



PEEL WATERSHED
PLANNING COMMISSION
TOGETHER FOR THE PEEL • CHUU TL'TI GEENJIT KHETOK

Scenario Options Report



Produced by the
Peel Watershed Planning Commission
January 2009



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SCENARIO OPTIONS REPORT

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About the **Peel Watershed Planning Commission**

The Peel Watershed Planning Commission is responsible for developing and recommending a regional land use plan for the Peel watershed planning region. The Commission is composed of six public members nominated by the Na-cho Nyak Dun, the Gwich'in Tribal Council, as a joint Yukon Government/Vuntut Gwitchin nominee, a joint Yukon Government/ Tr'ondëk Hwëch'in nominee and two Yukon Government nominees.

Commission Members

From left to right:

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Steve Taylor
David Loeks
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Cover Photo

Headwaters of the Vittrekwa River. John Meikle, Environment Yukon.

How to Use This Document

This document is intended as a “think piece” and is a key step in moving towards preparation of a Draft, and then a Recommended Plan for the Peel region. In it, we have distilled considerable information and input received during the past three years by the Peel Watershed Planning Commission. Two alternative Land-Use Management Scenarios are presented and analyzed. One of these will be selected as presented, or modified based upon further input received from the public and Parties to form the framework for the *Draft Plan*. To help you evaluate these two scenarios, we invite you to send the Commission your comments. As a guideline we listed a few “Questions for the Reader” and a questionnaire in Appendix A. In reading through the major sections of this report, we ask the reader to reflect on the purpose of each and the questions that also form part of the summary questionnaire in Appendix A.

- **Section 1:** to provide background on the PWPC’s role in preparing a Draft Plan, its context with respect to existing legal commitments (tenures, land status and terms of the UFA), and a summary of the key values and management issues that have been raised to date through the Planning research and consultation process;

Questions for the Reader: *Does the information provide you with sufficient understanding of the PWPC’s mandate, objectives and approach in preparing the Peel Watershed Region Land-Use Plan? Are the key resource values, interests and management issues that you most care about captured in this section?*

- **Section 2:** to present a framework for understanding Land-Use Compatibility of existing land uses/resource values based upon current state-of-the-art management practices, and tools relevant to the north Yukon;

Questions for the Reader: *Do you agree how we assessed the compatibility of the various current land uses/ecosystem services that either exist now, or might exist in the future? If not, what do you find unclear or incorrect and please give your reasons?*

- **Section 3:** to present an outline of the proposed Land-Use Zoning system¹ that places varying forms of resource-use/mgt emphasis for Protection, Conservation and Sustainable Use based upon current understanding of ecosystem function/sensitivities, current land use and desired future land use in the region;

Questions for the Reader: *Do you accept that the proposed Land Use Zoning framework will serve as a logical and practical foundation for managing the array of existing and potential land uses to achieve Plan objectives? If not, what concerns do you have and what alternative approaches might you propose?*

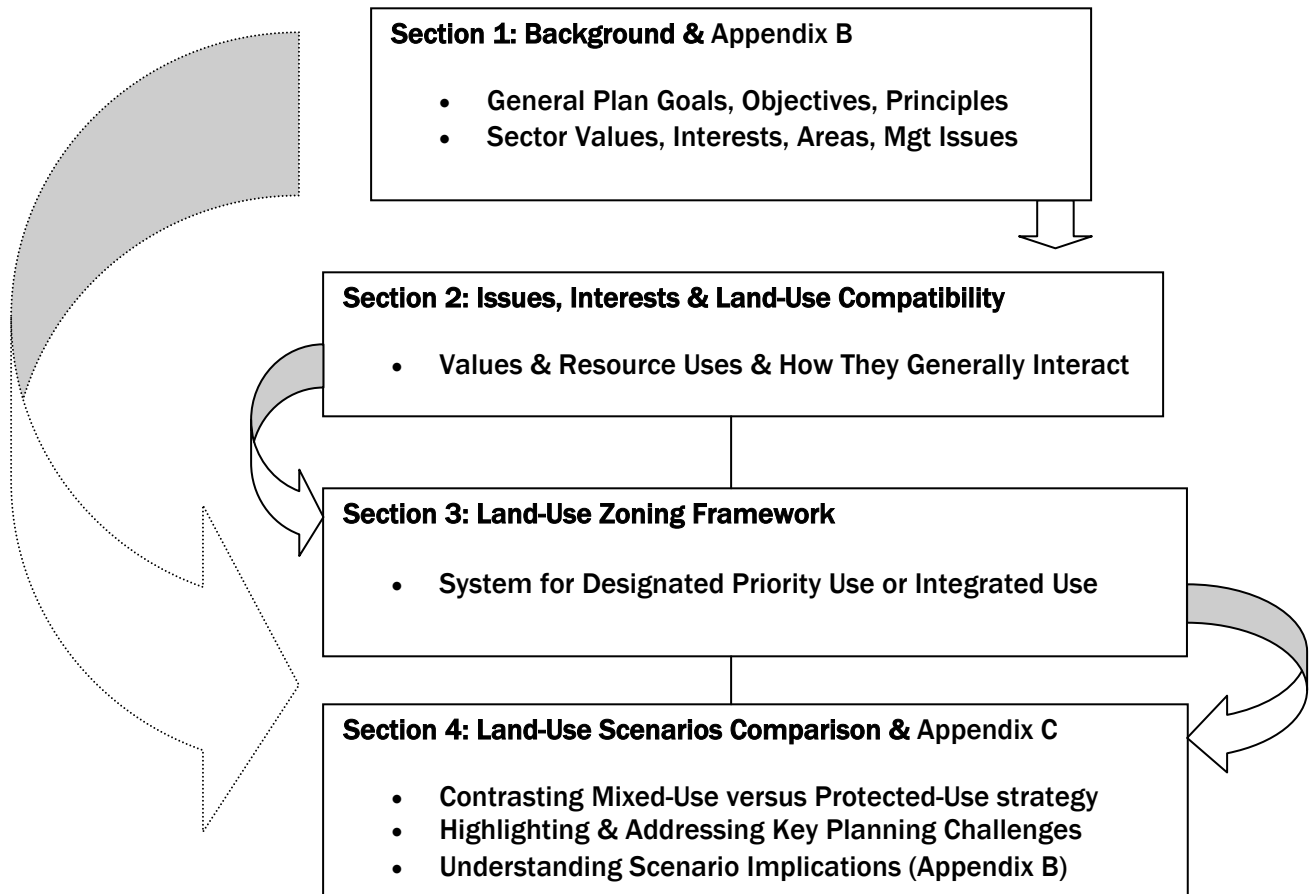
- **Section 4:** to summarize two Scenarios for land use management in the Peel Region based upon some common core elements, but emphasizing differing types of permissible land use with further appended references that emphasize possible risks/benefits on each sector compared to the status quo; also provided is a comparison of how the proposed scenarios address key planning challenges ;

Questions for the Reader: *Do both of the two scenarios present clear alternatives in achieving the PWPC’s land use plan objectives? Is it clear from this Section (and Appended references), how your sector of interest will be accommodated? Can you identify any additional risks/benefits or issues that may result from either or both of the two scenarios? Are there other land use management options that may address your objectives or concerns?*

¹ This Framework will then be further developed in the Draft Plan to articulate a host of specific strategies, tools and other measures like thresholds for implementation, recommended research/policy work and as a basis for evaluating any future new development proposals to be considered by the Parties.

Identifying Your Areas of Interest and How They Are Considered in This Report

A concerted effort was made to summarize all the key values, interests and issues that were presented to the Commission. Further to the Section summary above, we offer the following guidance for the reader in reviewing how their concerns have been addressed.



Let's go through an example of how you can use this document:

Let's say, for example, your primary area of interest is "wetlands".

Step One: Look for that heading (or related) in the 1st (sometimes 2nd) column of **Table 1** in Section 2 (starting on p. 7). Once you find it, you should see some relevant components, geographic areas, and key issues. You should find several references to "wetlands" under the heading of "water" and "wildlife->waterbirds".

Step Two: Find your topic of interest in "Table 2: Land use compatibility" (Section 2, p. 17) (e.g. Water/wetlands) and how it compares with other land use sectors. You should find that wetlands are incompatible with all-season access and oil and gas extraction.

Step Three: Look to **Table 3** (p. 22) to look for zones or subzones that are compatible or incompatible with your topic. You should see that oil & gas extraction are not permitted in areas zoned as "Protected Areas", "River Corridors", or "Access Areas".

Step Four: Consider how the two Scenarios deal differently with your topic in Section 4 (it may even be addressed in a specific "planning challenge") or in Appendix C. You will find in Appendix C (under "Habitat" and "Waterbirds") that Scenario 1 zones some key wetlands as "comanaged for conservation" (e.g. in a conservation area or SMA) while Scenario 2 zones them as "Protected".

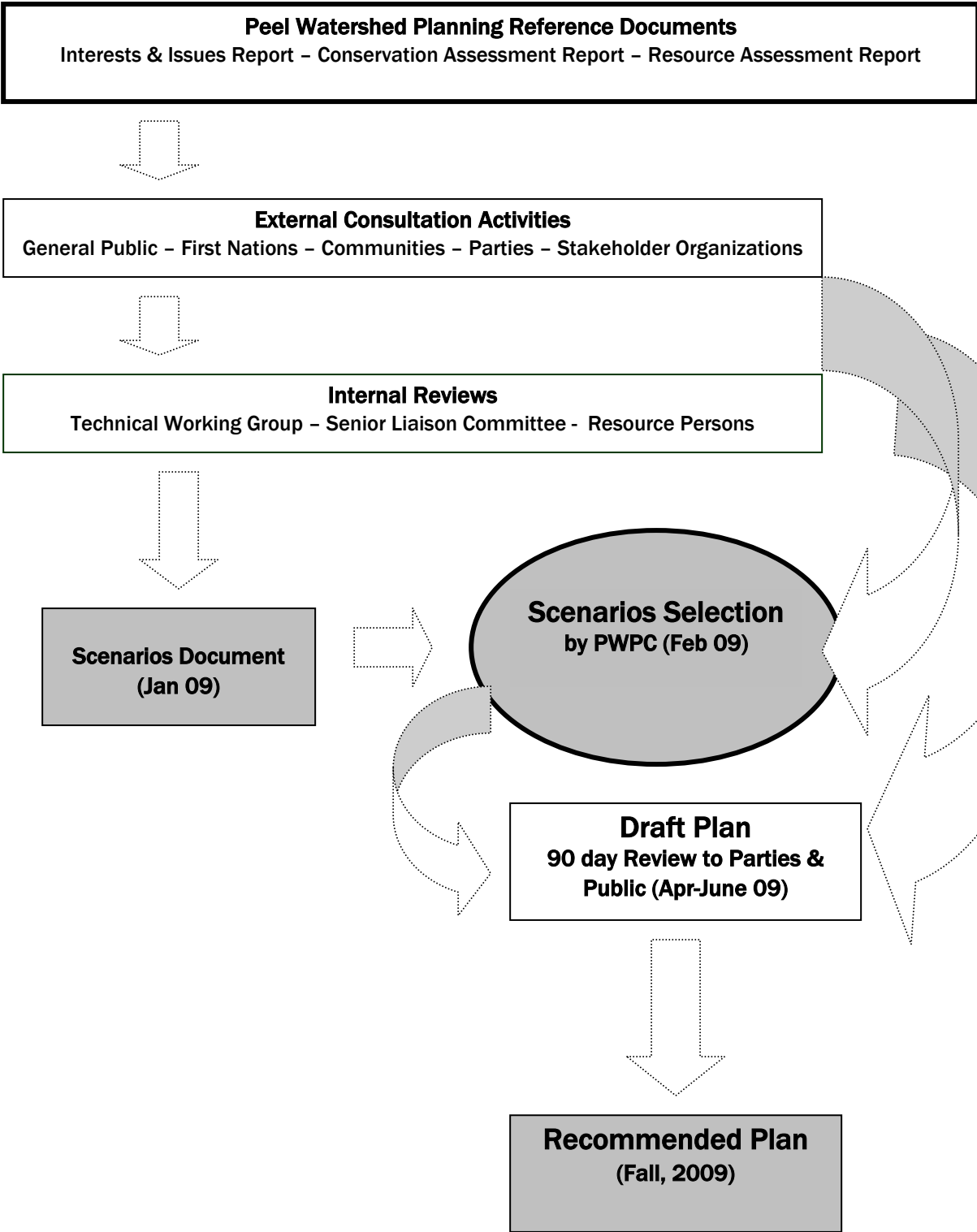


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1. Introduction

Background

Under the mandate of Chapter 11 of the Umbrella Final Agreement (UFA), the Peel Watershed Planning Commission (PWPC) is responsible for developing and recommending a regional land use plan for the Peel Watershed Planning Region. The PWPC is an arms-length commission with members who are jointly nominated by the Yukon Government, Na-Cho Nyak Dun, Tr'ondëk Hwëch'in, Gwich'in Tribal Council and Vuntut Gwitchin governments (Plan Parties). The recommended regional land use plan will apply to all Settlement and Non-settlement lands in the planning region. Its target period of application is approximately 10-15 years, including at least one opportunity for review during this period. At this stage in our Planning process, the Commission has built upon a sequence of (i) baseline research (conservation priorities and resource assessments), (ii) consultation activities (public, stakeholder and First Nations) and (iii) in-house analytical work that builds upon its Terms of Reference objectives, Statement of Intent, Plan Principles and Methodology reports.

This **Scenarios Options Report** serves as a foundation for the public and Plan parties to consider alternative planning and management strategies, or scenarios, for guiding land use decisions over a period of approximately 10-15 years. During that period, various tasks should be implemented on a range of proposed Plan elements including statutory designations, environmental and socio-economic research, capacity-building for First Nations, etc. The resulting *Draft Plan* – and ultimately a *Recommended Plan*, – should yield a higher level of land use certainty than currently exists under the status quo regime of site-specific land use allocation that does not necessarily consider cumulative environmental and social impact.

This effort requires objective consideration about the nature, form and extent of key resource values, accommodation of existing resource-uses, government resource-use policy and the objectives for sustainable resource-use. For such detailed information, the reader is directed to the PWPC's key resource documents – the Resource Assessment Report (PWPC 2008) and the Conservation Priorities Assessment Report (PWPC 2008). Using this baseline of information along with the consultation input it will receive in early February, 2009, the Commission will consider the following factors in development of its *Draft Plan*:

- ecosystem sensitivity (land, water, wildlife, fish and vegetation)
- legal framework of resource tenures and land holdings
- existing land uses (both commercial and non-commercial)
- potential for expansion of existing and potentially new resource-uses
- concerns about present and future land use compatibility

Following the selection of a scenario (or a modified one), and the development of the *Draft Plan*, the Commission will seek comment over a 90 day review period from Plan parties and the public. From this *Draft Plan* review process, recommendations will then be shaped into a *Recommended Plan* that will be put forward for approval and signing by the Parties.

What Is a Land Use Scenario or Option?

Simply put, a land use scenario or option is a framework for a Regional land use plan that is based upon alternative 'views' of the future balancing of economic, social, cultural and ecological values. To develop these scenarios, we assessed "key driving forces" that can influence how the Peel region might develop into the foreseeable future (social, economic, political, technological, environmental trends). Using this assessment, we were able to suggest alternative future directions that endeavour to (a) recognize key resource values and existing land uses, (b) address key land use conflicts, and (c) accommodate future development through increased land use certainty.

Using its previously released *Land Use Scenarios Methods Report* (PWPC 2008c) (LUSMR), the PWPC prepared the two Land Use Scenarios and rationales in this discussion paper, and attempted to:

- reflect the views, interests and objectives expressed at consultation activities (Parties, general public, stakeholder organizations, First Nations) over the past 3 years;
- incorporate opinions of resource or domain specialists (both western science and traditional knowledge experts) from government and First Nations as represented through PWPC planning documents, commissioned studies and direct consultations;
- consider comments from the general public expressed as verbal or written submissions (by letter, presentation, emails, and input to the PWPC's interactive web-based tool);
- review literature from other similar land use plans from the Yukon and neighboring jurisdictions.

What Is the Peel Watershed Planning Commission all about?

The Peel Watershed Planning Commission is an organization at arm's length from any one government or stakeholder. It was given a mandate and a set of goals when it was created in 2004. Since that time, it further defined its direction by writing a Statement of Intent (2006) and a series of plan principals (2008) both rooted in its mandate and goals. All these key statements guide the Commission's land use planning activities. These statements are found in Appendix B.

2. Peeling Back the Peel – Understanding the Region, Interests and Issues

What are some key features of the Peel Watershed Region that make it unique in the Yukon?

