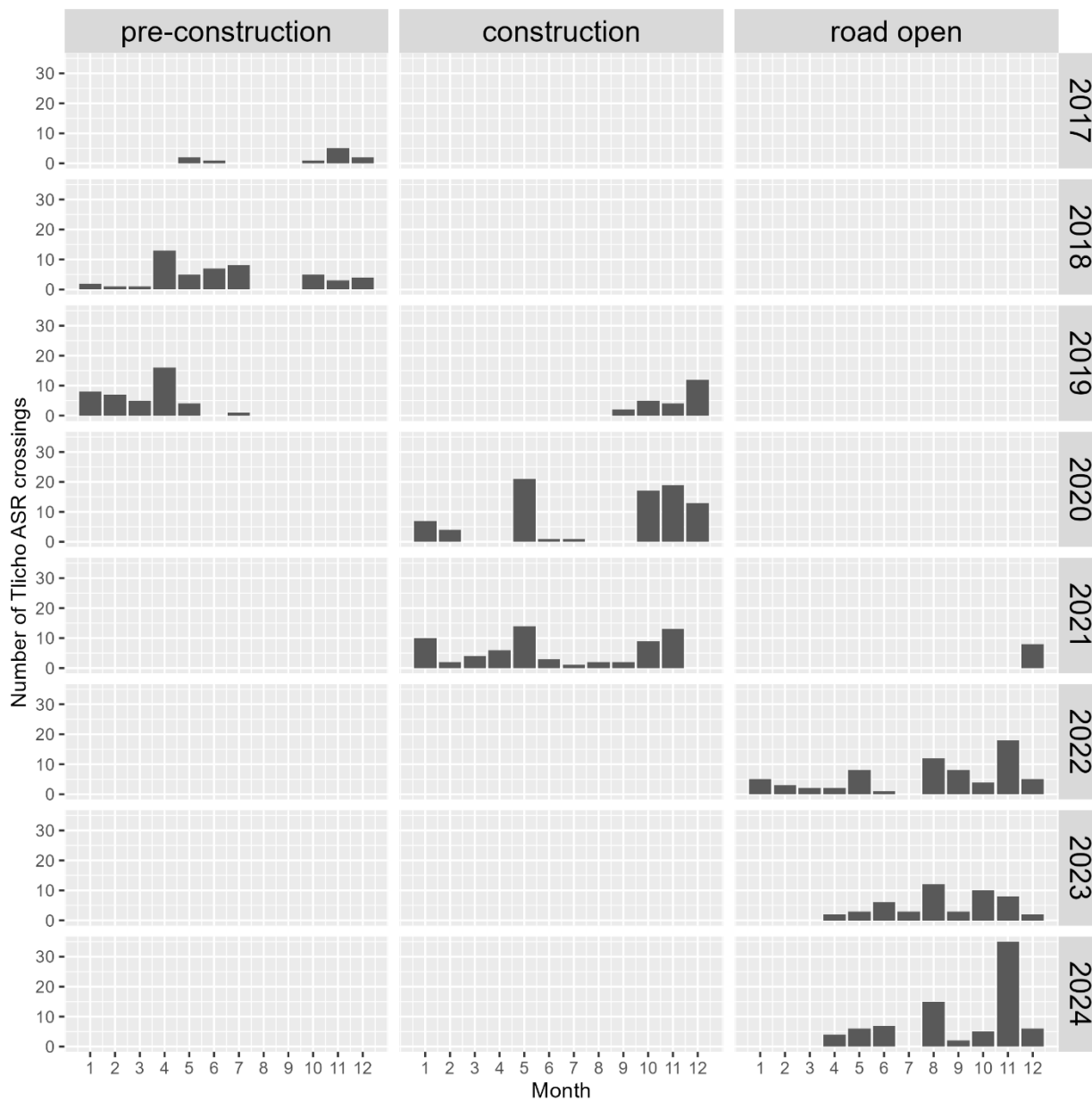


Figure 11-5. Total number of collared boreal caribou Tłıchǵ ASR crossings during each month, broken down by Year and Project Phase, based on movement paths from collar data.

