3. Plan Concepts

The North Yukon Land Use Plan describes broadly the desired future condition of the region. It also provides specific management considerations for different areas within the region.

Under this Plan, all land uses are considered acceptable provided that they meet the criteria established by the Plan and existing regulatory processes. The Plan does not determine acceptable and unacceptable land uses for different areas of the region. For example, the Plan does not determine where mining activity is acceptable or unacceptable.

This approach is called a flexible management plan because it does not recommend stringent terms and conditions for management of activities. Instead, it provides opportunities for a variety of land uses to occur. It also includes ways to measure success in achieving the goals and objectives.

The Plan uses three tools to communicate and guide land management decisions in the region: Landscape Management Units, a Land Use Designation System, and General Management Direction. The latter includes a Results-based Management Framework. These tools complement each other and form part of an integrated land management framework.

3.1 Landscape Management Unit (LMUs)

Landscape Management Units (LMUs) are distinct areas of land that have similar ecological properties (landforms and vegetation) or were previously delineated (e.g., Old Crow Flats SMA). The borders of the units are usually drawn around rivers, roads, existing SMAs or identifiable features.

Different parts of the region require different management direction. Some LMUs are more sensitive (e.g., lakes and wetlands on permafrost) and require careful management. Others may be less sensitive or have high economic potential.

Thirteen LMUs are identified in the North Yukon Planning Region (Map 1, Appendix 1). Some LMUs have been further divided into sub-units.

3.2 Land Use Designation System

A Land Use Designation System is used to guide the management of land use activities within the LMUs. It provides the broadest level of guidance for land and resource decision-making. A land use designation system consists of different land categories that describe either the type or intensity of land uses allowed or recommended for an LMU. Each LMU is assigned to a land category.

The Plan proposes three general land use categories: Protected Area (PA), Integrated Management Area (IMA), and Community Area (CA). Four distinct zones further describe the IMA category, each referring to a relative level of conservation or development focus. The land use categories and zones are summarized in Table 3.1, and shown on Map 1, Appendix 1.

Table 3.1. Land use designation system for North Yukon Planning Region.

<table>
<tr><th>Land Use Category</th><th colspan="3">Description</th></tr>
<tr><td>Protected Area (PA)</td><td colspan="3">Legally designated land areas withdrawn from surface and subsurface rights issuance. Oil and gas, mining and other industrial land uses are not allowed. Examples include Vuntut National Park and Ni’iinlii’njik (Fishing Branch) Wilderness Preserve and Ecological Reserve.</td></tr>
<tr><td>Integrated Management Area (IMA)</td><td colspan="3">The working landscape—areas where oil and gas, mining, and other land uses are allowed, subject to the Plan recommendations and regulatory processes.

Each LMU within this category is further described by one of the following zones, based on the values in the unit and the sensitivity of the land:</td></tr>
<tr><td></td><td>IMA Zone</td><td>Management Intent</td><td>Description</td></tr>
<tr><td></td><td>Zone I</td><td>Lowest Development</td><td>Very high ecological and heritage/cultural values within a sensitive biophysical setting. Maintaining ecological integrity and protecting heritage and cultural resources is the priority.

Land uses are acceptable provided they do not result in creation of significant functional disturbance [1]. All-season industrial infrastructure is discouraged.</td></tr>
<tr><td></td><td>Zone II</td><td>Low Development</td><td>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 is the priority.</td></tr>
<tr><td></td><td>Zone III</td><td>Moderate Development</td><td>Moderate ecological and heritage/cultural values within a moderately sensitive biophysical setting. Conservative levels of land use are consistent with Zone III objectives.</td></tr>
<tr><td></td><td>Zone IV</td><td>Highest Development</td><td>Lower ecological and heritage/cultural values within a moderately sensitive biophysical setting. Higher levels of land use are consistent with Zone IV objectives.</td></tr>
<tr><td>Community Area (CA)</td><td colspan="3">Areas around communities or municipalities where local planning is undertaken. This applies to the community of Old Crow.</td></tr>
</table>

[1] **Functional Disturbance:** Physical land use disturbance that results in disruption of soil or hydrology, or that requires the cutting of trees. Activities considered exempt from functional disturbance creation are: 1) new linear features less than 1.5 m in width; 2) land use activities that occur on frozen water-bodies; 3) winter work with no required clearing of trees; 4) winter work that utilizes existing disturbances and linear features.