Before we can think about alternative future land use options for the Peel region, we must first recognize some key features that make it unique from other planning regions in the Yukon Territory:

- With the exceptions of Tombstone Territorial Park (which has been extracted from the planning region), and a small portion of Vuntut Gwitchin traditional territory that has been accommodated in the North Yukon Planning Region, the Peel Watershed Planning Region boundaries follow the natural watershed boundaries of the Peel River: all its drainage basins empty through a single point on the Peel River where it drains north into the Northwest Territories;
- Despite the fact that it encompasses 68,042 km², there are currently no permanent settlements within the planning region. Four First Nations have traditional territory within the PWPR: Na-Cho Nyak Dun, Tr'ondëk Hwëch'in, Teetl'it Gwich'in and Vuntut Gwitchin First Nations (while subsistence activities in the PWPR have declined over the past few decades, the fish and wildlife resources that inhabit this region remain an important cultural element of all of the affected First Nations);
- Except for the principal access corridor – the Dempster Highway – , it is an intact wilderness region limited to seasonal (winter), off-road, fly-in and river access only;
- The region has no formally designated 'protected areas' through territorial or federal legislation;
- Approximately 2/3 of the region is mountainous including the Ogilvie, Wernecke, Selwyn and Richardson Mountain ranges. These ranges are characterized by many relatively narrow valleys which create significant constraints on access development and environmental management.

Land Status

- Within the planning region, there are five landholders: Na-Cho Nyak Dun, Gwich'in Tribal Council (Teetl'it Gwich'in First Nation), Tr'ondëk Hwëch'in, Vuntut Gwitchin and Yukon Government. (Map 1)
- The Na-Cho Nyak Dun holds 25 Site Specific Settlement Lands ("site-specifics") and one rural-block ("R-block") in the southern boundary of the planning region, accounting for 0.38% (256 km²) of the PWPR. As Category A lands, the NND have ownership of both surface and subsurface rights.
- The traditional territory of the Na-Cho Nyak Dun encompasses 91.2% (61,472 km²) of the planning region and extends across the entire PWPR, with the exception of the lands west of the Dempster Highway; In the NND Traditional Territory, fish and wildlife harvesting use is managed under a shared management regime between the Yukon Government, Gwichin Tribal Council; any Yukon Indian Person can practice fish & wildlife harvesting with the consent of the Na-cho Nyak Dun.
- The Teetl'it Gwich'in First Nation possess 14 site-specifics and 11 R-blocks, all of which are fee simple land titles owned by the Gwichin Tribal Council and provide only for surface rights; these lands represent 2.32% (1,566 km²) of the planning region, located along the mainstem Peel

River in the Peel Plateau. The GTC makes land use decisions for these lands, and its citizens also have exclusive use of them for fish and wildlife harvesting.

- The Teetlit Gwich'in also hold Primary Use and Secondary Use Areas on Crown lands within the planning region. The Primary Use Area, in the northern portion of the planning region – comprises 33% (22,234 km²) of the planning region, and provides similar land rights to those given to Traditional Territories of other First Nations. The Teetlit Gwich'in Secondary Use Area provides harvesting rights to beneficiaries and is located in the northwestern portion of the PWPR, representing 4.6% (3,082 km²) of the planning region.
- Decisions for authorized use of, or access to, public lands with the Primary Use Area rests with the Yukon Government, however fish & wildlife harvesting is managed under a collaborative arrangement between Gwich'in Tribal Council, Na-cho Nyak Dun, and the Yukon Government; any Yukon Indian Person can harvest in these areas with consent of the Gwich'in Tribal Council;
- On Yukon public lands within the Secondary Use Area, the Yukon Government retains control on sub-surface and surface use, and access, but acts in a shared decision-making framework with the Vuntut Gwich'in and the Gwich'in Tribal Council on matters concerning fish & wildlife harvesting; in the SUA, any Yukon Indian Person can practice fish & wildlife harvesting with the consent of the Vuntut Gwich'in.
- The Tr'ondëk Hwëch'in have tenure of 8 parcels of Site Specific Settlement Land – mostly in the southwest portion of the planning region; on its Traditional Territory, the Tr'ondëk Hwëch'in share joint responsibility regarding Fish & Wildlife harvesting with the Yukon Government and the Na-cho Nyak Dun, and with the Vuntut Gwich'in in overlap areas; any Yukon Indian Person can practice fish & wildlife harvesting with the consent of the Tr'ondëk Hwëch'in and. Vuntut Gwich'in in overlap areas;
- The Vuntut Gwich'in First Nation has 2 parcels of Site Specific Settlement Land within the planning region – both along the Dempster Highway.
- The remaining lands in the PWPR are Yukon public lands administered by Yukon Government, accounting for 97.3% (65,558 km²) of the total planning region; on these lands, any citizen of the Yukon can pursue fish & wildlife harvesting under permit of the Yukon Government.
- Other than those fee-simple lands outlined above, there are no other private lands in the region.
- There are currently are no Special Management Areas or protected areas in the region. The Bonnet Plume River is a recognized Canadian Heritage River. The designation directs the First Nations, Canada and the Yukon Government to manage the watershed with a “higher duty of care”, but currently offers no formal protection.

Existing Land Dispositions

Map 2 shows the current status of land dispositions in the planning region (reference date of February 2008).

- One land parcel in the Peel Plateau & Plain oil and gas basin is currently under an oil and gas exploration permit. The permit holder is AustroCan Petroleum Corp. Expiry of the lease is 2014.
- In the PWPR portion of the Eagle Plain oil and gas basin, Northern Cross is the holder of 2 oil and gas exploration permits, with expiry in 2013. These dispositions represent 0.78% of the PWPR. There are 8 smaller Significant Discovery Licenses in this area, all held by Northern Cross Ltd.
- There are currently 10,631 active mineral claims and 9 coal licenses in the planning region, which represent 5.6% of the planning region.
- There are 19 gravel pits within the PWPR.
- There are two Yukon-managed airstrips in the region – both located along the Dempster Highway – at Chapman Lake and Ogilvie River.
- The Dempster Highway is the only all-season gravel road within the region. The road traverses approximately 130 kms of the western portion of the PWPR, in the Ogilvie Mountains.
- One of six outfitters currently holds leases for his base camps in the planning region. Land tenure policy for all big game outfitters is currently under negotiation with the territorial government.
- In total, the oil and gas dispositions, mineral claims and coal licenses represent approximately 4,608 km² or 6.8% of the entire planning region.

Adjacent Land Status

Map 1 depicts the current and proposed land status for areas adjacent to the planning region. The northern and eastern boundary of the PWPR is shared with the Gwich'in Settlement Area. The northwestern boundary is shared with the North Yukon Planning Region, the southwestern boundary is shared with the Dawson Planning Region, and the southern boundary is shared with the Northern Tutchone Planning Region. Of these regions, the Gwich'in Settlement Area has a regional land use plan and the North Yukon Planning Region has a Recommended Regional Land Use Plan which is currently in the review and approval phase.

Gwich'in Settlement Area

The PWPR's boundary to the north and east is shared with the Gwich'in Settlement Area in the Northwest Territories. The Gwich'in Land Use Plan has three land use zones that abut the PWPR:

Conservation Zone: The James Creek Conservation Zone is adjacent to the northernmost corner of the PWPR, near the Yukon-NWT border. Oil & gas and mineral exploration and development, gravel extraction, and road construction are not permitted in this zone.

Special Management Zone: The Porcupine Caribou Special Management Zone is adjacent to the northern boundary of PWPR, and the Arctic Red River Special Management Zone is adjacent along the southeast boundary. Gwich'in Special Management Zones permit all land uses as long as the specific conditions applied to each zone are adhered to. Licenses and permits cannot be issued in this zone unless the proposed use is in conformity with the Gwich'in Land Use Plan.

The Porcupine Caribou Special Management Zone restricts activities that might disrupt caribou migration or would alter migration habitat.

Arctic Red River Special Management Zone requires that no new activities can substantially alter water quality, quantity and rate of flow.

General Use Zone: All remaining adjacent Gwich'in lands fall under the General Use Zone. Under this zone, all uses are permitted if they meet the standard requirements for regulatory licenses, permits, and authorizations. (GLUPB, 2003)

North Yukon Planning Region

The Recommended North Yukon Regional Land Use Plan identifies two land use zones adjacent to the PWPR, along the northwest boundary. These include

Zone II (low development) in the South Richardson Mountains. This zone indicates “that there are high ecological and heritage/cultural values within a moderately sensitive biophysical setting. Maintaining ecological integrity, protecting heritage and cultural resources, and minimizing land use impacts are the priority.”(NYPC, 2008)

Zone IV (highest development) in the Eagle Plains. This zone indicates that there are “lower ecological and heritage/cultural values within a moderately sensitive biophysical setting.” (NYPC, 2008)

Tombstone Territorial Park

Tombstone Territorial Park was established through the Tr'ondëk Hwëch'in Final Agreement. The Park sits adjacent to the southwest boundary of the PWPR, encompassing about 2,200 km². Mineral and oil and gas exploration and development are not permitted within the park boundaries.

The northern portion of the Park is part of the Peel watershed, but is not included in the Peel Watershed Planning Region.

What are some of the key resource values, land uses and management issues within the Peel?

There are probably as many Peel-related values or issues as there are people with an interest in the Peel Watershed! **Table 1** below summarizes most of the key resources, values, or issues that have been identified during the course of the Peel Watershed planning process. The implications of the scenarios on many of these resources, values, and issues are discussed later in Section 3 and put in a table found in Appendix C

Table 1 Highlights many of the resources, values, or issues in the Region

Resource Sector/Values	Components	Key Geographic Area(s) of Interest	Key Issues to be Addressed
Heritage Resources (Pre- and post-contact artifacts and sites)	<i>Traditional First Nation Use Sites</i> (e.g. harvesting areas for fish and wildlife, camps, cabins, gravesites, trails)	Sites and areas not posted for public release	Designation of proposed Teetlit Gwich'in Historical Sites on Peel First Nations seek to protect the location of traditional resource areas (e.g. fishing sites, springs, medicinal plant sites, gravesites) Fish & wildlife have a significant spiritual and other cultural significance Need to support further historical research and traditional-use mapping
	<i>Paleontological Resources</i> (dinosaur fossils, Ice age mammal and plants)	- Eroded riverbanks, generally; - Dempster Hwy Corridor - Hungry Creek for Ice Age mammal fossils; "Burning Rock" area near Peel Canyon; - Snake River bedrock areas	Need to ensure protection of significant paleontological and archaeological resources Need to undertake further heritage resource assessments in key target areas
	<i>Archaeological Resources</i> (prehistoric, and pre-contact artifacts)	- Western Richardson mtns generally - Snake/Peel River confluence - Upper Ogilvie & Blackstone Rivers - possibly Mackenzie Mtns	
	<i>Post- Contact Heritage</i> (village sites, Gold rush and trapping era artifacts,	- Black City and Calico Town on Blackstone River, Wind City, Hungry Creek - Route of the "Lost Patrol" (Ft MacPherson to Dawson City same as traditional trail of Teetlit Gwich'in and Tr'ondëk Hwëch'in. - "Lost Patrol" Historical Monuments on Peel River - Chappie Lake Trading Post - Individual trading posts of Teetlit Gwich'in (Road & Trail River area) - Proposed National Historic Sites of Teetlit Gwich'in on Peel River - Bonnet-Plume Heritage River	

Resource Sector/Values	Components	Key Geographic Area(s) of Interest	Key Issues to be Addressed
Access (Existing seasonal, permanent and remote)	All season access	- Dempster Highway (130 km)	Need to maintain Dempster Highway as corridor for serving NWT communities, supporting rubber-tire tourism and recreation, First Nation subsistence harvesting, exploration and potential oil & gas/mineral development including aggregates Suitable soil conditions, topography and accessibility to aggregate (gravel) for new all-season road location and construction Lack of comprehensive survey data on available aggregate deposits within the Peel region Feasibility (socio-economic and environmental) of construction and reclamation of new all-season access for post-exploration extractive resource industries (oil & gas and mining) including infrastructure corridors Permanent road construction viewed as incompatible with wilderness values for all related tourism sectors in remote areas (guide/outfitting, eco-tourism) including potential impacts as noise disturbance, ecosystem fragmentation, and degradation of the natural environment.
	Seasonal access	- Wind River Trail via Braine Pass; Hart River Trail via Dempster Hwy; and Ft McPherson winter access route	Potential infringement on First Nations traditional cultural-use activities and sites
	Water access	- Peel River to Aberdeen Canyon for motorized vessels; - River Paddlers (from Dempster via Blackstone and Ogilvie, and elsewhere via fly-in launch sites)	Not all access may be socially acceptable
	Air strip access	Chapman Lake and Ogilvie River (Yukon Gov't managed); plus 33 other private terrestrial strips	
	Helicopter fly-in access	Alpine areas	Potential sensory disturbance & displacement to certain wildlife during peak land use periods (e.g. Dall sheep)
	Lake fly-in access (float)	Bonnet Plume Lake, Duo Lake, Elliott Lake, Fairchild Lake, Goz Lake, Hart Lake, and Worm Lake, Canyon Creek, and Taco Bar	

Resource Sector/Values	Components	Key Geographic Area(s) of Interest	Key Issues to be Addressed
Tourism & Recreation (views, wilderness experience, river activities, flora and fauna, peaceful enjoyment)			Socio-economic value and potential of wilderness tourism sector within the Peel region to Yukon, local communities and individual enterprise (direct, indirect and induced income, employment)
	<i>Road-Accessible Recreation</i> (e.g. short term wildlife viewing, day hiking, bird-watching, camping, wildlife viewing), includes both commercial bus sight-seeing and guided trips.)	Dempster Highway Corridor	
	<i>Remote-Access Eco-tourism</i> (e.g. multi-day, intensive self-guided and commercial guided trips that include river paddling, hiking, wildlife viewing, camping and photography)	Snake, Wind, Bonnet Plume, Ogilvie, Blackstone and Hart River corridors Also Richardson	High co-incidence of wilderness tourism activities and outfitting services within the Ogilvie, Wernecke, and Mackenzie Mountain requiring appropriate large, intact and road-less areas through zoning and management for sustained use
	<i>Remote-Access Recreation</i> (First Nations and local community self-guided and community trips for hunting, fishing, camping, cultural purposes etc.)	Through-out the Peel region (focus on traditional-use corridors and sites, including river corridors, and lakes)	Recognition and implementation of Bonnet-Plume Heritage River designation and management objectives
	<i>Commercial Guide/Outfitting</i> (six concessions including infrastructure for commercial hunts of various wildlife species, plus some guided eco-tourism activities)	Located in the major river sub-basins of the Peel watershed.	Carrying capacity and compatibility of expanded remote-access tourism based on ecological, cultural, sociological and tourism sector factors (eco-tourism, guide-outfitting) Lack of visual landscape inventory to enable sub-unit planning & mgt Limited data regarding recreation (self-guided) visitation by residents and non-residents to the Peel watershed. Land use patterns of outfitters in all concessions.