Table 11-2. Tłıchq ASR crossings by collared boreal caribou during pre-construction (April 01, 2017 – August 31, 2019), construction (September 1, 2019 - November 30, 2021), and after the road opened for public use (December 01, 2021 - December 31, 2024). The first two digits of the Animal ID number denote the year the collar was deployed.

Animal ID	Number of Tłıchq ASR		
	Pre-construction	Construction	Road open
BWCA17602		3	
BWCA17605	2		
BWCA17606	21	10	
BWCA17616	3		
BWCA17618	10	9	
BWCA17620	4		
BWCA17622	8	11	
BWCA17623		5	
BWCA18600	8	6	
BWCA18602	22	9	
BWCA18603	7	7	
BWCA18604	4	4	
BWCA19600	2	12	4
BWCA19601		6	
BWCA19602	2	17	2
BWCA19603	2	7	7
BWCA19604		4	
BWCA19605	2	18	2
BWCA19606	4	18	3
BWCA21600		2	8
BWCA21601		2	
BWCA21602			2
BWCA21604		6	10
BWCA21605		5	14
BWCA21606		5	11
BWCA21607		3	15
BWCA21610		1	10
BWCA21615		2	3
BWCA22601			2
BWCA22602			56
BWCA22603			9
BWCA22604			1
BWCA22605			11
BWCA23601			10
BWCA23602			8
BWCA23603			8
BWCA23607			6
TOTAL	101	172	205

12. BISON ABUNDANCE SURVEY

The WMMP Version 4.0 (2020) recommended that bison aerial surveys in the Tłıchq ASR alignment area be combined with the Mackenzie bison population surveys which occur every 3-4 years. ECC conducted an abundance survey of the Mackenzie bison population in February-March 2023. This survey was designed to estimate the density and abundance of the entire population (Figure 12-1) and overlapped with the southern extent of the Tłıchq Highway area. The 2023 population estimate was 1945 bison (95% confidence interval 1327-2849), up from the 2019 population estimate of 1468 (95% confidence interval 914-2359).