IMA zones are organized on the concept of acceptable levels of human-caused change and potential risks to ecological and cultural resources (Figure 3.1). Indicators of land use disturbance are part of the zone definitions and help to define the relative level of conservation or development focus in each zone.

In addition to land use zones, some features require special consideration and additional management direction. The Dempster Highway Corridor is the only major all-weather road in the region and has a number of specific management issues. Major River Corridors identify the significant rivers and river valleys, which are of special biological and cultural importance.

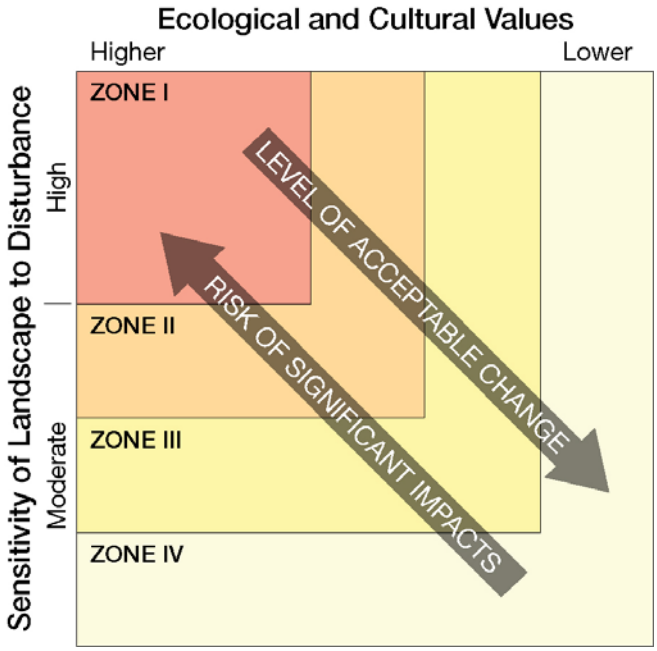

Figure 3.1. Zoning considerations for Integrated Management Area.

3.3 General Management Direction

The third tool that the Plan uses to guide land use decisions is general management direction, which is provided in the form of strategies, best management practices and recommendations. The management direction proposed in the Plan can be integrated into existing processes such as YESAB project reviews and the land application review process.

General management direction applies to the Integrated Management Area (IMA).

3.3.1 Results-based Management Framework

Wherever possible, management direction for the Plan is structured around a results-based management framework.

A results-based management framework is a structured way to determine if Plan goals and objectives are being met. It is a way to link general, higher-level objectives with more detailed, operational decisions. The results-based management framework and its various components are summarized in Figure 3.2.

Goals and objectives state the desired management outcomes. Strategies are approaches and actions that land managers can use to achieve specific objectives. Strategies may include recommendations and best management practices. Best management practices are ways of working that can reduce the time, intensity or duration of land use activities[1]. Many best management practices developed for Yukon relate directly to achieving objectives and strategies of this Plan. Appendix 3 contains references for applicable Yukon best management practices.

Monitoring and assessment of indicators is necessary to determine if goals and objectives are being met. Strategies can be adjusted in response to the changing status of indicators, facilitating an adaptive management process. The Plan proposes that the condition of land use or ecological indicators be tracked and reported for each LMU. At this time, indicators are not provided for all Plan themes and do not address all strategies or monitoring requirements. Currently, the Plan focuses on cumulative effects indicators. Additional indicators are suggested in Table 7.2, for future consideration.