Resource Sector/Values	Components	Key Geographic Area(s) of Interest	Key Issues to be Addressed
Oil & Gas (oil and gas reserves)	Potential for oil and gas exploration and development (includes access road and well-pad construction, rig set-up and service for exploration/testing, followed by ancillary infrastructure for transmission from successful finds) – key interest is natural gas, and only existing footprint is seismic survey lines	Peel Plateau and Plain, and Eagle Plains	Compatibility of oil and gas infrastructure footprint (exploration and development) with First Nations traditional use, and critical waterfowl areas in Peel Plateau area Disposal and monitoring of environmental impact of oil & gas drilling waste materials Impacts to permafrost areas from oil and gas operations Accessibility to Bonnet-Plume Basin, and compatible management regime for exploration & development Access planning and management to and within Peel Plateau
Mining (minerals, coal, aggregate)	Existing exploration claims or licenses and potential development for various minerals and coal as per Table 8.2 (Resource Ass't Report); also includes aggregate potential	- Bonnet-Plume Coal deposit - Crest Iron Ore deposit - Goz lead-zinc deposit - Wernecke Breccias - Dempster Corridor (aggregates)	Availability of land to permit mineral exploration with particular interest in the Wernecke Breccias zone Management of mineral exploration activities to minimize impacts on wilderness tourism operations (e.g. sensory disturbance) during peak summer season (June-Sept) Feasibility of access to existing mineral claims, and extent of ancillary access for mine development including infrastructure

Resource Sector/Values	Components	Key Geographic Area(s) of Interest	Key Issues to be Addressed
Conservation Indicators			
Water (water quality/flows for both hydrological and ecosystem function for flora/fauna; domestic consumption during to seasonal resource users, and downstream community of Ft McPherson)	All water producing and storage elements (snow-cover, glaciers, rivers, lakes, wetlands, permafrost) for ecosystem function Industrial use (tourism, mineral exploration and development, potential oil & gas, hydro-electric development)	<i>Waterfowl wetlands</i> (Chappie Lake, Turner Lakes, Tabor Lakes, and Jackfish Creek) <i>Major river systems</i> (Peel, Bonnet Plume, Snake, Wind, Ogilvie, Blackstone, and Hart). <i>Critical permafrost areas</i> (Fort McPherson Plain and Peel Plateau bog-fen complexes) <i>Glaciers</i> (Bonnet-Plume Headwaters)	Lack of baseline hydrological and water quality data in the tributaries of the Peel Watershed are limits to establish threshold/indicator levels for land use management Extent of available water flow rates, and storage capacity considered inadequate to support industrial activities Lack of research on climate-change effects on watershed resources (permafrost, glacier melt, winter and peak flows) to evaluate effects from industrial activities (i.e. mine, gas developments)
Fish	Sea-run fish: (Anadromous coregonids, Salmonids species) Non sea-run fish: (Potadromous species)	Peel River main stem, downstream of Aberdeen Canyon primary interest Peel river tributaries for summer habitat	Lack of fisheries information (species, critical habitats) particularly over-wintering species spawning areas, and First Nations occupancy and traditional use Protection of critical habitats to sustain anadromous coregonids and salmonids (Peel River mainstem, and tributary headwaters for spawning Dolly Varden char)

Resource Sector/Values	Components	Key Geographic Area(s) of Interest	Key Issues to be Addressed
Conservation Indicators			
Wildlife	<u>Caribou</u> Boreal woodland caribou herd (BCH) – listed as “Threatened” under the Species at Risk Act Porcupine caribou herd (PCH) Bonnet Plume caribou herd* (BPCH) Hart River caribou herd* (HRCH) Redstone caribou herd* (RCH) *Northern Mountain Caribou are listed as “Special Concern” under the Species at Risk Act	BCH range primarily in NWT, but some winter range on Fort McPherson Plains Southern Richardson Mountains, Mountains and area generally west of the Wind River (PCH winter range) BPCH annual cycle almost entirely within the PWPR HRCH annual cycle almost entirely within the PWPR RCH has some winter range within upper Bonnet Plume and Snake drainages	No existing lands designated or managed as protected areas for fish and wildlife conservation purposes Susceptibility of Caribou to human impacts and subsistence hunting of First Nations communities Minimum level of Caribou winter range habitat protection required
	<u>Moose</u>	Peel River Plateau, the Fort McPherson Plains, and valley bottoms	Management of species during critical late winter season Lack of data on population structure Protection of late winter riparian habitat, and high water winter range
	<u>Dall Sheep</u>	Alpine ecosystems	Management of critical winter habitat Sensory disturbance during summer periods
	<u>Grizzly – listed as “Special Concern” under the Species at Risk Act</u>	Wide ranging habitats in mountainous areas of region (riparian valleys, and Boreal forest plateaus)	Mapping and ranking of feeding season habitats, cover habitat for nursing females, and denning habitats
	<u>Marten</u>	the Taiga Plains ecozone, and the Eagle Plains ecoregion	

Resource Sector/Values	Components	Key Geographic Area(s) of Interest	Key Issues to be Addressed
Conservation Indicators	Bird Species		
	Peregrine Falcon – listed as “Threatened” under the Species at Risk Act	Nesting cliffs adjacent or close to wetland foraging habitats	Lack of site-specific information on the distribution of Peregrine Falcon nests
	Waterbirds	Wetland ecosystems (Peel River Plateau and Fort McPherson Plains)	Need for protection of nesting migration stop-over habitat
	Breeding Birds	Wetlands, riparian forests, or shrubby areas at all elevations	
	Birds of Conservation Concern (species at risk of extinction)	Well vegetated ranges (e.g., Richardsons) Wetlands of Peel River Plateau, Edigii Hill and the Ogilvie pediments	Mapping of species of conservation concern Designation of areas for protection
	Rare and Endemic Plants	Northern Ogilvie Mountains and Richardson Mountains	

Land-Use Compatibility in the Peel River Watershed

A common tool used by planners to see how well various land uses can coexist is the *compatibility matrix*. A compatibility matrix graphically shows how well various land uses can coexist together in a planning region. Although only two-way interactions can be examined using this kind of table, it allows the reader to identify where mitigation or zoning measures might reduce future land use or environmental impact. The compatibility matrix is straightforward to interpret and makes a strong visual impression of compatibility between land use sectors or individual land uses.

The Commission assessed compatibility of eighteen land uses across three sectors: ecosystem services, renewable resources, and non-renewable resources. Table 2 on page 17 shows the compatibility matrix for the PWPR. To read this table, first locate the row of your sector of interest by looking at the headings in the first (leftmost) column. The symbol in the boxes to the right indicates the compatibility with the sectors listed in the columns. The right-most symbol of a row shows how compatible a sector is to itself (for example, think how too many wilderness tourists can reduce the wilderness tourism experience). Once you reach the right-most symbol, you will find that you are now in the column of your sector of interest. At this point, continue scanning *down* the column. Note that each sector is compared to itself as well. By grouping the land uses into general resource sectors you can visually analyse across land uses or within sectors.

Ecosystem services include basic ecological elements that support a wide range of values and uses in the watershed. Ecosystem services include²: Ecosystem Function, Connectivity, Biodiversity, Habitat and Water/Wetlands. Ecosystem Function refers to the processes and interactions between components of an ecosystem. Two examples are nutrient cycling in soil or predator-prey relationships. Connectivity is the ability of species or populations to move within a landscape. Biodiversity is the number of different species in a given location. Habitat is the biotic and abiotic landscape important to a given species or population at some stage in its lifecycle. Water/wetlands are biotic and abiotic aquatic systems that maintain water quality and quantity. By contrasting impacts upon ecosystem services by renewable and non-renewable resource-uses, we can better consider issues of compatibility and carrying-capacity.

The Conservation Priorities Assessment Report (PWPC 2008a) discussed all of the ecosystem services listed above, and presented numerous maps depicting the distribution of several habitats. Faced with the task of considering most of these habitats in reaching land use decisions, the Commission used several computerized techniques to help find areas of high priority for conservation. The results of this analysis typically supported the conservation priorities suggested by several experts, including:

- Valley bottoms in mountainous areas
- The Peel mainstem, and surrounding wetlands
- Broad areas around identified caribou wintering areas (i.e. typically broad enough to capture sheep habitat on the slopes above)
- In particular:
 - The flatter terrain around the confluence of the Hart and West Hart Rivers captures core winter habitat for two caribou herds
 - Much of the Bonnet Plume River watershed

The map of selected ecological indicators (Map 3) illustrates some of these patterns.

² This is a non-exhaustive list but other examples such as carbon sequestration are beyond the scope of this plan

The Commission intends to report more on the methods and results of this analysis in a subsequent addendum.

Renewable resource sectors use renewable resources within the PWPR. Uses may influence local wildlife populations or their habitats such as trapping, subsistence use, big game outfitting, and small-scale forestry. Rubber-tire tourism relies on existing transportation and relatively heavy use of easy to access wildlife viewing areas. Motorized recreation relies on snowmobile or ATV access to wilderness destinations by guided or self-guided individuals or groups. Wilderness tourism generally relies on fly-in access but uses non-motorized transportation (hiking, paddling) for guided³ or self-guided individuals or groups to access wilderness areas.

The **non-renewable resource sectors** use non-renewable resources at varying scale of intensity. Initial activity may be non-extractive and exploratory in nature. Development of non-renewable industry will vary in degree of impact and regeneration, but generally is more industrial than the renewable resource sectors. We considered non-renewable resource sectors to be: Access (including aggregate resources, the Dempster Highway, existing and potential all-season and winter roads, air traffic, and all related infrastructure Mineral and Oil and Gas exploration (may require fly-in access or winter roads, camps, fuel caches, seismic lines, drilling pads etc); and Mining and Oil/Gas development (would require increased access infrastructure, long-term development of mine sites, and long-term human occupation of camps and mine sites). We considered access independently from exploration and development of the mineral and oil/gas sectors, although exploration and development projects require access.

The Resource Assessment Report (PWPC 2008b) discussed all of the resource sectors above, and presented numerous maps of their respective values. Again faced with the task of considering numerous maps, the commission explored using computerized techniques of comparing the geographical overlaps of each sector's values. Several of the key findings are discussed below. Map 4 shows the distribution of the region's non-renewable resource values.

The Commission found for **ecological sectors** and **renewable resource use** sectors there was a mix of compatible land uses and uses compatible with mitigation measures. Two renewable resource sectors considered to have a larger footprint - Rubber Tire Tourism and Forestry - were compatible with all ecological sectors but would require mitigation measures. Overall **non-renewable resource sectors** were incompatible with ecological resource sectors. However, relatively lower footprint land uses - Mineral and Oil/Gas exploration - were compatible with mitigation measures for nearly all ecological resource sectors. **Renewable resource sectors** were moderately self-compatible. Forestry and wilderness recreation and tourism were not compatible. **Renewable resource sectors** and **non-renewable resource sectors** had mixed compatibility. In two cases, land uses were found to not geographically co-exist. Oil and gas exploration and development restricted to the known basins would not overlap big game outfitting concessions to the south. Mining development would not overlap with oil/gas exploration or forestry because high mineral potential areas and known oil and gas basins do not overlap and non-commercial forest harvest is restricted to the lower reaches of the Peel River where mineral potential is low. The relatively complicated matrix within the non-renewable and renewable/ecological sectors requires both mitigation measures (strategies for managing impacts to other resource sectors) and zoning (where mitigation measures are not possible).

³ Only guided individuals or groups operate under wilderness tourism guidelines.

Mitigation tools may include thresholds to measure cumulative effects, Best Management Practices (BMPs), regulations, etc. Further discussion on mitigation tools can be found in Section 3.

Table 2: Land use compatibility

		EcoFnc	Conct	Biodiv	Hab	WatWet	CulHer	Sbstn	Trp	BGO	WldTrm	MotRec	RRT	For	WntAc	ASAg	MnXpl	OGXpl	Min	OGXtc
Ecological Resources	Ecosystem Function (EcoFnc)	○																		
	Connectivity (Conct)	○	○																	
	Biodiversity (Biodiv)	○	○	○																
	Habitat (Hab)	○	○	○	○															
	Water/wetlands (WatWet)	○	○	○	○	○														
Renewable Resources	Cultural & Heritage (CulHer)	○	○	○	○	○	○													
	Subsistence (Sbstn)	○	○	⊙	○	○	○	⊙												
	Trapping (Trp)	○	○	⊙	○	○	○	○	○											
	Big Game Outfitting (BGO)	○	○	⊙	○	○	○	○	○	○										
	Wilderness Tourism (WldTrm)	○	○	○	○	○	⊙	○	○	○	⊙									
	Motorized Recreation (MotRec)	⊙	○	○	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙								
	Rubber Tire Tourism (RRT)	⊙	⊙	○	⊙	○	○	⊙	○	⊙	⊙	○	⊙							
	Forestry (For)	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊗	●	●	⊗	⊙						
Non-renewable Resources	Winter Access (WntAcc)	⊙	○	●	○	○	⊙	⊙	●	●	●	⊙	○	○	○					
	All-Season Access/aggregate (ASAg)	⊙	●	●	●	●	⊙	○	●	●	●	⊙	○	○	○	○				
	Mineral Exploration (MnXpl)	⊙	⊙	○	⊙	⊙	⊙	⊙	○	⊙	●	●	⊙	○	○	○	○			
	Oil and Gas Exploration (OGXpl)	⊙	⊙	⊙	⊙	⊙	⊙	⊙	●	⊗	⊙	●	⊙	⊙	○	○	⊗	○		
	Mining (Min)	●	●	●	●	⊙	●	⊙	●	●	●	●	●	⊗	○	○	○	⊗	○	
	Oil and Gas Extraction (OGXtc)	●	●	●	●	●	⊙	⊙	●	●	●	●	⊙	⊙	○	○	⊗	○	⊗	○

Legend: ○ Compatible ⊙ Compatible with mitigation measures ● Incompatible ⊗ Generally do not co-exist ⊕ Currently compatible
(Water/wetlands related compatibility comparisons are shaded in gray to help illustrate how this table works)

3. Creating a Land-Use Management Framework for the Peel

Land Management Units

Following consultations during the Scenario Development phase and initial testing of LMU designs using a combination of eco-districts and sub-watersheds, the Commission agreed that watershed units were the most appropriate management unit as they are large enough in scale to address potential land use or ecological conflicts. In terms of operational effectiveness, the units are also easily understood ‘on the ground’ by resource users and managers since they conform to topographical or other natural boundaries.

Land Use Designation Framework

As outlined in our earlier Land Use Scenario Methods Report (PWPC 2008), the Commission was charged with creating a land use management framework that would achieve the following:

- where appropriate to broad regional consistency, link with the existing land use zoning framework used by the North Yukon Planning Commission⁴ (i.e. including Protected Areas, Integrated Management Areas⁵ and Community Integrated Management Areas⁶) as well as the Gwichin Land-Use Plan;
- recognize the constraints of the Peel’s dominant mountain landscape where it is not appropriate to apply certain thresholds or levels (e.g. linear-density/footprint) that are relevant to regions with primarily level terrain such as the lower/northern Peel Region and Eagle Plains areas;
- managing First Nations community-use priorities for cultural and wildlife purposes through a conservation regime, that will permit a to certain extent of compatible mixed-use (both renewable and non-renewable sectors);
- zoning for sustainable use (social/economic/environmental) that allows a higher degree of non-renewable resource-use subject to the implementation of an appropriate management regime for compliance and monitoring (e.g. application of water quality/flow thresholds).

⁴ The advantage of PWPC adopting a similar land use designation system as NYPC is greater consistency achieved for resource management/land use decision-making within the regional context of completed adjacent land use plans and potentially extending to the remaining planning regions of the Yukon Territory.

⁵ the Integrated Management Areas are stratified into four types of zones of varying conservation or development emphasis (See Figure 1 below)

⁶ The Peel Watershed Planning Region will not have a “Community Areas” category since there are no communities that fall within the boundaries of the planning region. However, there may be other designations to reflect First Nations resource use.

Description of Management Zones

Three types of Planning Zone were created to guide future land use decisions in the Region:

(A) Protected Area Zones are areas with a significant overlap of either, or both:

- cultural, historic and archaeological resources; and/or
- rare or endangered species.

The management intent for protected area zones is to promote ecological viability and biodiversity and peaceful enjoyment of land. Withdrawal of surface and subsurface rights is recommended to ensure the maximum level of legal authority to protect natural resources of very high ecological and heritage/cultural value. Conforming uses are wilderness tourism, trapping, big-game outfitting and traditional use. Sub-regional planning may be required for management of protected areas.

Example of Protected Land designations: Vuntut National Park and Ni'iinlii'njik Wilderness Preserve, Fishing Branch Ecological Reserve, Tombstone, S.S. Klondike National Historic Site

Example Sub-regional Plans or Strategies within Protected Areas: Wilderness Management Plan, Water Management Plan, and Critical Habitat Protection

(B) Conservation Area zones are areas having moderate to very high ecological and/or heritage/cultural value. Conservation areas are split into four distinct sub-zones;

- Cultural Resource Area,
- Wildlife and Habitat Resource Area,
- River Corridor and
- Remote Access Area.

Sub-zones may employ specific strategies to meet overarching management goals. Each sub-zone has designated conforming and non-conforming land use activities. Conservation Area zones will have thresholds on exploration or development activities. Sub-regional planning or land designations may be required to meet management goals.

(B1) Cultural Resource Areas (CRA's) have significant cultural value to First Nation citizens that include but are not limited to:

- traditional use (including access to traditional use areas);
- peaceful enjoyment of land; and
- provision for cultural infrastructure such as hunting camps and educational facilities.

Example land designations for CRA's: Forty Mile, Fort Cudahy and Fort Constantine Historic Sites, Conservation Easement; Sha'washe (Dalton Post) Special Management Area

Example sub-regional plans or strategies for CRA's: Wilderness Management Plan, Water Management Plan, and Resource Management Plan

(B2) Wildlife and Habitat Resource Areas (WHRA's) contain biotic or abiotic systems that are at risk of being impacted directly or indirectly by land use activities such as;

- decline of ecological function;
- reduction in unique ecological characteristics;

- significant impact to a population; or
- decline in biodiversity.

Example land designations for WHRA's : Ddhaw Ghro Habitat Protection Area (Special Management Area), Asi Keyi Natural Environment Park (Special Management Area), Ta'Tla Mun Special Management Area, Conservation Easement.

Example sub-regional plans or strategies for WHRA's: Wilderness Management Plan, Water Management Plan, Resource Management Plan, Wildlife corridors, Critical Habitat Protection

(B3) River Corridor Zones (RCZ's) recognize the unique biophysical position, importance of river corridors and connectivity to the surrounding landscape. Management goals of River Corridor Zones include:

- maintain the wilderness aesthetics of the river corridor;
- maintain peaceful enjoyment of the river corridor;
- minimize disturbance to ecologically important valley bottoms and riparian areas;
- maintain hydrologic integrity

(B4) Remote Access Area Zones (RAZ's) are fly-in lakes used, or that could be used, for remote wilderness access. Remote Access Zones can regulate private and public access into remote lakes to:

- maintain peaceful enjoyment of the land; and
- limit auditory or visual sensory disturbances to local wildlife (such as Dall Sheep)

(C) Integrated Management Area Zones enable conservation of renewable and non-renewable resources and their landscapes that are found to have moderate⁷ to very high ecological, heritage/cultural and/or resource values. Current and potential land use activities in this zone are generally compatible. Current regulations, policy and best management practices (and additional land use direction) guide industrial and other activities⁸. The intent of all integrated management zones is to manage land use and conflicts and maintain long-term functioning ecosystems⁹.