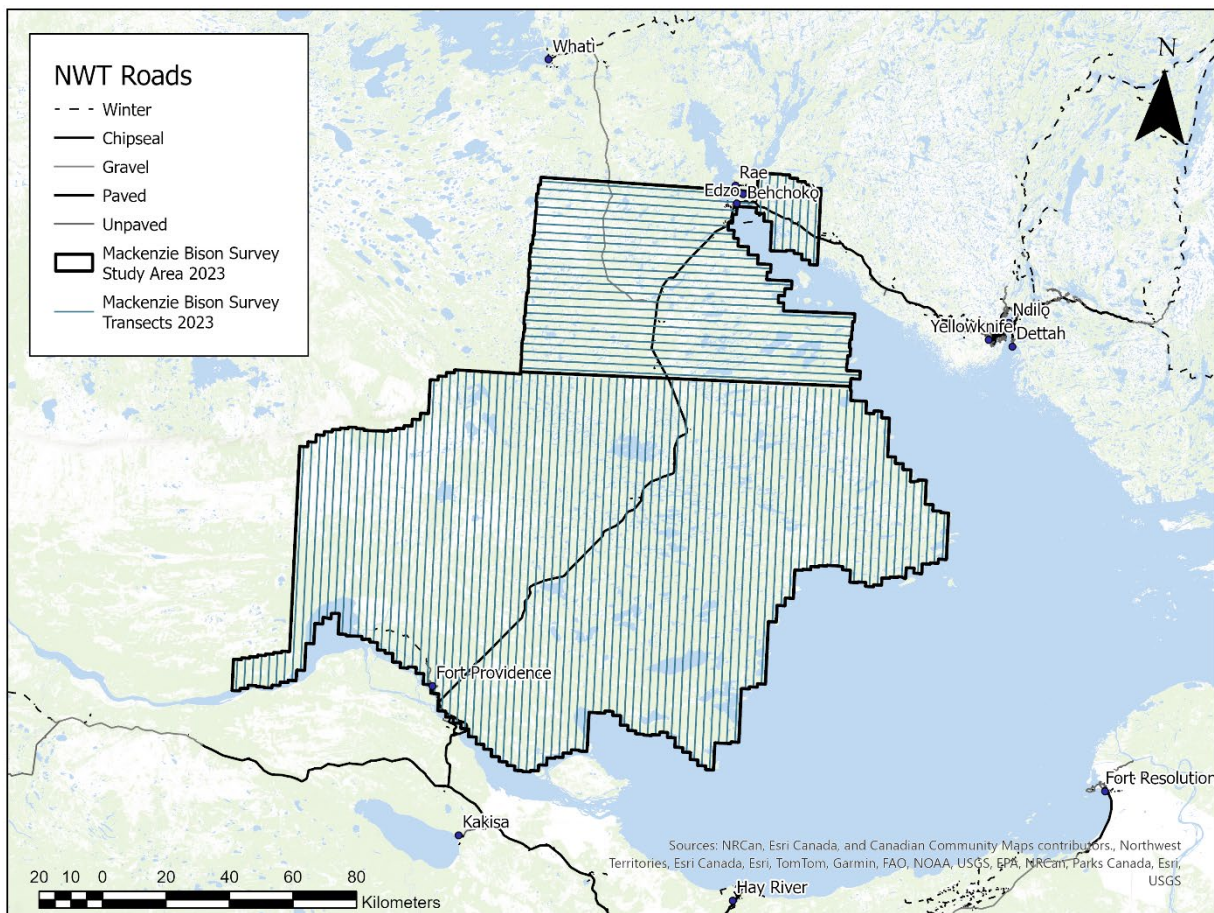


Figure 12-1. Mackenzie bison population abundance survey area conducted in February-March 2023. Results are reported for the entire survey area, not just the area encompassing the Tłıchq Highway.

13. EA MONITORING RESULTS

Measure 10-1, Part 2: Use of results from pre-construction bird surveys required under Measure 10-1, Part 1 to inform mitigations.

Results from the pre-construction bird surveys did not require additional mitigation measures, and therefore, no updates during the current reporting period were made.

13.1. MEASURE 10-2, PART 2: WILDLIFE MANAGEMENT AND MONITORING PLAN UPDATE DURING PERMITTING

During the permitting, the developer worked collaboratively with Environment and Climate Change Canada, GNWT-ECC, Wek'èezhì Renewable Resources Board, Tłıchq Government and Indigenous groups and harvesters to develop an updated WMMP.

Traditional knowledge (TK) was provided by The Tłıchq Government and the Yellowknives Dene First Nations. The TK was incorporated into the WMMP with respect to caribou and will also be incorporated into a Caribou Habitat Offset Plan.

GNWT-ECC approved version 3.3 of the WMMP on August 30, 2019, following review and approval of the WMMP by the Wek'èezhì Renewable Resources Board under Section 12.5.1 of the Tłıchq Agreement which included a period of public review.

The WMMP version 4.1 was submitted to the WRRB on November 6, 2020 for review and approval. Following the approval of version 4.1 by the WRRB, version 4.2 was submitted to the WLWB and ECC, respectively for their review and approval. The WLWB approved the version 4.2 on February 25, 2021 while ECC approved its version on March 1, 2021.

For the reporting period and in compliance with EA Measure 10-2, Part 3, the WMMP was revised and updated in collaboration with ECC and submitted to the Wek'èezhì Land and Water Board (WLWB). A 30-day public review period was undertaken, with submissions made to the WLWB's Online Review System by Environment and Climate Change Canada, North Slave Metis Alliance, and Wek'èezhì Renewable Resources Board (WRRB). In consultation with ECC staff, INF developed responses to comments received, revised the WMMP to address the comments.

The WMMP version 5.1 was submitted to the WRRB on November 6, 2021 for review and approval. Following the approval of version 5.1 by the WRRB on December 9, 2021, it was submitted to the WLWB and ECC, respectively for their review and approval. The WLWB approved the version 5.2 on February 09, 2022 while ECC approved its version on March 21, 2022.