[1] A description of best management practices is provided by the Yukon Department of Energy, Mines and Resources, Oil and Gas Management Branch, 2007: http://www.emr.gov.yk.ca/oilandgas/best_management_practices.html#What_are_Best_Management_Practices.

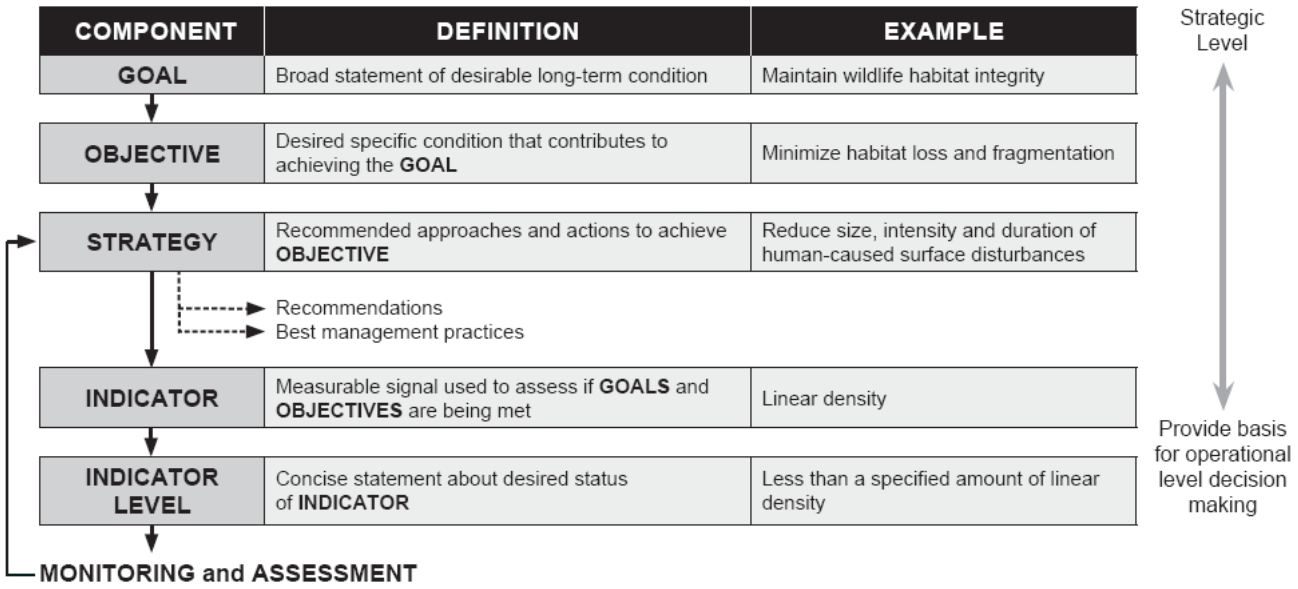

Figure 3.2. Components of the North Yukon Planning Region results-based management framework.

Cumulative Effects
Cumulative effects are changes to the environment and/or society that result from a land use activity in combination with other past, present and future activities. Managing cumulative effects is best accomplished by applying a suite of integrated and coordinated actions to land management. Assessment, mitigation, government policy, legislation and planning all play a role. In combination with these coordinated actions, the management of cumulative effects can be an important outcome of applying a results-based management framework to land management. An evaluation of cumulative effects is partially achieved through the measurement of indicators (i.e., how much impact are we having on the land?).