Integrated management areas may include;

- development of access plans and policy;
- coordination of resource development industry;
- provisions for infrastructure necessary for exploration and development;
- adherence to current best management practices;
- water quality and/or quantity thresholds for major tributaries
- linear density and footprint thresholds (Peel Plateau, Ft McPherson Plain, Eagle Plains);
- other thresholds to linear development (mountainous areas)
- and otherwise minimize land use impact, maintain ecological integrity, protecting heritage and cultural resources.

⁷ There are no areas of low ecological and or heritage/cultural values in the Peel region relative to the North Yukon plan

⁸ Such as wilderness tourism, outfitting, trapping, and pursuit of traditional activity)

⁹ It is recognized that some ecosystem services may be disrupted in the interim but will regenerate⁹ within 50-80 years. A regeneration rate of 50-80 years is an interim value. Research into a value appropriate for each biophysical region is required.

The IMA framework being partially adopted for the Peel region is illustrated in Figure 1. Areas with highest ecological and cultural values and higher sensitivity to disturbance are deemed to be at a higher risk to significant impacts, and are therefore, identified as being most valuable for conservation in their natural state. Conversely, areas zoned for high economic development value are at lower risk to significant environmental impact, whether by having lower ecological or cultural values by having lower sensitivities to disturbance, or by having both.

Figure 1: Zoning Framework for Integrated Management Areas

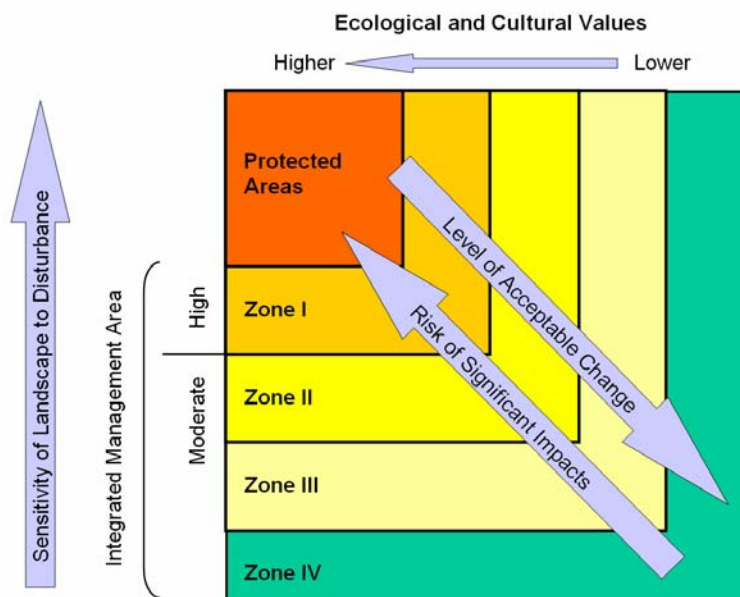


Table 3: Summary of land use designation characteristics for the Peel Watershed Planning Region

Management Zones	Sub- Management zones	Access Restrictions	All season roads	Winter roads	Oil & gas exp'n & dev	Mineral exp'n & mining	Forestry (non-commercial)	Trapping	Outfitting	Wilderness Tourism	Wilderness recreation	Rubber-tire tourism	Rubber-tire recreation	Cultural/Heritage	Traditional pursuits	Aggregate for access
Protected area								✓	✓	✓	✓			✓	✓	
Conservation area	Cultural Resources	Winter access only with thresholds and route designations		✓	✓	✓	✓	✓	✓					✓	✓	✓
	Wildlife habitat and	Winter access only with thresholds and route designations		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	River corridors	Viewshed & noise restrictions		✓			✓	✓	✓	✓	✓			✓	✓	
	Access Areas	Fly-in only. Limited winter road development in some access lakes.		✓			✓	✓	✓	✓	✓			✓	✓	
Integrated Management Area: II		Winter road with access route designations and thresholds for development		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Integrated Management Area: III - IV		All season (gravel) road access or winter road within access route designations and thresholds for development	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ Permitted use (subject to current and potential regulations and decisions)

Access Zoning

Two types of Access Zones were created to guide access-planning decisions in the Region:

(A) Access 'A' Zones have provisions for all-season access

(B) Access 'B' Zones have provisions for winter ground access only

These zones apply in addition to the Management Zones described above. So, for example, when zones that do not permit roads at all (e.g. Protected Areas) fall with an Access 'A' zone, no roads are permitted. Limiting access to winter trails/roads only should mitigate several issues by:

- making the actual footprint of the road less permanent
- maintaining much of the wilderness aesthetic valued by several renewable resource users
- reducing accessibility to hunters and other predators which should help maintain strength of several populations of wildlife
- limiting activity to a portion of the year will generally limit the pace and scale of development (reduces ecological impacts and allows for more proactive monitoring of potentially impacted values)
- setting up a timing window (see p. 25) for industrial activity: limiting road-related activity to winter will reduce conflicts with big game outfitting, wilderness tourism, and many cultural activity

Thresholds

Thresholds establish the limits of acceptable human-caused disturbances, and are useful tools for limiting cumulative impacts within a region or zone. Thresholds are typically set at points where undesirable ecological or cultural impacts may result. Other land use plans with similar land uses to the Peel Watershed Planning Region have used many of the thresholds listed in

Table 4 below.

The commission is considering using thresholds on footprint and linear density in flatter terrain (e.g. Peel Plateau, Ft McPherson Plain, and Eagle Plains). These thresholds may be set at values similar to those proposed by the North Yukon Planning Commission. The terrain, habitat use, and probable development of that adjacent planning region is similar to the flatter terrain of the Peel Watershed Planning Region, and therefore its rigorously calculated thresholds would be similarly applicable.

In more mountainous regions, other thresholds may be applied, including water quality and/or quantity thresholds for major tributaries, or number of stream crossings. Water quality thresholds for major tributaries may be linked to established thresholds for maintaining aquatic life, while the threshold for the Peel Mainstem (i.e. below the Snake) may be linked to established thresholds for human consumption.

Regardless of the recommended thresholds, a monitoring program for them is integral to their successful implementation.

Table 4: Cumulative Effects Indicators and Thresholds

Indicator	Threshold	Species	Area Calculation
All season access corridor or road density	One designated development corridor into the land use zone (either all season or winter access where permitted)	N/A	Zone boundaries
	*** km/km2 road density (includes winter roads, all season roads and seismic lines > 1.5 m)	N/A	Zone boundaries
Habitat availability	< 10% of land disturbed		Zone boundaries
Minimum patch size and core area	Critical: > 65% large core areas (> ** Ha)	Species 1	Zone boundaries
	Critical: > 65% large core areas (> ** Ha)	Species 2	Zone boundaries
Stream crossing density	< 0.5 crossings/km2	Fish	Zone boundaries using 1:50,000 NTDB stream mappings.
Water Quality Indices	??	Human consumption	
Water Quality Indices	??	Aquatic life	
Water Quantity Index	< **% of baseline volumes	N/A	Mouths of major tributaries
Sensory Disturbance	** decibels		River corridors, access zones

Best Management Practices

Best Management Practices (BMPs) have been developed for some, but not all, land uses in the Region. BMPs prescribe technical methods that allow an industry to work while minimizing conflicts with others. One example of a BMP for oil and gas exploration is the use of GPS-guide heli-portable seismic lines instead of the original method of using heavy machinery to clear vegetation from seismic lines several meters wide. While BMPs can go a long way to minimize conflicts, they do not address cumulative impacts. Nonetheless, the Commission recommends that all relevant activities in the Region adhere to BMPs.

Timing Windows

Timing windows are useful ways to minimize land use conflict when two potentially conflicting activities are not permitted to occur during the same seasons. The Commission is exploring recommendations on using timing windows to mitigate some potential land use conflicts in the Integrated Management Areas and Conservation Area Zones. The seasonal timing of different human activities or of critical life cycle periods of one or more key species will direct these recommendations. One timing window, use of winter roads only in some zones (see p. 23), is an important part of the scenarios.

4. Scenario Summary

In the section below we present a summary of each scenario, a description of both how they differ, their common features, and they address key planning challenges.

Planning for different land uses in the Peel River region builds upon certain “foundation” “core” elements that reflect unique features, constraints and opportunities. Such direction is guided by feedback and input it has received from the general public, key commercial sectors and First Nations for this unique resource region. These include:

- strict adherence and compliance to statutory environmental-protection controls for all existing and potential new land uses throughout the Peel region;
- protection of water flows and quality and the hydrological regime based upon a foundation of baseline characterization appropriate to the scale and nature of existing and future land uses;
- maintaining the integrity of First Nation’s intended use of settlement lands;
- endorsement for legislated protection of proposed Teetl’it Gwich’in heritage sites around the Peel Canyon and along the Peel River below the Trail River;
- achieving consistency of land use management for certain landscapes with neighbouring planning regions (including the Richardson Mountains, Dempster Highway Corridor and adjacent Tombstone Park)
- maintain the status of the Wind River trail as a “winter-only access” route to maintain the integrity of the Peel Watershed as a destination wilderness region for commercial recreation and guide/outfitting during the peak summer tourism season, and ;
- retaining the long-term option for access to the high-valued Crest iron-ore deposit;

Shaping Alternative Futures for the Peel Watershed

After considering the level of existing land uses by sector of interest, the likely extent of their expanding use in the medium term (5-10 years) and long-term, as well as cultural and ecological values, the PWPC has distilled two possible management regimes that flow from alternative landscape-level goals: a Mixed-Use Strategy and a Protection Strategy.

These scenarios differ significantly in their approach to balancing ecological values, renewable resource use and non-renewable resource use.

Scenario 1 or “Mixed-Use Strategy” emphasizes conservation over protected areas. Smaller protected areas are balanced by a large integrated management framework. Thresholds in the IMA and conservation areas are generally higher.

Scenario 2 or “Protection Strategy” emphasizes large protected and conservation areas that are balanced by an integrated management framework for exploration and development of high value resources. Thresholds in the IMA and conservation areas are generally lower.

Ground Access:

For ease of reference, access zones of the Peel Watershed planning region are referenced as area 'A' and area 'B' (see explanation on p. 23 and maps (Figure 2). Access zone 'A' generally refers to lands and water to the north of the Peel River and the lower Snake River. Access zone 'B' generally refers to the remainder of the Region outside of Access zone 'A' and protected areas. Access 'A' has provisions for all-season access in areas subject to pre-tenure planning. LMUs in Access zone 'B' have provisions for winter road development only. This configuration of allowable access best mitigates the issues with access on existing renewable resource users and on sensitive caribou herds while still allowing some ground access.

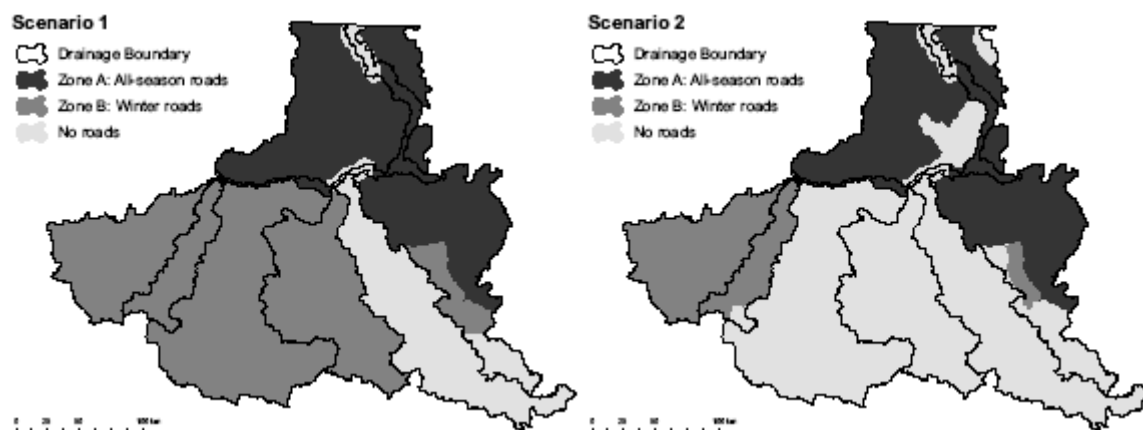


Figure 2: Access Zones of the Peel Watershed Planning Region: Scenario 1 at left, Scenario 2 at right

Defining Common Ground:

In the opinion of the Peel Watershed Planning Commission the Mixed-Use and Protection Strategy scenarios meet the requirements of the scenario filter¹⁰ (see also Appendix D) and are viable planning options for the Peel for the next 20 years. Both options commit the parties to:

- develop threshold monitoring strategies where human disturbance occurs and persists;
- encourage pursuit of scientific research;
- acknowledge traditional use, and cultural and heritage values of the Peel.
- collaborate on the development and management of protected and conservation area zones
- protection of the entire Bonnet Plume watershed given its current designation as a National Heritage River, its importance to the Bonnet Plume, Redstone, and Porcupine caribou herds and other species (see Map 3), its regionally significant mineral licks, and its outstanding outfitting and wilderness tourism values.
- protection of the upper Snake watershed given its regionally significant mineral licks and sheep habitat, and its outstanding outfitting and wilderness tourism values.

Where the Scenarios Differ:

The geographic layout of each scenario can be compared by looking at Map 5 & Map 6. The relative amounts of each zone for each scenario can be found in Table 5.

In the Mixed-Use Strategy Scenario, interim thresholds, regulations, best management practices and restrictions on all-season road access (Access zones 'A' and 'B') are the primary tools to

¹⁰ See document Scenarios Methods Report [http://www.peel.planyukon.ca/downloads/downpldo.html\[PWPC_Scenario_Methods_Report_Nov_2008.pdf](http://www.peel.planyukon.ca/downloads/downpldo.html[PWPC_Scenario_Methods_Report_Nov_2008.pdf) 622kb]

adequately represent the commission's land use vision. These tools are intended to guide the pace and scale of development, enable co-management of resources and protect an ecologically sensitive watershed, the Bonnet Plume, already designated as a Canadian Heritage River. The commission acknowledges that small-scale resource extraction operations that can rely on air support or winter road access are feasible industrial pursuits in large portion of the Region in this scenario.

In the Protection Strategy Scenario, there is more emphasis on using Protected Areas and SMAs as management tools for the conservation of resources than in the Mixed-Use Strategy. Significant trade-off, however, is made toward provision for oil and gas development and further co managed exploration and development of resources in the lower Snake watershed. The extent of the conservation matrix recognizes areas significant for their natural resources and uniqueness in a global context, namely Hart, Wind, Bonnet Plume and Upper Snake, and Turner and Jackfish wetlands. Identified land uses that would benefit are big game outfitting and wilderness tourism and self-guided wilderness recreation. Although the precautionary approach is still required, there is a presumed greater certainty that wildlife and natural resources are adequately protected within the proposed conservation matrix.

Table 5: Break down of zoning of scenarios by percent area

Zone	Scenario 1	Scenario 2
First Nation Lands	3.6%	3.6%
Protection	16.6%	54.5%
Conservation: culture	1.5%	1.5%
Conservation: wildlife	9.1%	14.9%
River corridor mgmt	10.4%	4.7%
Tourism access	0.0%	0.0%
IMA: Access 'A'	37.9%	11.0%
IMA Access 'B'	20.9%	9.8%
Total	100.0%	100.0%

Beyond Zoning

The mixed-use and protected scenarios use zoning to dictate conforming land uses and to identify areas that may require further subregional planning and/or explicit co management. Zoning, as a management tool (see pp. 19 & 23), is readily communicated visually (see Map 5 & Map 6) and in scenario descriptions but does not alone address all the issues in the Region. Several other planning tools (some examples are discussed on pp 23 - 25) may also be included in the *Draft Plan*. Other recommendations that will be incorporated into the draft plan and, as such, apply to both scenarios, will likely include:

Required baseline data/research:

- Sea-run fish (spawning requirements, locations)
- Requirement for adequate water monitoring stations for adequate water quality / water
- Review of thresholds for flight disturbance to sheep or tourists
- Research recovery/regeneration rate for linear disturbance (gravel roads, seismic lines, well pads etc.)
- Develop thresholds for linear and surface disturbance and water quality/quantity

Required detailed or subregional plans:

- Access points and routing for winter and all-season roads

Regulatory or policy changes or additions:

- Change access regulations of the Wind Trail to limit or regulate public access
- Clean up all identified contamination sites in the PWPR
- Develop backcountry tourism policy for infrastructure and use of areas
- Develop a policy for uranium exploration
- Ensure that an all-parties Peel committee (and all ministries) meet at least once/fiscal year to discuss land use issues in the Peel
- Socioeconomic and environmental analysis of draft plan

Land use Activities

- The plan will not impact or reduce traditional activity and cultural use of the land. Traditional use and harvesting can continue in all areas, at all times.
- Winter-access routes and all-season access routes will require land use restrictions to reduce hunting pressures on wildlife

Key Planning Challenges

The following section compares and contrasts the ability of each scenario to address nine key planning challenges. These challenges are more general than the specific issues presented in **Table 1**. However, the challenges have implications on most or all of those issues. For each key challenge, we highlighted features that differentiated one scenario from the other. In many instances, it can be argued that either scenario is favourable and indeed has many of the same attributes and pitfalls as the other, regardless of differences in zoning strategy. For more detailed comparisons of the scenarios by land use activity and ecological value refer to Appendix C.