The WMMP Version 6.0 was submitted to the WLWB and ECC on January 20, 2023, respectively to commence the public review process. Version 6.0 was posted to the WLWB's Online Review System (ORS) for public comments. Following the public comment period, Version 6.1 was submitted to the WRRB on April 13, 2023, for their review and approval. The WRRB posted Version 6.1 to their website for public comments. The public comment period ended on May 15, 2023, and the WRRB indicated its approval of Version 6.1 on April 13, 2023. Version 6.2 was submitted to the WLWB and ECC on June 12, 2023 for final approval. Version 6.2 of the WMMP was approved by the WLWB and ECC on October 16, 2023 and February 19, 2024, respectively.

A public review of the WMMP was not conducted in 2024, as ECC was working to finalize the comprehensive WMMP report for the construction phase of the Tłıchq All-Season Road project. ECC intends to initiate the next public review of the WMMP when the construction phase WMMP report is also ready for review, so that the two reviews can occur simultaneously. This will allow for next WMMP review to be informed by the results of monitoring programs conducted during the construction phase. These two reviews will take place in 2025.

14. REFERENCES

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Serrouya, R., van Oort, H., DeMars, C., and Boutin, S. 2016. Human footprint, habitat, wolves and boreal caribou population growth rates. https://www.nwt-esrf.org/sites/default/files/2016-10/Human%20Footprint%2C%20Habitat%2C%20Wolves%20and%20Boreal%20Caribou%20Population%20Growth%20Rates_2016.pdf. Accessed December 12, 2018.

APPENDIX A CARIBOU HABITAT OFFSET IMPLEMENTATION PLAN DEVELOPMENT - ENGAGEMENT PROGRESS REPORT



Progress Report

DATE January 31, 2025

Project No. CA0039941.2328

TO Benjamin Bey, Government of Northwest Territories

CC Paula Bentham

FROM Leon Milner

EMAIL leon.milner@wsp.com

TŁİCHQ HIGHWAY CARIBOU OFFSET IMPLEMENTATION PLAN - JANUARY 2025 - PROGRESS REPORT 1

Below is a summary of the initial engagement activities completed by WSP in 2024, an update to the Final Caribou Habitat Offset plan habitat balance table, and upcoming field planning based on potential restoration areas derived in the initial engagement sessions.

1.0 SUMMARY OF INITIAL ENGAGEMENT SESSIONS

WSP facilitated engagement mapping sessions with experienced land users from the Tłıchq and North Slave Métis Alliance on October 28 and 29, 2024. WSP contacted the Yellowknives Dene First Nation (YKDFN) via telephone and email, but did not receive a response or indication of interest in participating in the workshops. Caribou offsetting techniques were discussed and participants marked up maps to identify areas of potential caribou offset locations and areas to avoid. Feedback in the meeting and breakout sessions indicated the potential offset locations include areas that have already been burned, redundant trails along the Tłıchq highway, areas directly adjacent and primarily east of KP 32 to 34, 38 to 42, which are areas currently used for cutting wood. Other areas include marked lines east of KP 68 to 84 which is currently used for a tree reforestation trial and seed collection. Areas to avoid restoration include the area around Whatl, Whatl Falls, cabins, a school camp, traplines, trails along the edges of Great Slave Lake. Other areas of note include skidoo trails, portage trails, cultural offering sites and burial sites. General comments include a request that WSP use local vegetation for revegetation efforts, and interest in participating in field programs. Participants also had questions about the caribou offsetting timelines, ground truthing, signage, and evaluation of success.

The Workshop Series 1 Summary document (CA0039941.2328-001-R-REV0) contains more information and workshop results. The presentation slideshow, marked up maps, and workshop sign-in sheets are included as an appendix to that document.

2.0 SUMMARY OF FIELD PLANNING

Following Project initiation, WSP completed a desktop data collection, interpretation and GIS mapping exercise to summarize community engagement feedback to develop the subsequent field verification program. The objective of the desktop data collection, interpretation and GIS mapping was to identify suitable linear features and polygonal features that are restoration candidates within the Wek'èezhii Management Area (the study area). Suitable and non-suitable linear features and polygonal features for restoration are indicated in Table 1. A 7 m

width was assumed for linear features that did not have an associated width for use in area based (ha) GIS calculations.