3.3.1.1 Cumulative Effects Indicators

The Plan proposes two indicators that can be used to track the potential cumulative effects of land use. These indicators provide resource managers with guidance to assist in their decision-making. When evaluated as a component of the results-based management framework, the indicators assist in establishing a general index of ecological integrity. Acceptable levels of change for the cumulative effects indicators are linked to the land use designation of each LMU or sub-unit in the Integrated Management Area (Zones I-IV). The indicators are:

- **Direct Surface Disturbance:** the amount of area physically disturbed by human activities. Such things as structures, roads, gravel quarries, seismic lines, access trails and similar features all create physical *footprints* on the land, resulting in direct habitat impacts.
- **Linear Density:** the total length of all human-created linear features (roads, seismic lines, access trails, etc.) in a given area. Linear density can be used as an indicator of fragmentation—the division of larger areas of habitat into smaller areas. Increasing levels

of access may result from linear feature development, potentially leading to greater harvest of wildlife and fish, higher predation rates, and a change in how people and wildlife use the land. For this reason linear density is sometimes referred to as 'access density'.

An increase in the level of either of these two indicators results in increased risk of damage to valued ecological and cultural resources. Social and economic values can also be affected when there are high levels of disturbance and activity on the land.

3.3.1.2 Cumulative Effects Indicator Levels

The cumulative effects indicator levels identified in the Plan represent a theoretical point between acceptable and unacceptable levels of human-caused disturbance. The indicator levels recommended in the Plan provide guidance on what might be acceptable levels of human-caused disturbance within each LMU or sub-unit. As shown in Table 3.2, the cumulative effects indicator levels are linked to the Integrated Management Area zone designation (Zones I-IV), providing clear management direction for the different areas of the IMA. When the indicator levels are reached or exceeded, it is a signal that undesirable impacts to ecological and cultural resources may result[2].

The Plan proposes cautionary indicator levels as an early warning signal, allowing time for pro-active management steps to be considered or taken. When these cautionary indicators are reached, the respective governments should share information and review the health of the key ecological values, and if required, determine the management options to minimize and mitigate impacts. Critical indicator levels represent the point where the indicators may have reached or surpassed acceptable levels.

Through the use of cumulative effects indicators, and their recommended levels, the Plan attempts to balance potential risks to ecological and cultural resources with the requirement for, and potential impacts of, economic development.

Cumulative Effects Indicator Levels
These levels are not intended to be an absolute cap on activities. They are intended to provide a clear statement regarding the level of human-caused environmental change that might be considered acceptable within a specific LMU. When used in a results-based management context, indicator levels are designed to promote pro-active and integrated land management. The recommended indicator levels serve as a benchmark, and provide the Parties responsible for plan implementation an opportunity to review and consider the potential outcomes of resource management decisions. They will also assist in the YESAA process by providing an indication of potential cumulative effects within a LMU.

[2] As human-caused surface disturbances, including linear features, recover through natural re-vegetation or active reclamation, they are subtracted from the total amount of disturbed area. As a guide, human-caused surface disturbance is considered recovered when it no longer facilitates travel or access by wildlife and people. In forested areas, a feature can be considered recovered when it contains woody vegetation (trees and shrubs) approximately 1.5 metres in height. This definition is closely linked with human and predator access and potential effects on Porcupine caribou and moose, key values in the region.

Table 3.2. IMA land use zones and proposed cumulative effects indicator levels.

IMA Zone	Management Intent	Cumulative Effects Indicators	Cautionary Level [1]	Critical Level
Zone I [2]	Lowest development	Surface disturbance	0.075%	0.1%
		Linear density	0.075 km/km^2	0.1 km/km^2
Zone II	Low development	Surface disturbance	0.15%	0.2%
		Linear density	0.15 km/km²	0.2 km/km²
Zone III	Moderate development	Surface disturbance	0.375%	0.5%
		Linear density	0.375 km/km²	0.5 km/km²
Zone IV	Highest development	Surface disturbance	0.75%	1.0%
		Linear density	0.75 km/km²	1.0 km/km²

[1] Cautionary level is established as 75% of the upper, or critical level.
[2] While cumulative effects indicator levels are identified for Zone I, the intent is to discourage development of new all-season industrial infrastructure, aggregate extraction and human settlements/structures.

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