KEY ISSUE #1: Land use certainty for existing land uses

Mixed-use Scenario:

- Land use certainty for resource sectors - exploration in IMA and Conservation Zones (beyond the Bonnet Plume Basin)
- Higher certainty for high-value mines with lesser access requirements (can operate with winter access road (e.g. Diavik Mine, Tulsequah Chief Mine, Elsa/Keno, Reddog (Alaska))
- Bonnet Plume Watershed excludes resource exploration and development
- BMPs and MOUs to mitigate conflicts between resource industry and outfitting/trapping/tourism
- Provision for oil and gas exploration in Peel Plateau and Plain and Eagle Plains basins
- Conflicts between exploration and conservation/cultural values in Conservation Zones require co management and subregional planning
- Limited oil and gas winter exploration on Turner Wetlands, Lusk Lake and Edigii Hill
- Strictest controls on all exploration methods including drilling waste disposal
- Wildlife viewing along Dempster Highway may require further regulation to minimize disturbance to wildlife
- Seismic exploration may increase access during the winter which benefit trappers and hunters but also influence wildlife
- Education and regulation of summer drilling program to limit disturbance to residential sheep populations

Protection Scenario:

- Land use certainty for resource use sector exploration in IMA and Conservation Zones (only Lower Peel, Ogilvie and Blackstone watersheds)
- Hart, Wind, Bonnet Plume and Upper Snake River watersheds excludes resource exploration and development
- Conflicts between exploration and conservation/cultural values in Conservation Zones require co management and subregional planning
- Wilderness Tourism, Big Game Outfitting, Trapping, Subsistence and Cultural considered conforming land uses in Protected Areas
- Extremely limited oil and gas winter exploration may be possible on Turner Wetlands with zero footprint technology, limited exploration on Conservation Area Zones Lusk Lake and Edigii Hill
- Strictest controls on all exploration methods including drilling waste disposal
- Wildlife viewing along Dempster Highway may require further land use regulation to minimize disturbance to wildlife
- Education and regulation of summer drilling program to limit disturbance to residential sheep populations

KEY ISSUE #2: Land use certainty for potential land use

Mixed-use Scenario:

- Land use certainty for resource use sector development in IMA and Conservation Zones (except the Bonnet Plume Basin)
- Higher certainty for high-value mines with lesser access requirements (can operate without all-season access road e.g. Diavik Mine, Tulsequah Chief Mine, Elsa/Keno, Reddog (Alaska))
- Bonnet Plume Watershed excludes resource exploration and development
- Indicators and thresholds (see **Table 4**) will guide access development
- Requires access development plans to comply with the PWPR Land Use Plan
- High-value Crest Iron deposit may be viable with limits on access routing (IMA in Lower Snake River)
- Road or transportation corridor the Bonnet Plume River Watershed is not a conforming use
- Policy direction for uranium development needed to guide land use activities
- Alternative routing through NWT should be examined to access basins EAST of the Peel River; winter access only to these basins
- Limited oil and gas winter exploration on Turner Wetlands, Lusk Lake and Edigii Hill - directional drilling with minimal footprint
- Strict controls on all industrial development and operations
- Wildlife viewing along Dempster Highway may require further regulation to minimize disturbance to wildlife
- Mine development is greatest risk to Big Game Outfitters

Protection Scenario:

- Land use certainty for resource use sector development in IMA and Conservation Zones (only Lower Peel, Ogilvie and Blackstone watershed)
- High-value Crest Iron deposit may be viable with limits on access routing (Conservation Area in Lower Snake River)
- Hart, Wind, Bonnet Plume and Upper Snake River watersheds excludes resource exploration and development
- Requires access development plans to comply with the PWPR Land Use Plan
- Requires subregional planning for Protected Areas to give provisions for expansions of backcountry lodges (Wilderness Tourism and Big Game Outfitting) and cultural education camps
- Provisions for limited gas development but little land base for viable high-value mineral extraction
- Conservation Area Zone in Lower Snake River will require parties to develop a subregional plan and co management with parties to guide land use direction (especially access corridors)
- Policy direction for uranium development needed to guide land use activities
- Alternative routing through NWT should be examined to access basins EAST of the Peel River; winter access only to these basins
- Directional drilling required to access basins under Turner Wetlands, limited extraction in Conservation Areas Zones Lusk Lake and Edigii Hill
- Strictest controls on all industrial development and operations
- Wildlife viewing along Dempster Highway may require further regulation to minimize disturbance to wildlife
- Large intact landscapes benefit Big Game Outfitters but restriction of a protected areas zone will require further understanding of land management responsibilities amongst the parties

KEY ISSUE #3: Managing land use for maintenance of cultural values/subsistence use

Mixed-use Scenario: • Primary and Secondary use areas for Teetl'it Gwich'in primarily zoned as IMAs with some Conservation Area zones for Wildlife • Recognition of heritage values of Teetl'it njik and Tshuu tr'adaojich'uu (proposed Historic Sites) • Land use direction for affected R-blocks require further direction by affected First Nation communities • Include some connectivity corridors for cultural use priority (Hungry Lakes, Nash Creek, North Cache Creek and part of West Hart Drainage) • Increased access may facilitate cultural use of the PWPR as well as compromise "Peaceful enjoyment" of the land • Historic travel corridor are not explicitly identified in the land use plan • Bonnet Plume Watershed will require co management plan and appropriate designation • MOUs, BMPs, UFA and current regulations tools for maintaining cultural values and subsistence use	Protection Scenario: • Primary and Secondary use areas for Teetl'it Gwich'in primarily zoned as a Conservation Area Zone for Wildlife with some IMA Zones. • Recognition of heritage values of Teetl'it njik and Tshuu tr'adaojich'uu (proposed Historic Sites) • Land use direction for affected R-blocks require further direction by affected First Nation communities • Some connectivity corridors for cultural use priority (Nash Creek, North Cache Creek) • Historic travel corridor are not explicitly identified in the land use plan • Hart, Wind, Bonnet Plume, and Upper Snake River Watershed will require co management plan and appropriate designation (much larger area) • MOUs, BMPs, UFA and current regulations tools for maintaining cultural values and subsistence use
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KEY ISSUE #4: Recognizes all economic potential of the planning region including, but not limited to, subsurface resources

Mixed-use Scenario: • Some compensation for claims, leases and licenses may required in Protected Area zones (form of compensation not determined) • Requires socioeconomic and environmental analysis of final scenario for draft plan • Recognizes that compensation may be required for industries dependent on wilderness experience and large intact landscapes (form of compensation not determined) • Recognizes that exploration and development in the PWPR will likely be	Protection Scenario: • Significant compensation for claims, leases and licenses may required in Protected Area zones (form of compensation not determined) • Requires socioeconomic and environmental analysis of final scenario for draft plan • Recognizes that exploration and development in the PWPR will likely be more costly than other areas due to the requirement for innovative technology; alternative, less impacting access routes; recovery plan for post-operations
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more costly than other areas due to the requirement for innovative technology; alternative, less impacting access routes; recovery plan for post-operations • Balances wilderness values with provisions for localized high- value, low-volume mines and/or oil and gas production • Scenario is in agreement with Yukon Energy Development Strategy (development of coal resources is not a priority for Yukon Government) • Wilderness tourism has moderate direct benefit from Bonnet Plume protected area	• Recognizes that environmental concerns, wilderness values are a priority in the PWPR • Wilderness tourism greatly benefits from Wind River and Upper Snake protected area • Scenario is in agreement with Yukon Energy Development Strategy (development of coal resources is not a priority for Yukon Government)
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KEY ISSUE #5: Managing use of river corridors

Mixed-use Scenario: • Allows winter road access down river corridors with the exception of Bonnet Plume River • Road placement will require road alignment to be invisible to river paddlers wherever possible • May be possible to see winter road or low volume mines throughout Werneckes and along Dempster • Remote fly-in lakes and/or airstrips may be regulated for traffic or have additional land use restrictions as needed to reduce conflicts between multiple users • Wilderness tourism may be regulated within the river corridors to reduce river use intensity and increase peaceful enjoyment • Restrictions on exploration activity may be required during high tourism seasons to maintain peaceful enjoyment	Protection Scenario: • Allows winter road access down river corridors with the exception of Hart, Bonnet Plume, Wind and Upper Snake Rivers and their watersheds (with the exception of Lower Snake River) • Where road access is permitted, placement will require road alignment to be invisible to river paddlers wherever possible • Low to no conflict with exploration or development activity in protected areas. • Remote fly-in lakes and/or airstrips may be regulated for traffic or have additional land use restrictions as needed to reduce conflicts between multiple users • Wilderness tourism may be regulated within the river corridors to reduce river use intensity and increase peaceful enjoyment
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KEY ISSUE #6: Managing the region for its wilderness values**Mixed-use Scenario:**

- Will require well developed land use subregional planning for river corridors
- Access control may be required for fly-in lakes
- Use of thresholds and indicators that require large intact areas for broadly ranging species such as grizzly bear and caribou
- All access will be close to the public and strictly regulated
- To minimize impacts to the wilderness value of the PWPR, the pace and scale of development is managed using a mix of protected, conservation, IMA and access zoning

Protection Scenario:

- Will require well developed land use subregional planning for river corridors
- Access control may be required for fly-in lakes
- Use of thresholds and indicators that require large intact areas for broadly ranging species such as grizzly bear and caribou
- All access will be close to the public and strictly regulated
- Protected areas zoning restricts land use activities that are most likely to reduce wilderness values of the PWPR

KEY ISSUE #7: Conservation of culturally or ecologically important species**Mixed-use Scenario:**

- Greater risk to wildlife disturbance and reduction in habitat quality for caribou and sheep
- Several core winter habitat ranges for 5 caribou herds are co managed for habitat conservation
- Migration and travel corridors are not captured
- Winter road and all-season access will increase hunting (human and wolf) pressures on caribou

Protection Scenario:

- Lesser risk to wildlife disturbance and reduction in habitat quality for caribou and sheep
- Several core winter habitat ranges for 5 caribou herds are co managed for habitat protection
- Large portions of the range of 3 caribou herds are protected
- Large protected corridors (embedded in protected areas) capture known migration and travel corridors of sheep and caribou
- Potential all-season access will increase hunting (human and wolf) pressures on caribou in select areas

KEY ISSUE #8: Managing the region for water quality and quantity

- Recognition that water is a limiting factor to industrial development
- Spawning sites and over-winter habitat are limited

Mixed-use Scenario:

- Water quality and quantity in Peel and tributaries maintained primarily through River Corridor Zones, BMPs, access restrictions, and existing legislation
- Need to monitor water quality and quantity and have baselines data, targets for health of aquatic life and drinking water
- Ironically increased access may facilitate water monitoring
- Water quality & quantity regulated through the Mackenzie River Basin Transboundary Waters Master Agreement (via Yukon-Northwest Territories Transboundary Water Management Agreement)
- FN have water rights under Ch 14 of the UFA
- Water use is regulated by the Water Act (Yukon)

Protection Scenario:

- Water quality and quantity in Peel and tributaries maintained primarily through protection of 3½ major tributaries and much of the Peel mainstem, and secondarily through River Corridor Zones, BMPs, access restrictions, and existing legislation
- Need to monitor water quality and quantity and have baselines data, targets for health of aquatic life and drinking water
- Ironically increased access may facilitate water monitoring
- Water quality & quantity regulated through the Mackenzie River Basin Transboundary Waters Master Agreement (via Yukon-Northwest Territories Transboundary Water Management Agreement)
- FN have water rights under Ch 14 of the UFA
- Water use is regulated by the Water Act (Yukon)

KEY ISSUE #9: Management of Dempster Highway corridor

- 16 km corridor through the PWPR

Mixed-use Scenario:

- Regulated under the Area Development Act, Dempster Highway Development Area Regulations
- Recommend limited all-season access on either side of Dempster Highway
- Will require viewshed management plan to minimize impacts to rubber-tire wilderness experience wherever possible
- Future pipeline access may be routed along the Dempster Highway from Eagle Plains to meet the Alaska Highway Pipeline
-

Protection Scenario:

- Regulated under the Area Development Act, Dempster Highway Development Area Regulations
- Recommend limited all-season access on either side of Dempster Highway
- Will require viewshed management plan to minimize impacts to rubber-tire wilderness experience wherever possible
- Future pipeline access may be routed along the Dempster Highway from Eagle Plains to meet the Alaska Highway Pipeline
-

5. Conclusions

In presenting this Scenario Options Report, the PWPC has endeavored to achieve the following:

- Highlight the essential background on its mandate to prepare a Regional Land-Use Plan, and its process for preparing and selecting a Land-Use Scenario for its Draft Plan;
- Summary of the key land use sectors, values, interests and related planning and land use management issues;
- Analysis of likely compatibility for existing and potential expanded land uses within the environmental, social-cultural, and economic context of the Peel region
- Presentation of its recommended land use planning framework for enabling a range of Protection, Conservation and Sustainable Use; subject to the application of various recommended planning tools, legal designations, and strategies/management practices (to be articulated in a Draft Plan);
- Outline of how the proposed land use planning framework can be applied to permit a range of specified uses within two proposed Scenario Options, with (i) a comparison of some key planning challenges which need to be addressed; and (ii) further (appended) reference how each land use sector and conservation indicator may be impacted by each Scenario as compared to the present status quo situation without a Plan (benefits/risks, management considerations)

What's Next?

Having gained a better appreciation of the complex set of values, issues and challenges present within the Peel Region, the Peel Watershed Planning Commission now turns to the public, affected communities, stakeholder organizations, and Parties to the agreement (affected First Nations and Yukon Government) to reflect on the kind of future they seek for this unique region. To assist the Commission with this task, we have provided the following questionnaire (Appendix A) with which we ask all who are interested to complete and send for its consideration.

In the next two months, as it works to prepare a Draft Land Use Plan, the Commission encourages Yukoners to remain engaged and keep informed about our planning process!

6. References

PWPC 2005. Issues and Interests Report. Peel Watershed Planning Commission, Whitehorse, Canada. <http://www.peel.planyukon.ca/downloads/downpldo.html>

PWPC 2007. Conservation Priorities Assessment: Criteria and Indicators Report. Peel Watershed Planning Commission, Whitehorse, Canada. <http://www.peel.planyukon.ca/downloads/downpldo.html>

PWPC 2008a. Conservation Priorities Assessment Report. Peel Watershed Planning Commission, Whitehorse, Canada. <http://www.peel.planyukon.ca/downloads/downpldo.html>

PWPC 2008b. Resource Assessment Report. Peel Watershed Planning Commission, Whitehorse, Canada. <http://www.peel.planyukon.ca/downloads/downpldo.html>

PWPC 2008c. Land Use Scenario Methods Report. Peel Watershed Planning Commission, Whitehorse, Canada. <http://www.peel.planyukon.ca/downloads/downpldo.html>

7. Maps

Map 1: Regional Overview

Map 2: Existing Dispositions and Adjacent Land Status

Map 3: Selected Ecological Indicators

Map 4: Non-renewable Resource Values

Map 5: Scenario 1

Map 6: Scenario 2

Appendix A: Peel Watershed Planning Scenarios Questionnaire



PEEL WATERSHED
PLANNING COMMISSION
TOGETHER FOR THE PEEL CHUUT'EN JIK'HON

January, 2009

RE: Proposed Scenarios for the Peel Watershed Land-Use Plan

The Peel Watershed Planning Commission has used the results of its research and consultation activities to develop two land-use scenarios as a component of its planning process. This package of information includes a summary brochure, and detailed scenarios options report describing the land-use values, zoning alternatives and comparative analysis of implications by land-use sector. Further reference on the methodology used to develop the Scenarios is outlined in the "Scenarios Methodology Report" and available on-line at www.peel.planyukon.ca. Our web-site also features an interactive tool where you can submit comments for our consideration.

We welcome your comments and suggestions to assist the Commission in selecting one of these two options as a "best fit" Scenario, or with suggested alternatives you may wish to propose. Any comments you may have are welcome until Feb 28, 2009 to help inform preparation of the Draft land-use plan.

Thank you very much for your interest!