Prior to construction of the project, it was calculated that there are 511.9 km of existing linear disturbance within 10 km of the TASR Project and 63.6 km of redundant trails within a 500 m buffer of the TASR right-of-way (ROW), (WSP 2024).

Following stakeholder feedback and subsequent exclusions (e.g. due to access roads of cabins or other infrastructure), 22.6 ha (30.8 km) of existing linear disturbance were determined to have high potential for restoration, while an additional 79.0 ha (124.1 km) have potential for restoration and 54.8 ha (13.0 km) have potential for partial restoration (Table 1). This amount of eligible restoration area exceeds the target restoration of approximately 70 km of linear features (WSP 2024). However, WSP has not calculated if the areas of high potential/ potential/ potential partial restoration (combined 156.4 ha), with the associated benefit of reduced Zone of Influence (500 m buffer; following the approach presented in the final Offset Plan) meets the overall offset value required (Table 1). A total offset commitment was initially determined of 2,637.6 ha using a Habitat Balance Table, which has been updated to 2,387.3 ha (Section 3.0, Table 2). WSP will provide the updated offset value of the restoration once the field verification and Workshop Series 2 are completed.

An additional 1060.7 ha (870.9 km) of linear features did not receive comments during the Series 1 Workshops (Section 1.0) and are recommended to be evaluated further during the field program for potential restoration opportunities (Table 1). After the initial screening of restoration linear features, field verification and assessment of the restoration-candidate linear disturbances will still be required.

Table 1: Suitable linear features and polygonal features that are restoration candidates (or non-suitable) within the Wek'èezhii Management Area (the study area).

Existing Disturbance Feature	Linear Kilometres	Total Potential Restoration Area (ha) ¹	Area % of Total
Do not restore	769.9	30029.8	95.9%
No comment from workshop	870.9	1060.7	3.4%
High potential to restore ²	30.8	22.6	0.1%
Potential to restore ²	124.1	79.0	0.3%
Potential partial restoration ³	13.0	54.8	0.2%
Potential borrow source	7.8	63.1	0.2%
Total	1816.6	31310.0	100.0%

¹ Assumes linear features with no assigned width have a width of 7 m. Assumes direct restoration footprint only, with no reduction in existing ZOI (500 m buffer).

² *High potential to restore* linear features have easy access and general agreement from staff and workshop participants for restoration; they may also be noted to overlap with high quality caribou habitat. *Potential restoration* linear features generally have lower confidence for restoration (i.e. requiring field verification or further consultation).

³ *Potential partial restoration* features had partial restoration recommended. i.e.: narrowing of trails, without complete closure.

Multiple data sources were integrated during this desktop review phase, which included:

- Borrow Sources
 - GNWT provided WSP with an inspection report, noting these borrow sources were previously restored. (Dated October 18, 2021) GNWT noted that further restoration may be eligible as offsetting under the TAsR HOIP. However, it is unclear if they will be eligible under the HOIP due to other restoration commitments. (i.e.: TAsR Habitat Offsetting Plan (HOP), TAsR Closure and Reclamation plan (CRP)).
- Fire Cut Blocks
- Fire Towers
- Structures (with 500m buffers)

Trail camera locations have been provided to GNWT, to enable synergy with another project whereby trail cameras could be deployed in winter 2025 to monitor some potential restoration locations (8-10).

Ongoing seed collection & tree planting projects of the Tłı̨chǫ government were discussed by WSP with the GNWT & Tłı̨chǫ government.

In total, follow-up since Workshop Series 1 has included addressing approximately 50 action items resulting from the mapping workshops. Some items were pursued only briefly, due to a lack of promise/practicality for restoration (i.e. old Edzo airstrip, White Beach Point area). Other action items have found promising new areas as restoration candidates to assess during the field program (e.g., forest cutting areas no longer in use).