Sincerely,

Albert Genier
Chair, PWPC

Reg C. Whiten, P.Ag. MCIP
Senior Planner, PWPC

Your comments must be submitted by February 28, 2009 to be considered by the Peel Watershed Planning Commission in developing their recommendations for the Peel Watershed Region Draft Land-Use Plan. Please email, fax or mail us – information below.

Please check the location of the community presentation you attended:

Mayo ___ Dawson City ___ Inuvik ___ Fort McPherson ___ Old Crow ___ Whitehorse ___

Your Contact Details (optional):

Would you like your contact information added to our mailing list? Yes ___ No ___

Name: _____

Phone: _____

Address: _____

Email: _____

Affiliation: _____

For more information from the Peel Watershed Planning Commission:

Call (867) 667-2374, Toll Free: 1-866-353-2374 Fax (867) 667-4624

Suite 20 1- 307 Jarvis Street, Whitehorse, YT Y1A 2H3

Email: info@planyukon.ca WEB site: www.peel.planyukon.ca

PWPC Scenario Options Report



PEEL WATERSHED
PLANNING COMMISSION
TOGETHER FOR THE PEEL CHUU TTI GEENJITKHOK

Of the two options proposed for development of the Peel Watershed Land-Use Plan, which one do you prefer:

I prefer Option 1 (Mixed Use Strategy) because:

I prefer Option 2 (Protected Use Strategy) because:

Is there a modification to one of the above options, or an entirely different option which you would propose? Please describe.

Do you have any other comments related to this Land-Use Options report or other aspect of the Planning Process?

Appendix B: The Commission's Guiding Statements

The Commission's Mandate

Under the mandate of Chapter 11 of the Umbrella Final Agreement (UFA), the Peel Watershed Planning Commission (PWPC) is responsible for developing and recommending a regional land use plan for the Peel Watershed Planning Region. The PWPC is an arm's length commission with members that are jointly nominated by the Yukon, Na-Cho Nyak Dun, Tr'ondëk Hwëch'in, Gwich'in and Vuntut Gwitchin governments. The recommended regional land use plan will apply to all Settlement and Non-settlement lands in the planning region.

The Commission's Goals

The Peel watershed regional planning process is intended to achieve the following goals and objectives, as described in the UFA:

- Promotes the well being of the affected First Nations, other residents of the planning region, the communities and the Yukon as a whole, while having regard to the interest of other Canadians (UFA 11.4.5.7);
- Recommends measures to minimize actual or potential land use conflicts throughout the planning region (UFA 11.4.5.4);
- Recognizes and promotes the cultural values of the affected First Nations and other affected Yukon Indian People (UFA 11.1.1.3);
- Ensures that social, cultural, economic and environmental policies are applied to the management, protection and use of land, water and resources in an integrated and co-ordinated manner so as to ensure sustainable development (UFA 11.1.1.6);
- Promotes sustainable development (UFA 11.4.5.9);
- Takes into account that the management of land, water and resources, including fish, wildlife, and their habitats, is to be integrated (UFA 11.4.5.8);
- Provides for enhanced opportunities to have ongoing cooperative land use planning activities between the Peel Watershed Planning Commission and the Gwich'in Land Use Planning Board. (7.1.3, GCLCA). Any Regional Land Use Planning Commission, or other planning agency described in (7.1.1, GCLCA), shall consult with the Gwich'in Land Use Planning Board in order to make use of planning that has been done with respect to the Peel River watershed by the Mackenzie Delta Beaufort Sea Land Use Planning Commission, and to discuss ongoing co-operative land use planning activities.

The PWPC General Terms of Reference (YLUPC 2004) also states that the PWPC shall "Recognize all economic potential of the planning region, including, but not limited to sub-surface resources".

The Commission's Statement of Intent

To guide preparation of the Land-Use Plan, the Commission prepared a Statement of Intent in 2006 that the Parties agreed would serve to guide development of its Draft Plan:

The goal of the Peel Watershed Regional Land Use Plan is to ensure wilderness¹¹ characteristics, wildlife and their habitats, cultural resources, and waters are maintained over time while managing resource use. These uses include, but are not limited to, traditional use, trapping, recreation, outfitting, wilderness tourism, subsistence harvesting, and the exploration and development of non-renewable resources. Achieving this goal requires managing development at a pace and scale that maintains ecological integrity¹². The long-term objective is to return all lands to their natural state.,

Source: PWPC Website – www.peel.planyukon.ca

Plan Principles That Underlie the Peel Watershed Land Use Plan

The Land Use Plan for the Peel Watershed region is intended to be implemented using guiding principles that follow the planning direction given in the Umbrella Final Agreement, the Plan General Terms of Reference and the Plan Statement of Intent documents. There are five guiding principles that underlie development and recommendation of the Peel Watershed Land Use Plan.

Independence and Impartiality

As an independent, public agency appointed to represent the best interests of Yukon people, the Planning Commission will carefully consider any and all information, advice or recommendations provided to it by any government, agency or the public in a balanced and neutral manner for preparation and recommendation of this Land Use Plan consistent with its Terms of Reference and expectations of the UFA (11.4.0 to 11.7.0 incl)

Sustainable Development

The core principle that guides the Plan is sustainable development, as defined in the UFA “Beneficial socio-economic change that does not undermine the ecological and social systems upon which communities and societies are dependent.” (UFA, p.7, 11.4.5.9). This includes a commitment to the practice of integrated resource management (UFA, 11.4.5.8, 11.2.1.2), so that the Plan:

“..Ensures that social, cultural, economic and environmental policies are applied to the management, protection and use of land, water and resources in an integrated and coordinated manner so as to ensure sustainable development” (UFA, 11.1.1.6)

First Nations Traditional and Community Resource Use

The plan will promote the interests, rights and responsibilities of The Tetlit Gwich'in, Nacho Nyak Dun, Tr'ondëk Hwëch'in and Vuntut Gwitchin with respect to the conservation and use of their

¹¹ **Wilderness** is defined as: any area in a largely natural condition in which ecosystem processes are largely unaltered by human activity or in which human activity has been limited to developments or activities that do not significantly modify the environment, and includes an area restored to a largely natural condition. (Yukon Environment Act)

¹² **Ecological integrity** is defined as: a concept that expresses the degree to which the physical, chemical, and biological components (including composition, structure, and process) of an ecosystem and their relationships are present, functioning, and capable of self-renewal. Ecological integrity implies the presence of appropriate species, populations and communities and the occurrence of ecological processes at appropriate rates and scales as well as the environmental conditions that support these taxa and processes. (U.S. National Park Service)

traditional territories for both country food harvest, promotion of a renewable resource economy or other purpose as they may decide for Settlement lands (UFA, 16.1.1.1, 5.4.9, 12.1.1.1)

Conservation

The plan proposes to manage fish and wildlife habitats and water resources using the conservation principle as defined and specified in the Umbrella Final Agreement (p.2 Definitions, 16.1.1.1, *“The management of Fish and Wildlife populations and habitats and the regulation of users to ensure the quality, diversity and Long Term Optimum Productivity of Fish and Wildlife populations, with the primary goal of ensuring a sustainable harvest and its proper utilization.”* (UFA, p.1)

Adaptive Management

The Plan is a living document. In accordance with the intent of UFA 11.2.1.3 – 11.2.1.5, the Plan will be reviewed, monitored and updated in response to changing land use and/or environmental conditions, or as better information becomes available. Adaptive Management means we must: “Look, learn and adjust as required.” It requires that those implementing the plan learn and adapt as their information improves.

Precautionary Principle

The Plan shall recognize that the Peel Watershed is an intact ecosystem, and the need to consider potential impacts before making resource decisions, and in particular, the need to recognize and enhance, to the extent practicable, the livelihood and First Nation’s relationship to the wilderness environment (12.1.1.1). A lack of conclusive scientific evidence does not justify inaction on managing the environment, particularly when the consequences of inaction may be undesirable, or when the costs of action are negligible” (International Institute for Sustainable Development).



Figure 3: Sustainable development is the guiding principle for the Plan.

Appendix C: Implications of Scenario Options on Land-Use Sectors & Conservation Indicators

Scenario Analysis Assumptions

In preparing the following analyses, PWPC planning staff considered how the alternative scenarios might impact upon the key land use sectors and conservation indicators. This analysis was based upon the following set of assumptions based upon current state of knowledge of science, regulatory or policy matters.

1. A review of thresholds for flight disturbance to sheep or tourists
2. Access points for winter and all-season roads
3. Research recovery/regeneration rate for linear disturbance (gravel roads, seismic lines, well pads etc.)
4. Assumes the regulations and policies are adequate for IMAs to meet PWPR GTOR, Statement of Intent and Planning Principles and identify regulation gaps within the PWPR
5. Baseline data on Sea-run fish
6. Change access regulations of the Wind Trail to limit or regulate public access
7. Clean up all identified contamination sites in the PWPR
8. Limit number/density of turn-offs on the Dempster Highway within the PWPR
9. Develop backcountry policy for infrastructure and use of areas
10. Develop thresholds for linear and surface disturbance and water quality/quantity
11. Ensure that an all-parties Peel committee (and all ministries) meet at least once/fiscal year to discuss issues in the Peel. How different than YESAB?
12. Improved baseline hydrology
13. LUP will not impact of reduce traditional activity and cultural use of the land. Traditional use and harvesting can continue in all areas at all times .
14. Peel-related communications among parties and ministries should be encouraged
15. Socioeconomic and environmental analysis of draft plan

	Base Case (without Land-Use Plan)		Scenario 1		Scenario 2	
	Risk	Benefit	Risk	Benefit	Risk	Benefit
SCENARIO FEATURES SUMMARY	Do nothing, and status quo via YG & FN reg's, policies & plans		Primary mechanisms for mitigating land use conflicts are thresholds and access restrictions; Moderate habitat protection via thresholds, access restrictions, SMAs and protected areas		Primary mechanisms for mitigating land use conflicts are spatial segregation using Protected Areas and SMAs; Increased habitat protection via large protected areas, SMAs, and thresholds and access restrictions	
LAND USE CERTAINTY	Socially acceptable uses of settlement and non-settlement lands are unknown	Land use plan may be revised substantially in future review	Land use plan may be revised substantially in future review	Relatively high land use certainty		Relatively high land use certainty
ACCESS REGIME	Access is not co-ordinated; no assessment of impact of access on other industries	No land withdrawals	Requires access to conform to seasonal use (e.g. Winter road)	Encourages planning for foreseeable access needs.	Access not permitted or seasonally limited for much of PWPR	Encourages planning for foreseeable access needs.
MANAGEMENT CONSIDERATIONS	No protection of habitat	Simplest regulatory regime	Protected areas requires years of planning, political will, and potential compensation	Protection of ecological integrity and some habitat.	Protected areas requires years of planning, political will, and potential compensation for much of PWPR	Protection of ecological integrity and much habitat.
	Cumulative impacts not considered in current regulations			Cumulative impacts considered		Cumulative impacts considered

Base Case (without Land-Use Plan)			Scenario 1		Scenario 2	
	Risk	Benefit	Risk	Benefit	Risk	Benefit
MINERAL EXPLORATION						
LAND USE CERTAINTY	Least land use certainty; high potential for conflict with non-industrial sectors	Minimal land withdrawal	Potential compensation for claims may be required from land-withdrawals in SMAs and PAs; Exploration opportunity eliminated in PAs	High land use certainty for exploration access throughout PWPR; less certainty finds may be developable	Significant amount of land-withdrawal	Moderate land use certainty for exploration access throughout PWPR; More certainty finds could be developed
ACCESS REGIME	Unknown certainty for access approval	Free-entry system maintained	Increased road regulations along river corridors	Winter road permit certainty for much of PWPR	Roads are non-conforming for much of PWPR; more restrictions on all-season access to Lower Snake River	
MANAGEMENT CONSIDERATIONS	Potential for significant land use conflicts may not be addressed through YESAA; Current regulations may be insufficient to protect against wildlife disturbance (e.g. Resident sheep and mineral licks); Policy direction for uranium mining is unknown	Regulations are universally applied	Exploration opportunity eliminated in PAs; Other land withdrawals possible		Exploration opportunity eliminated in PAs; Other land withdrawals possible	

	Base Case (without Landuse Plan)		Scenario 1		Scenario 2	
MINE DEVELOPMENT	Risk	Benefit	Risk	Benefit	Risk	Benefit
LAND USE CERTAINTY	Land use planning uncertainty - no certainty of mine development being acceptable use	No land withdrawal	Development of some finds may or dependent on access requirements	High certainty for high-value mines with lesser access requirements; Crest deposit not withdrawn	Co-management of access and development in Lower Snake may limit Crest deposit development	More certainty for approval in specific IMA's; Crest deposit not withdrawn
ACCESS REGIME	Unknown certainty for access approval	Free-entry system maintained; All modes of access theoretically possible	IMAs where only winter roads are permitted will limit the scale of developments; Access route to Crest deposit very different than proposed	Winter road permit certainty for much of PWPR; All modes of access acceptable to Crest deposit	Access roads are non-conforming for much of PWPR; IMAs where only winter roads are permitted will limit the scale of developments; Access route to Crest deposit very different than proposed and is co-managed ; More restrictions on all-season access to Lower Snake River – access to Crest deposit more uncertain	Winter road permit certainty for some of PWPR
MANAGEMENT CONSIDERATIONS	Policy direction for uranium mining is unknown	Work within current regulations and BMPs; Universally applied regulations	Type and scale of mining restricted for much of PWPR due to access restrictions. Mineral rich Bonnet Plume watershed withdrawn	Moderate amount of land withdrawal	Much of land base withdrawn	Conflicts with other industries most reduced

	Base Case (without Land use Plan)		Scenario 1		Scenario 2	
	Risk	Benefit	Risk	Benefit	Risk	Benefit
OIL AND GAS EXPLORATION						
LAND USE CERTAINTY	Land use uncertainty	All known basins potential for exploration	Some land withdrawal or restrictions to Turner wetlands	Land use planning certainty in known basins and Richardson's	Some land withdrawal; in areas east/south of Peel River subject to pre-tenure planning ; Restrictions on river corridor and wetland drilling	Land use certainty
ACCESS REGIME	Unknown certainty for access approval	Designated access through Richardson Mtns	Designated access through Richardson Mtns	Regulations are universally applied in IMA	All-season access to basins east of Peel River is "non-conforming use"	Regulations are universally applied in IMA;Potential for economic agreements with FN's
MANAGEMENT CONSIDERATIONS	YG energy policy not in support of coalbed methane development		Turner Wetlands require higher standard of BMP	Wider range of mgt options for exploration - subject to regulations	Access to Turner wetlands deposits require directional drilling ; prevalence of wetlands may limit to winter exploration	Potential for viable winter exploration program
OIL AND GAS DEVELOPMENT						
LAND USE CERTAINTY	No land use certainty; Development plans subject to YESAB	Regulations are universally applied		Regulations are universally applied; potential for development in all known basins	High cost of development due to conservation mgt considerations; High potential for land withdrawal	High land use certainty
ACCESS REGIME			Uncertainty of road access		Uncertain access for O/G infrastructure	
MANAGEMENT CONSIDERATIONS	YG energy policy not in support of coalbed methane development		Strict controls on exploration methods, drilling waste disposal	Clarity of mgt requirements for designated zones	Strictest controls on exploration methods, drilling waste disposal	Clarity of mgt requirements for designated zones

	Base Case (without Land-Use Plan)		Scenario 1		Scenario 2	
TRANSPORTATION	Risk	Benefit	Risk	Benefit	Risk	Benefit
LAND USE CERTAINTY	Land use planning uncertainty	No land withdrawal	Access along river corridors subject to screening (based on proven value, environmental and visual assessment); air traffic and floatplane landing locations may be restricted; winter roads must meet thresholds yet to be determined (e.g. water and habitat fragmentation)	Moderate certainty; Wind River trail identified as a winter route (subject to river corridor regulations)	Access to Lower Snake uncertain given other mgt priority in term of plan	high land use certainty
ACCESS REGIME	unknown certainty for access approval	All modes of access theoretically possible	Roads are not permitted in Bonnet Plume; Roads are seasonally restricted for much of PWPR	Zone variance for Peel River crossing of location possible; Ground access permitted for most of PWPR	Ground access not permitted for most of PWPR; Roads are seasonally restricted for some of PWPR	Zone variance for Peel River crossing location possible
MANAGEMENT CONSIDERATIONS	Access is not co-ordinated; no assessment of impact of access on other industries	Regulations are universally applied	Some restrictions on routing			
AGGREGATE						
LAND USE CERTAINTY	aggregate resources are unknown		aggregate resources are unknown		aggregate resources are unknown	
ACCESS REGIME	little incentive for industry to plan access infrastructure			demand will be focused in Access Zone 'A' where gravel roads are a conforming use; incentive for industry to plan access infrastructure	large landbase withdrawn from mining	demand will be focused in Access Zone 'A' where gravel roads are a conforming use; incentive for industry to plan access infrastructure
MANAGEMENT CONSIDERATIONS		recognized need to map aggregate potential		recognized need to map aggregate potential		recognized need to map aggregate potential

VISUAL QUALITY	Base Case (without Land-Use Plan)		Scenario 1		Scenario 2	
	Risk	Benefit	Risk	Benefit	Risk	Benefit
STATUS		No to low impact on visual quality at current levels of development from a wilderness experience perspective	Low-moderate certainty that visual quality will be maintained in mountains outside of Bonnet Plume	Visual quality protected in Bonnet Plume	Moderate certainty that visual quality will be maintained along Dempser Highway	Visual quality protected in Bonnet Plume, Wind, Hart, and most of Snake Rivers and strongly considered along other river and road corridors.
ACCESS REGIME	All-season and winter roading have high (potentially highest) impact on visual quality		Visual impact of low-volume mines possible along Dempster	Winter roads in Werneckes have moderate potential to impact visual quality	Visual impact of low-volume mines possible along Dempster	Very limited access in mountains, and therefore low potential to impact visual quality
MANAGEMENT CONSIDERATIONS	Existing visual quality along Dempster and in backcountry at risk to unmitigated development		Visual impact of low-volume mines possible throughout much of the Werneckes and along Dempster	Management direction to consider visual quality along river and road corridors.	Visual impact of low-volume mines possible along Dempster	Management direction to consider visual quality along river and road corridors.