The latest project spatial data is included as separate attachments to this report (GIS data along with a Google Earth file). They include the linear and polygonal disturbance data used in the restoration planning area and caribou habitat balance table summaries. The data has been categorized as indicated in Figure 1.

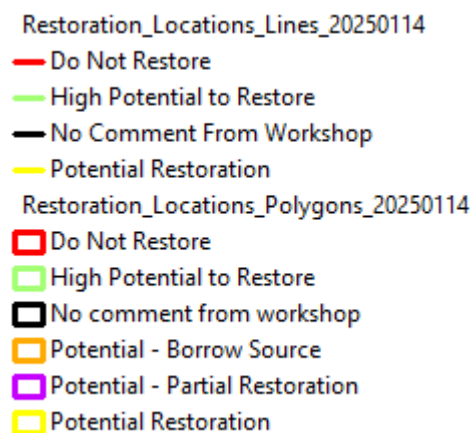


Figure 1 Data categorizations for lines and polygons as they appear in the Google Earth file (.kmz) legend.

Comments from the Workshop Series 1 and subsequent digitization meetings have been used to update the spatial data to characterize linear and polygonal features as do not restore, high potential to restore, potential to restore and partial restoration potential. Items drawn on the maps at the workshops have also been digitized, vetted with workshop facilitators, and incorporated.

3.0 UPDATE TO THE HABITAT BALANCE TABLE

The Government of Northwest Territories - Department of Infrastructure (GNWT-INF) committed to offset the residual effect of habitat loss for boreal caribou by the Tłı̄chq All-season Road (TASR) for compliance with Measure 6-3 of the Mackenzie Valley Environmental Impact Review Board's Decision Report (MVEIRB 2018 a, b). In 2021, the GNWT-INF developed a Final Caribou (ṯḏzi) Offset Plan for the TASR based on engagement with Indigenous communities, Government of Northwest Territories - Environment and Natural Resources (GNWT-ENR) and Environment and Climate Change Canada (GWNT-INF 2021). The plan calculated a total offsetting need of 2,846.4 ha based on TASR net residual effects and with application of offset ratios ranging from 4:1 to 1:1, depending on whether the residual effect results from direct or indirect disturbance. Updates to the caribou resource selection model (received by Golder February 2022) after the TASR Final Caribou (ṯḏzi) Offset Plan were included in offset calculations. The calculations indicated a reduced amount of caribou habitats newly disturbed by the TASR ZOI by 208.8 ha, for a revised total offset area required for offset of 2,637.6 ha's (WSP Golder 2022).

The reduction in newly disturbed caribou habitat was the result of the presence of more existing disturbance adjacent to the TASR than was known at the time the TASR Final Caribou (ṯḏzi) Offset Plan was prepared.

The most recent update to the caribou habitat balance table was conducted by WSP using desktop GIS analysis of the Tłı̄chq Highway as-built drawings (Table 2). The updated (and final) Habitat Balance Table indicates a further reduced amount of disturbed caribou habitat from the TASR Project. The total offset area required for offset is 2,387.3 ha. Borrow sources and their access roads were excluded in the final Habitat Balance Table, following the previously committed measure that restoration would occur beyond permit conditions in these areas (GWNT-INF 2021), and that this restoration is outside of the scope of the TASR HOIP.

Table 2: Caribou habitat balance table from WSP desktop analysis of the as built TASR (January 2025).

Area Description	Total Area (ha)	Offset Ratio	Total Area Required for Offset (ha)
Physical Disturbance (Direct Effects)			
New Physical Disturbance	475.8	4:1	1,903.3
Overlaps with Existing Disturbance	67.1	0	-
Net Area of New Physical Disturbance	475.8	4:1	1,903.3
TASR ZOI Overlapping Existing Linear Disturbance	308.2	0	-
TASR ZOI Overlapping Existing Zones of Influence	9,932.8	0	
New Disturbance (Unselected Habitat) ¹	215.9	1:1	215.9
New Disturbance (Selected Habitat) ¹	134.0	2:1	268.1
Total Area of ZOI Disturbance ¹	10,591.0		484.0
Total Offset Commitment¹			2,387.3

¹The total offset commitment is based on the multiple data sources provided in the desktop review phase and captures the revisions to the caribou resource selection within the TASR Project zone of influence and 500-m buffer of the as built TASR. Cabins and cabin polygons were included as existing disturbance. The progressive timber harvest (not with a 500 m buffer) is also included with existing disturbance and 7 m widths were assumed for linear features with unassigned areas.