	Base Case (without Land-Use Plan)		Scenario 1		Scenario 2	
WILDERNESS TOURISM	Risk	Benefit	Risk	Benefit	Risk	Benefit
LAND USE CERTAINTY	Value of experience may decrease with incompatible land use activities		Value of experience may decrease with incompatible land use activities; access points (winter road), Winter roads (all rivers but Bonnet Plume) ice-bridges, all-season bridges along the Peel or possible lower Snake River may reduce wilderness experience; relatively little direct benefit from Bonnet Plume protected area as it is currently not used frequently for guided wilderness trips.	Land use certainty in the high tourism value rivers for visual and auditory aesthetics	Value of experience may decrease with incompatible land use activities; access points, winter roads, access points (winter road), ice-bridges, all-season bridges along the Peel or possible lower Snake River may reduce wilderness experience	Large wilderness areas in protected area zone for biodiversity and ecological viability: Hart, Wind, and Lower Snake
ACCESS REGIME		Few access regulations.	Remote lake access regulation which may affect the number or frequency of guided wilderness or outfitter trips.		Remote lake access regulation which may affect the number or frequency of guided wilderness or outfitter trips.	
MANAGEMENT CONSIDERATIONS	MOUs and Wilderness Tourism guidelines are the only management tools for mitigating land use that is incompatible`	Wilderness tourism is mostly compatible with current level of exploration - low priority to manage/regulate/zone wilderness tourism activities		Establish a river corridor management plan to reduce existing or potential land use conflicts;		Establish a river corridor management plan to reduce existing or potential land use conflicts;

RUBBER-TIRE TOURISM	Base Case (without Land-Use Plan)		Scenario 1		Scenario 2	
	Risk	Benefit	Risk	Benefit	Risk	Benefit
LAND USE CERTAINTY	Viewsheds at risk along Dempster	Few restrictions to activities along Dempster; No wildlife viewing restrictions;	Dempster wildlife viewing regulated; Access from Dempster to view wildlife may be limited	Viewsheds along Dempster better regulated	Dempster wildlife viewing regulated; Access from Dempster to view wildlife may be limited	Viewsheds along Dempster better regulated
ACCESS REGIME	New industrial roading and traffic may be a conflict	Dempster Hwy provides tourism opportunities; Potential for more all-season roads may increase options for rubber-tire tourism	Low potential for more all-season roads that may increase options for rubber-tire tourism.	Dempster Hwy provides tourism opportunities;	Low potential for more all-season roads that may increase options for rubber-tire tourism.	Dempster Hwy provides tourism opportunities;
MANAGEMENT CONSIDERATIONS	Diminished viewing experiences owing to crowding, disturbance to wildlife, or extractive development	Dempster Highway Development Area Regulations guide activities along the Dempster corridor; Wildlife Viewing program - site at Engineer Creek	Viewsheds at risk due to development	Tourist traffic encouraged to stop at wildlife and tourist friendly pull-outs	Viewsheds at risk due to development	Tourist traffic encouraged to stop at wildlife and tourist friendly pull-outs

CULTURE AND HERITAGE	Base Case (without Land-Use Plan)		Scenario 1		Scenario 2	
	Risk	Benefit	Risk	Benefit	Risk	Benefit
LAND USE CERTAINTY	"Peaceful enjoyment" at risk.	Protected at operational level	"Peaceful enjoyment" at risk; Few traditional travel corridors are identified; Primary and Secondary use areas for Teetl'it Gwich'in are incorporated into a mix of conservation area zones and IMA; No Land Use direction for R-Blocks.	Core First Hunt area north of Tombstone TP, Areas around Nash Creek and connectivity between Hart Lake and McClusky Lake, and Hungry Lakes corridor are conserved for cultural use; Recognition of heritage values of Teetl'it njik and Tshuu tr'adaojich'uu	No traditional travel corridors identified; Primary and Secondary use areas for Teetl'it Gwich'in are incorporated into a mix of conservation area zones and IMA; No Land Use direction for R-Blocks.	Highest maintenance if "Peaceful enjoyment"; Primary Use area in the Lower Snake River is in a Conservation Area Zone; Core First Hunt area north of Tombstone TP; Areas around Nash Creek and connectivity between Hart Lake and McClusky Lake are conserved for cultural use; Recognition of heritage values of Teetl'it njik and Tshuu tr'adaojich'uu
ACCESS REGIME		Most areas are isolated with the exception of the Dempster Highway;	Potential for all-season access in areas north and east of the Peel River. Winter road access into the southern portion of the planning area may increase winter motorized vehicle use.	Increased access may facilitate cultural use of the Peel Watershed	Potential for all-season access in areas north and east of the Peel River.	Increased access may facilitate cultural use of the Peel Watershed. Limited winter access in areas south of the Peel.
MANAGEMENT CONSIDERATIONS	MOUs, S-Sites and Regulations around areas of archaeological importance are the primary management tools for mitigating incompatible land use.		SMAs, MOUs, S-Sites and Regulations around areas of archaeological importance are the primary management tools for mitigating incompatible land use.	Bonnet Plume protected area will require a management plan appropriate for agreed designation.	SMAs, MOUs, S-Sites and Regulations around areas of archaeological importance are the primary management tools for mitigating incompatible land use.	Requires parties to co manage a large area in the Lower Snake River. Large protected area of the Hart, Wind, Bonnet Plume and Upper Snake River will require a management plan appropriate for agreed designation.

SUBSISTENCE	Base Case (without Land-Use Plan)		Scenario 1		Scenario 2	
	Risk	Benefit	Risk	Benefit	Risk	Benefit
LAND USE CERTAINTY	Hunt success reduced with mgmt for wildlife	Fewer regulations & restrictions	Moderate development may impact fish&game species	Moderate protection for FN fish&game species		Highest protection for FN fish&game species
ACCESS REGIME		Limited to Dempster Hwy (cars/trucks), boats (Peel mainstem) or snowmobile	FNs may need/want to comanage access (roads/trails)	Winter roads may temporarily increase access	FNs may need/want to comanage access (roads/trails); no roads/trails permitted in much of region	
MANAGEMENT CONSIDERATIONS		Core First Hunt area of THFN north of Tombstone PA.	FNs may need to comanage access	Fewer regulations & restrictions	FNs may need to co manage access where permitted; possibly more regulations & restrictions	
TRAPPING						
LAND USE CERTAINTY	Potential disturbance to furbearer habitat	Simplest regulatory regime	Potential disturbance to furbearer habitat	Better fur bearer habitat protection		More fur bearer habitat protected
ACCESS REGIME	Potential increased access could lead to increased disturbance	Potential increased access to traplines	Potential increased winter access could lead to increased disturbance in trapping season	Potential increased access to traplines	Lower potential for increased access to traplines	Limited access should limit conflicts with trapping
MANAGEMENT CONSIDERATIONS			Much of furbearing habitat in TGFN group trapline not in SMA ; potential concentration of activity to winter season because of access regulations	New regulatory regime has few implications for trappers		New regulatory regime has few implications for trappers; more of TGFN group trapline in SMA

	Base Case (without Land-Use Plan)		Scenario 1		Scenario 1	
	Risk	Risk	Benefit	Risk	Benefit	Risk
BIG GAME OUTFITTING						
LAND USE CERTAINTY	Value of experience may decrease with incompatible land use activities; Reduced recognition of image from outside YT	Big Game Outfitter land application policy to "prescribe the conditions under which land may be, leased or licensed for pre-existing big game outfitting camps or licensed for related airstrips."	Value of experience may decrease with incompatible land use activities; Reduced recognition of image from outside YT	SMA areas benefit more		Highest recognition of image from outside YT; Concessions are zoned equally as protected areas as large intact wilderness areas;
ACCESS REGIME	Hunt success reduced due to increased competition from unguided hunters	Little regulation on outfitter access into and within concessions.	Unequal treatment of guide outfitter concession for habitat protection	Winter-only access permitted use on Big Game Outfitting concessions may reduce the effects of a transportation corridor and fragmentation (versus all-season access).	Limitations to access may limit expansion of Big Game Outfitting operations	Difficult/regulated access will likely maintain wilderness character valued by Big Game Outfitting operations
MANAGEMENT CONSIDERATIONS	Management and mitigation for conflicting land use is on a project by project basis;	Management of concession activities related to hunting is through Department of Environment while land use is administered through EMR Lands Branch.		Management of concession activities related to hunting is through Department of Environment while land use is administered through EMR Lands Branch; while Yukon Parks may administer land use in Bonnet Plume.	Management plan for protected area may regulate outfitting beyond the requirements of the current regulatory regime.	Management of concession activities related to hunting is through Department of Environment while Yukon Parks may administer land use throughout Hart, Wind, Bonnet Plume, and Upper Snake

Ecosystem functionS	Base Case (without Land-Use Plan)		Scenario 1		Scenario 2	
	Risk	Benefit	Risk	Benefit	Risk	Benefit
HYDROLOGY STATUS	Water is a limiting factor in the PWPR, conventional industrial development will likely require more water than is available.	Small amount of current land use has not resulted in diminished water quality or quantity		Management specific to watersheds with thresholds on water quantity and quality		Management specific to watersheds with thresholds on water quantity and quality
ACCESS REGIME	No thresholds guiding density of all-season and/or winter road development for water quality and quantity.	Very little access with the exception of the Dempster Highway. Little current need to develop thresholds for water quality based on stream crossings.	Will need to develop land use strategies and possible zoning to guide access infrastructure. Thresholds for all-season roads may be required. Thresholds or restrictions on winter access (ice-bridges, regenerate rate); access control regulations required	Increased access may facilitate monitoring of water quality and quantity baseline data; River corridor management zones may help manage conflicts between access and water	Will need to develop land use strategies and possible zoning to guide access infrastructure. Thresholds for all-season roads may be required. Thresholds or restrictions on winter access (ice-bridges, regenerate rate); access control regulations required	Increased access may facilitate monitoring of water quality and quantity baseline data
MANAGEMENT CONSIDERATIONS	YG energy policy not in support of coalbed methane development; Policy direction for uranium mining is unknown	Water quality & quantity regulated through the Mackenzie River Basin Transboundary Waters Master Agreement (via Yukon-Northwest Territories Transboundary Water Management Agreement). Lists several ecological indicators. FN have water rights under Ch 14 of the UFA. Water use is regulated by the Water Act (Yukon).		Water quality & quantity regulated through the Mackenzie River Basin Transboundary Waters Master Agreement (via Yukon-Northwest Territories Transboundary Water Management Agreement). Lists several ecological indicators. FN have water rights under Ch 14 of the UFA. Water use is regulated by the Water Act (Yukon); additional indicators and thresholds related water quality and quantity may be developed.		Water quality & quantity regulated through the Mackenzie River Basin Transboundary Waters Master Agreement (via Yukon-Northwest Territories Transboundary Water Management Agreement). Lists several ecological indicators. FN have water rights under Ch 14 of the UFA. Water use is regulated by the Water Act (Yukon); additional indicators and thresholds related water quality and quantity may be developed.

	Base Case (without Land-Use Plan)		Scenario 1		Scenario 2	
	Risk	Benefit	Risk	Benefit	Risk	Benefit
BIODIVERSITY						
PERSISTENCE	Porcupine and Hart River herds are declining	The region is a national hot-spot for endemic plants; hot-spot with some protection in neighbouring Tombstone Territorial Park		Several core winter ranges for 5 herds are protected or co-managed for conservation; development in other cores limited		Several core winter ranges for 5 herds are protected or co-managed for conservation; development in other cores limited
ACCESS REGIME	Hunting pressure concentrated along the Dempster; potential new roads could increase hunting pressure	Currently few options for access, and therefore lower hunting pressure for much of region	Potential new roads could increase hunting pressure	Limitations on new access should mitigate conflicts with herds		Limitations on new access should mitigate conflicts with herds
MANAGEMENT CONSIDERATIONS	Limited protection of Beringian populations in region.	Currently low industrial activity away from Dempster corridor	Winter activities may disturb caribou	Limitations on pace and scale of industrial development may allow for adequate monitoring		Protection of a large, multi-watershed area and territorially-significant wetlands should go far in protecting representative biodiversity
CONNECTIVITY (to focal species Habitat)						
STATUS	Habitats/ranges risk fragmentation	High level of connectivity (rivers, riparian corridors, mountain passes) given current level of exploration and development.	Habitats/ranges risk fragmentation - caribou migration routes, sheep migration routes.	Recognized in Bonnet Plume protected area. River corridors have management direction around routing all-season and winter road access, especially around travel corridors.	Habitats/ranges risk fragmentation in All-season access areas - caribou migration routes, sheep migration routes.	Recognized in river corridor protected areas in Hart, Wind, Bonnet Plume and Upper Snake Rivers. Ogilvie, Blackstone and Peel River corridors have management direction around routing all-season and winter road access, especially around travel corridors.
ACCESS REGIME	Current suggested access routes do not consider impacts to migration routes or travel corridors.		All-season access zones will likely influence migration and travel routes for wildlife. Winter access routes may influence winter travel by wildlife. Collect baseline data of movement across corridor and key movement periods	River corridors have management direction around routing all-season and winter road access, especially around travel corridors.	All-season access zones will likely influence migration and travel routes for wildlife.	River corridors have management direction around routing all-season and winter road access, especially around travel corridors. Hart, Wind, Bonnet Plume and Upper Snake intact watersheds.
MANAGEMENT CONSIDERATIONS	little baseline data of movement across corridor and key movement periods				Collect baseline data of movement across corridor and key movement periods	

	Base Case (without Land-Use Plan)		Scenario 1		Scenario 2	
	Risk	Benefit	Risk	Benefit	Risk	Benefit
HABITAT STATUS	Development could lead to degrading or fragmentation of fragile habitats of several important species	Currently low industrial activity away from Dempster corridor		Conservation of critical habitat; moderate protection of general habitat		Conservation of critical habitat and whole ranges of some wide-ranging species/herd
ACCESS REGIME	Dempster Hwy cuts through winter habitat of the Porcupine and Hart River caribou herds; potential new roads could fragment habitat		Dempster Hwy cuts through winter habitat of the Porcupine and Hart River caribou herds; potential new roads could fragment habitat	Access restrictions will limit habitat fragmentation	Dempster Hwy cuts through winter habitat of the Porcupine and Hart River caribou herds; potential new roads could fragment habitat (esp. around Dempster, and on Peel Plateau)	Access restrictions will greatly limit habitat fragmentation in core area
MANAGEMENT CONSIDERATIONS	No habitat protection	Bonnet Plume Watershed is recognized as having significant habitat (and other) values		Habitat protection in Bonnet Plume, and conservation in other core areas		Habitat protection in a large, multi-watershed area and territorially-significant wetlands