4.0 BUDGET UPDATE & PROJECT RISKS

The 2025 budget balance as of January 24, 2025, is shown below (not including reporting work carried out during the week of Jan 27-31, 2025).

Table 3: Current Budget Balance

Task	Contract Value	Effort to Date (Jan 24, 2025)	Comments	Currently Anticipated Budget
Project Management	\$21,177	\$6,245	--	\$28,500.00 (increased to account for extra costs to the tasks below)
Engagement Meetings/Workshops, planning, and Knowledge sharing agreements	\$80,125	\$48,945	Budget overages previously discussed with Benjamin Bey included extra printing & flight charges. More time spent that anticipated on first set of workshops. If second set of workshops costs the same as the first, total budget for workshops required will be \$97,890.	\$97,890
Desktop Review & Field verification	\$83,093	\$27,073	Amount to date of \$27,073 is approximately triple what was anticipated to be spent on desktop review prior to pre-field meeting (\$10,143), and maps & habitat balance table are still not complete. Maps should also undergo review/revisions by Tłıchǫ Government & GNWT prior to field planning. The amount of time this will take is hard to anticipate but likely in the range of \$5-\$10k. WSP would like to do more work on desktop verification, including digitization of trails not previously digitized. Effort required for this is hard to estimate but would likely take at least 12 hours (\$1,812). Targeted engagement with cabin owners near candidate restoration areas may be desired. GNWT may wish to undertake work on this task to minimize consultant effort. (WSP does not yet possess information on who owns these cabins, or what kind of consultation this may require (home visit with maps vs. video call, etc.). Habitat balance table updates, as well as reporting during the week of Jan 27-31, 2025 is estimated to cost around \$5,000. Field planning based on the final maps is also still to be completed.	\$83,093.00 + \$25,000 + \$1,812 + \$5,000 = \$114,905
Habitat Offset Implementation Plan (HOIP)	\$43,148.00	\$0.00	N/A - to be completed after field verification.	\$43,148
Regulatory Approvals	\$33,820.00	\$0.00	N/A - to be completed after field verification.	\$33,820
Subtotal	\$261,363.00	\$82,263	Note \$82,263 is more than the amount originally estimated to be spent in FY 2024/25 as discussed with change of timeline (SC-INFO1-7218-CC01).	\$318,263

*NB: Estimates above are not meant to replace or overrule assumptions in the cost aid relating to future tasks, ie: HOIP, Regulatory approvals.

5.0 POTENTIAL PROJECT RISKS

- 1) As shown above, several tasks to date have required more effort than initially budgeted. WSP recommends a scope change at this point in the project to increase the overall budget to \$320,000.
 - a. WSP recommends digitizing additional trails & previously unmapped borrow sources (ie: HWY 3 KP 147-166 borrow sources) that have been identified during the workshops or post-workshops in advance of the field program to enable the field crews to be as efficient as possible in assessing these areas, as field time is very expensive.
- 2) WSP TASR HOIP project manager Leon Milner is leaving WSP Feb 15, 2025. A new project manager will be allocated to the project.
- 3) Borrow sources specific to the TASR Project will not be eligible under the HOIP due to the restoration commitment made in the TASR Final Habitat Offsetting Plan (HOP) and TASR Closure and Reclamation plan (CRP).
- 4) Many candidate restoration trails are located near cabins east of Highway 3 (between KP 172 and 176). No contact has been made with cabin owners in this area. There is some risk of the owners not wanting restoration of a large number of trails due to personal use. Contact with these cabin owners was not anticipated and should be undertaken prior to field work. This would add scope beyond that mentioned in Table 3.
- 5) Many candidate restoration trails exist west of HWY 3 between KP 178 and 182. These are firewood cutting areas. They may be good restoration candidates due to their volume and a shortage of other potential restoration areas. However, it may be hard to ensure the areas stay restored due to ongoing wood cutting.
- 6) The Tłıchǵ government has expressed interest in reviewing maps prior to field work but does not have funding allocated for this task under WSP's contract. There is some risk they may not undertake advance review. WSP also cannot predict which areas their review may disqualify from restoration.