Fish & Wildlife & Plant Indicators						
	Base Case (without Land-Use Plan)		Scenario 1		Scenario 2	
SEA-RUN FISH	Risk	Benefit	Risk	Benefit	Risk	Benefit
STATUS		Fish habitat still pristine throughout watershed due to scarcity of human developments. Generally sustainable lake harvest of whitefish and salmonid species in the lower Peel.	Risk to fish in higher order stream with exception of Bonnet Plume, risk of habitat fragmentation by culverts and undersized bridges, poorly constructed ice-bridges.		Risk to fish in higher order stream with exception of Hart, Wind, Bonnet Plume and Upper Snake River watersheds, risk of habitat fragmentation by culverts and undersized bridges, poorly constructed ice-bridges.	
ACCESS REGIME		No impact of access on fish populations. Access by motorized boat along the Peel Watershed to harvest fish has secondary effects of harvest pressure (sustainable to date).		Increased access during summer months could increase harvest pressure.		Increased access during summer months could increase harvest pressure.
MANAGEMENT CONSIDERATIONS	Incomplete collection of baseline spawning habitat			Greater need for monitoring and regulations with an increase in tourism, recreation and development.		Need for monitoring and regulations with an increase in tourism, recreation and development, especially in Access Zone "A" areas.
NON SEA-RUN FISH						
STATUS	Susceptible to upstream impacts on water quality and quantity, especially in winter		Limited development could put water quantity and quality at risk	River corridor management should limit direct impacts to over wintering locations		Highest protection of fish habitat; most of summer headwater habitat protected
ACCESS REGIME	Moderate fishing pressure on access lakes		Moderate fishing pressure on access lakes	Tourism access zones may moderate fishing pressure through regulation	Moderate fishing pressure on access lakes	Protected area regulations may moderate fishing pressure
MANAGEMENT CONSIDERATIONS	Incomplete over wintering habitat inventory	These fish are important culturally and touristically	Incomplete over wintering habitat inventory		Incomplete over wintering habitat inventory	

	Base Case (without Landuse Plan)		Scenario 1		Scenario 2	
	Risk	Benefit	Risk	Benefit	Risk	Benefit
PORCUPINE CARIBOU						
STATUS	Porcupine Caribou herd is declining across its range likely in part because of hunting pressure from Dempster . Winter range of the PCH is largely within the PWPR.		Porcupine Caribou herd is declining across its range likely in part because of hunting pressure from Dempster . Winter range of the PCH is largely within the PWPR.	Partial protection of core areas	Porcupine Caribou herd is declining across its range likely in part because of hunting pressure from Dempster . Winter range of the PCH is largely within the PWPR.	Highest protection of most core winter areas
ACCESS REGIME		Human disturbances in the PWPR limited to Dempster highway, recovering seismic lines, winter exploration, hunting near or accessed via the Dempster Hwy or Peel River; Hart, Blackstone, Wind, Bonnet Plume and Snake Watershed have very little access.	North Peel has greatest potential for new linear corridors that may increase predation by wolves and humans and increase energy used by caribou - caribou avoid these features. Noise and human activity cause caribou to increase energy used.	Historic range of PCH in Bonnet Plume is protected. Conservation zones in Lusk Lake and Edigi Hill, Richardson Mnts, and area east and west of Dempster Hwy north of Tombstone TP. Provide framework for co management of access corridors and planning.	North Peel has greatest potential for new linear corridors that may increase predation by wolves and humans and increase energy used by caribou - caribou avoid these features. Noise and human activity cause caribou to increase energy used.	Historic range of PCH in Wind, Bonnet Plume and Lower Snake River watersheds and Caribou River drainage are protected. Wintering areas in Hart are protected, Conservation zones in Lusk Lake and Edigi Hill, Richardson Mnts, and area east and west of Dempster Hwy north of Tombstone TP.
MANAGEMENT CONSIDERATIONS	Injurisdictional management plan through the Porcupine Caribou Management Board (PCMB) recommends management for the PCH. No land use zoning exists in the Peel to support the recommendations of the PCMB.		Potential for winter habitat impact	Injurisdictional management plan through the Porcupine Caribou Management Board (PCMB) recommends management for the PCH. Moderate area in land use zones that support co management of the PCH.	Lowest potential for winter habitat impact	Injurisdictional management plan through the Porcupine Caribou Management Board (PCMB) recommends management for the PCH. Greatest area in land use zones that support co management of the PCH.

	Base Case (without Landuse Plan)		Scenario 1		Scenario 2	
	Risk	Benefit	Risk	Benefit	Risk	Benefit
BOREAL CARIBOU						
PERSISTENCE	Oil & gas exploration and development may lead to increased hunting access and habitat fragmentation	This herd is currently little understood and hunted	Oil & gas exploration and development may lead to increased hunting access and habitat fragmentation	High winter use area around Jackfish Lakes co managed for conservation	Oil & gas exploration and development may lead to increased hunting access and habitat fragmentation	High winter use area around Jackfish Lakes protected
ACCESS REGIME	Existing historic winter trails provide limited access to habitat		Existing historic winter trails provide limited access to habitat		Existing historic winter trails provide limited access to habitat	
MANAGEMENT CONSIDERATIONS	No management plan	Currently little interest in development BCH habitat in the Yukon; research on this herd is ongoing	No management plan	Currently little interest in development BCH habitat in the Yukon; research on this herd is ongoing	No management plan	Currently little interest in development BCH habitat in the Yukon; research on this herd is ongoing
HART RIVER CARIBOU						
STATUS	Hunting pressure on Hart CH indirectly from PCH hunt; Winter range of the HCH is almost entirely within the PWPR; Risk of decline due to increase in access.		Hunting pressure on Hart CH indirectly from PCH hunt; Winter range of the HCH is almost entirely within the PWPR. Risk of decline due to winter access increase into wintering grounds.		Hunting pressure on Hart CH indirectly from PCH hunt; Winter range of the HCH is almost entirely within the PWPR. Risk of decline due to access increase into wintering grounds west of Dempster.	
ACCESS REGIME	Highest concentration of human disturbances in the PWPR; Noise and human activity cause caribou to increase energy used.		Highest concentration of human disturbances in the PWPR; Noise and human activity cause caribou to increase energy use; Ogilvie has few restrictions on all-season/winter access	Conservation zones in area east and west of Dempster Hwy north of Tombstone TP. Provide framework for co management of access corridors and planning.		Conservation zones in area east and west of Dempster Hwy north of Tombstone TP, Hart and Wind River watersheds provide framework for co management of access corridors and planning.
MANAGEMENT CONSIDERATIONS	No zoning exists identify areas to co manage land uses affecting the Hart CH.		Potential for winter habitat impact	Moderate area in conservation land use zones identifying areas to co manage land use affecting the Hart CH.	Lowest potential for winter habitat impact	Greatest area in land use conservation zones to co manage land uses affecting the Hart CH.

	Base Case (without Landuse Plan)		Scenario 1		Scenario 2	
	Risk	Benefit	Risk	Benefit	Risk	Benefit
BONNET-PLUME CARIBOU						
STATUS	Impacts to habitat (especially winter and migratory pathways) from mineral exploration and development activity;			Several key winter habitat areas protected; limits on roads limit fragmentation beyond protected area		Most key winter habitat areas protected; limits on roads limit fragmentation beyond large protected area
ACCESS REGIME	No limit to future access by hunters along potential roads/trails	Currently relatively little hunting access	Potential roads could increase hunting access	Winter-only access to much of range limits use for hunting access & Potential roads restricted from general user		Relatively little access permitted
MANAGEMENT CONSIDERATIONS	Little current data available		Herd should be monitored should any industrial activity in range occur			
MOOSE						
STATUS	Density and stability of moose population is unknown; Moose are fairly common in the planning region.		Width of Wind River corridor inadequate recognition of key winter habitat (riparian);	Key habitat conserved within SMAs; Moderate protection of alpine and riparian areas in Bonnet Plume, especially upper Bonnet Plume;		Highest protection of alpine habitat (late Fall) and key late winter habitat within Conservation and Protected area zones in Wind, Bonnet Plume and Upper Snake, especially for headwaters.
ACCESS REGIME	Hunting pressure from Dempster		Hunting pressure from Dempster; highest potential for hunt increase with access; no protection for moose near fly-in access lakes.		Hunting pressure from Dempster; lowest potential for hunt increase with access; no protection for moose near fly-in access lakes.	
MANAGEMENT CONSIDERATIONS	Limited baseline data for key winter habitat.			Priority baseline data collected for land use management zones where access will likely increase to identify key habitat (especially winter habitat)		Priority baseline data collected for land use management zones where access will likely increase to identify key habitat (especially winter habitat)

	Base Case (without Land-Use Plan)		Scenario 1		Scenario 2	
	Risk	Benefit	Risk	Benefit	Risk	Benefit
SHEEP						
STATUS	Visual and noise disturbance from mineral exploration (and potential development) reduce habitat effectiveness; hunting pressure from outfitter clients		Visual and noise disturbance from mineral exploration (and potential development) reduce habitat effectiveness; hunting pressure from outfitter clients	Protection of habitat within Bonnet Plume PA, moderate protection beyond.	Hunting pressure from outfitter clients	Most of range within large PA or in areas co managed for conservation
ACCESS REGIME	Concomitant increase of hunting with access; connectivity to mineral licks could be impacted by roads		Wildlife viewing along Dempster may have to be managed	Special wildlife viewing areas along Dempster should be encouraged to much of range limits use for hunting access & Potential roads restricted from general user	Wildlife viewing along Dempster may have to be managed	Little summer access to much of range
MANAGEMENT CONSIDERATIONS				Timing windows of activity can minimize conflicts; special wildlife viewing areas along Dempster should be encouraged; roads should be planned to minimize effects on connectivity to mineral licks		Timing windows of activity can minimize conflicts; special wildlife viewing areas along Dempster should be encouraged
GRIZZLY BEAR						
STATUS	No population estimates exist in the PWPR; history of high harvest, particularly females; carrying-capacity may be lower in some areas; species with high hunting pressure in remote parts of the PWPR.		species with high hunting pressure in remote parts of the PWPR.	Moderate protected areas capturing diverse habitat over a large range in Bonnet Plume;	species with high hunting pressure in remote parts of the PWPR.	Large protected areas capturing diverse habitat over a large range;
ACCESS REGIME	Roads may diminish critical habitat		Winter roads in Ogilvie, Blackstone, Wind, Hart, and Upper Snake River watersheds may affect denning sites	Oil and Gas basins have lowest habitat suitability	Winter roads in Ogilvie and Blackstone watersheds may affect denning sites	Oil and Gas basins have lowest habitat suitability
MANAGEMENT CONSIDERATIONS	Critical habitat (esp. denning) not adequately mapped; wide ranging species at likely at low density, difficult to study in remote areas.		wide ranging species at likely at low density, difficult to study in remote areas.	Map key habitat areas (esp. denning); baseline studies to establish harvest rates appropriate for grizzly bears hunts.	wide ranging species at likely at low density, difficult to study in remote areas.	Map key habitat areas (esp. denning); baseline studies to establish harvest rates appropriate for grizzly bears hunts.

	Base Case (without Landuse Plan)		Scenario 1		Scenario 2	
	Risk	Benefit	Risk	Benefit	Risk	Benefit
MARTEN						
STATUS	Linear features may increase trapping efficiency		Oil & gas exploration and development may lead to increased trapping access and habitat fragmentation	River corridor management should limit direct impacts to habitat in mountains	Oil & gas exploration and development may lead to increased trapping access and habitat fragmentation	Much of habitat in PA/SMA s
ACCESS REGIME	Linear features (incl. Roads) may increase trapping efficiency		Oil & gas exploration and development may lead to increased trapping access and habitat fragmentation	River corridor management of access should limit direct impacts to habitat in mountains	Oil & gas exploration and development may lead to increased trapping access and habitat fragmentation	Lower potential disturbance to habitat in mountains
MANAGEMENT CONSIDERATIONS	Lowest habitat protection	Few current issues		Moderate habitat protection		Highest habitat protection
PEREGRINE FALCON						
STATUS		Nest sites are mostly found along the Peel mainstem, near prey species - wetland birds; Nest sites are also on Blackstone River and Ogilvie; PWPR population is growing;	No special designation for peregrine nest sites in the Ogilvie drainage.	Most nest sites a special management zone - within River Corridors, Conservation Areas, and Protected Areas.	No special designation for peregrine nest sites in the Ogilvie drainage.	Almost all nest sites a special management zone - within River Corridors, Conservation Areas, and Protected Areas.
ACCESS REGIME	Possible Impact on forage species - primarily wetlands and riparian areas; some current conflicts between nest sites and Dempster Highway; Nest sites in likely access corridors - broad valleys.		Exploration/development of Oil and Gas basins may cause disturbance to nest sites and foraging success; Access potential is low in Ogilvie drainage		Exploration/development of Oil and Gas basins may cause disturbance to nest sites and foraging success; Access potential is low in Ogilvie drainage	
MANAGEMENT CONSIDERATIONS	Unknown if current regulations are adequate to address human disturbances to nest sites	threatened species under the federal Species at Risk Act (SARA); inventory every 5 years for selected areas;		threatened species under the federal Species at Risk Act (SARA); support and possibly expand current effort to census population; Recommend strategies to address peregrine impacts in river corridor zones		threatened species under the federal Species at Risk Act (SARA); support and possibly expand current effort to census population; Recommend strategies to address peregrine impacts in river corridor zones

	Base Case (without Land-Use Plan)		Scenario 1		Scenario 2	
	Risk	Benefit	Risk	Benefit	Risk	Benefit
WATERBIRDS						
STATUS	Transportation corridors often near riparian habitat; extensive/improper development in some places (e.g. Perched wetlands of the Peel Plateau) could lead to permafrost melting and drastic changes in hydrology	Large intact areas presently exist as waterbird habitat	Development could put water quantity and quality at risk; extensive/improper development in some places (e.g. Perched wetlands of the Peel Plateau) could lead to permafrost melting and drastic changes in hydrology	All waterbird key areas encouraged by DUC for protection are co managed for conservation	Development could put water quantity and quality at risk; extensive/improper development in some places (e.g. Perched wetlands of the Peel Plateau) could lead to permafrost melting and drastic changes in hydrology	All waterbird key areas encouraged by DUC for high protection are protected with others co managed for conservation
ACCESS REGIME	Potential transportation corridors often near riparian habitat			River corridor management should limit direct impacts to riparian habitat in mountains		Extensive protected area should limit direct impacts to riparian habitat in mountains
MANAGEMENT CONSIDERATIONS				Moderate-high protection for perched wetlands		Higher protection for perched wetlands with protection of Turner Lakes
BREEDING BIRD RICHNESS						
STATUS	Number of bird species (excluded some species) found in each habitat of the biophysical map	Higher , rockier mountains , such as the Wernecke and Selwyn Mountains contained fewer areas with high species richness . Lower mountains , Richardsons, Trevor, Knorr, and Ogilvie Mountains, contained a higher density species richness . Also high were the Ogilvie pediments, Edgii Hill, wetlands, and wet or riparian forests.	Number of bird species (excluded some species) found in each habitat of the biophysical map		Number of bird species (excluded some species) found in each habitat of the biophysical map	
ACCESS REGIME						
MANAGEMENT CONSIDERATIONS	No current provisions		1. Habitat may not correspond neatly with habitat selection; 2 not necessarily equal to ecological value; 3 depends on habitat definition	Indicator for biodiversity (plants, mammals, insects)	1. Habitat may not correspond neatly with habitat selection; 2 not necessarily equal to ecological value; 3 depends on habitat definition	Indicator for biodiversity (plants, mammals, insects)

	Base Case (without Landuse Plan)		Scenario 1		Scenario 2	
	Risk	Benefit	Risk	Benefit	Risk	Benefit
Mineral licks						
STATUS	Inadequate regulations/enforcement barring disturbance from industrial activity			Modest protection of licks from industrial disturbance		Highest protection of licks from industrial disturbance: Concentrations of licks protected in PA
ACCESS REGIME	Viewing of licks from Dempster Hwy disruptive	Most licks in region are currently not easily accessible	Viewing of licks from Dempster Hwy disruptive	Winter-only access to much of range limits conflicts; air traffic regulated along river corridor management zones	Viewing of licks from Dempster Hwy disruptive	Little access to most licks
MANAGEMENT CONSIDERATIONS	Hunting near licks not regulated	Special wildlife viewing areas along Dempster should be encouraged		Special wildlife viewing areas along Dempster should be encouraged		Special wildlife viewing areas along Dempster should be encouraged

Appendix D: Scenarios “Filter”

Range of Land-Use Options (Varying Land-Use Intensity, Access Options)



Suggested Policy Level Filters (Tier One Criteria)

Necessary Criteria

- Is this scenario consistent with the PWPC's Statement of Intent
- Is this scenario consistent with the goals and objectives of the planning region? (balance social, economic and environmental concerns e.g.. Peel Terms of Reference)
- Does it consider all current land uses and legal requirements for future land use?

Desired Criteria

- Does it line up with current government direction and policy (Yukon Government and First Nation)?
- Does it recognize uncertainty (i.e., is it set up to adjust for unexpected negative consequences)?
- Does it address the 'key issues' identified by stakeholders?
- Is it achievable, affordable and acceptable to public stakeholders?

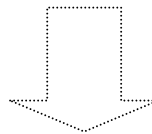
Suggested Technical Level Filters (Tier Two Criteria)

Necessary Criteria

- Is it aligned with all current best management practices?
- Does it consider sustainability of FN traditional resource-use activities and associated ecosystem resources ((fish, medicinal plants, water, wildlife)

Desired Criteria

- Does it consider all supply/demand relationships (i.e., does the 'supply' of land allow for the 'demand' of the activities)?
- Does it closely consider costs and benefits (i.e., do the benefits of the scenario exceed the costs?



Scenario Selection to Drive Draft Land Use Plan