5.1 Example Images of Unmapped Trails

East of HWY 3 KP 172. Purple (Mapped during HOP). Grey (visible but unmapped):



HWY 3 West of KP 177 (Firewood cutting area):



6.0 REMAINING DELIVERABLES

Table 4: Project Schedule and Deliverables

Deliverables	Due Date
<u>COMPLETE: Kick-Off meeting</u>	August 21, 2024
<u>COMPLETE: Meeting minutes</u>	Within two days of regular client meetings (WSP & GNWT)
<u>COMPLETE: Updated schedule contract received</u> (from GNWT)	September 10, 2024
<u>COMPLETE: Community Workshop #1 Prep</u> <ul style="list-style-type: none"> Organization Knowledge Sharing Agreements Workshop Materials Preparation 	September 11 - October 10, 2024
<u>COMPLETE: Workshop Series 1: Introduce project and collect information relevant to developing the field program</u>	October 15 - November 15, 2024 (Actual date dependent upon community availability)
<u>COMPLETE: Indigenous Engagement meeting minutes</u> <ul style="list-style-type: none"> Summarize engagement session, field planning and minutes in plain language for distribution to the participating organizations 	January 31, 2025
<u>COMPLETE: Progress Report 1:</u> <ul style="list-style-type: none"> Summary of Initial Engagement Sessions and Field Planning 	January 31, 2025
Field Planning Map Preparation (Jan 1 – Mar 31) <ol style="list-style-type: none"> 1.) Digitization of additional trails (if approved by GNWT). 2.) Jack Yurko (field restoration lead) has been integrated into the project to begin drafting Specific Work Instructions for the field verification program. He has received the vegetation methodologies of GNWT to use for work planning. 3.) Potentially circulate maps to Tłıchǫ Gov/GNWT to review. (So that they can screen out cabin/burial sites based on internal databases they do not wish to share.) <ol style="list-style-type: none"> a. Discuss if circulation to NSMA desired. 4.) Potentially contact cabin owners whose buildings are located near many restoration candidate areas. Coordination with communities Equipment Bookings Helicopter, accommodation, travel bookings	January 1 - June 30 2025
<u>Field Assessments</u>	July 2025
<u>Progress Report 2: Field Reconnaissance Summary</u> <ul style="list-style-type: none"> With summary of the findings from the field verification with a summary of available candidate restoration areas and including relevant information from Indigenous members. Summary will include a package with the field forms, tally sheets, and field notes. 	August 2025 (Three weeks after completion of field activities)
<u>Workshop Series 2:</u>	September 2025 (Following GNWT review of the Field Reconnaissance Summary)
<ul style="list-style-type: none"> <u>Indigenous Engagement Workshop notes</u> Summarize engagement sessions and community feedback of the field program. 	September 2025 (Three weeks after second workshop series)
<u>Spatial and tabular data</u>	At Project completion
<u>Draft Permit Applications (for GNWT review)</u>	November 2025
Final Permit Applications	Early January 2026 (following GNWT review of draft)
Draft 1 HOIP	Late December, 2025
Draft 2 HOIP	Late January, 2026 (dependent upon client review timeline)
Final HOIP	February 28, 2026

7.0 REFERENCES

- Government of Northwest Territories - Department of Infrastructure (GNWT-INF). 2021. Tłıchq All-Season Road Final Boreal Caribou (tǫdzi) Habitat Offset Plan. Prepared for the Government of Northwest Territories, Department of Infrastructure by Associated Environmental Consultants Inc. Vernon, BC. July 2021. 137 pp.
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http://reviewboard.ca/upload/project_document/Minister%27s%20Reasons%20for%20Decision%20on%20the%20measures.pdf.
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8.0 SIGNATURES

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