

Cumulative Effects for Dawson?

Dawson Regional Planning Process

March 19th, 2014

1:30-2, Downtown Hotel, Dawson City



**Dawson Regional
Planning Commission**

Moving Forward • Nán kák ndá tr'adal

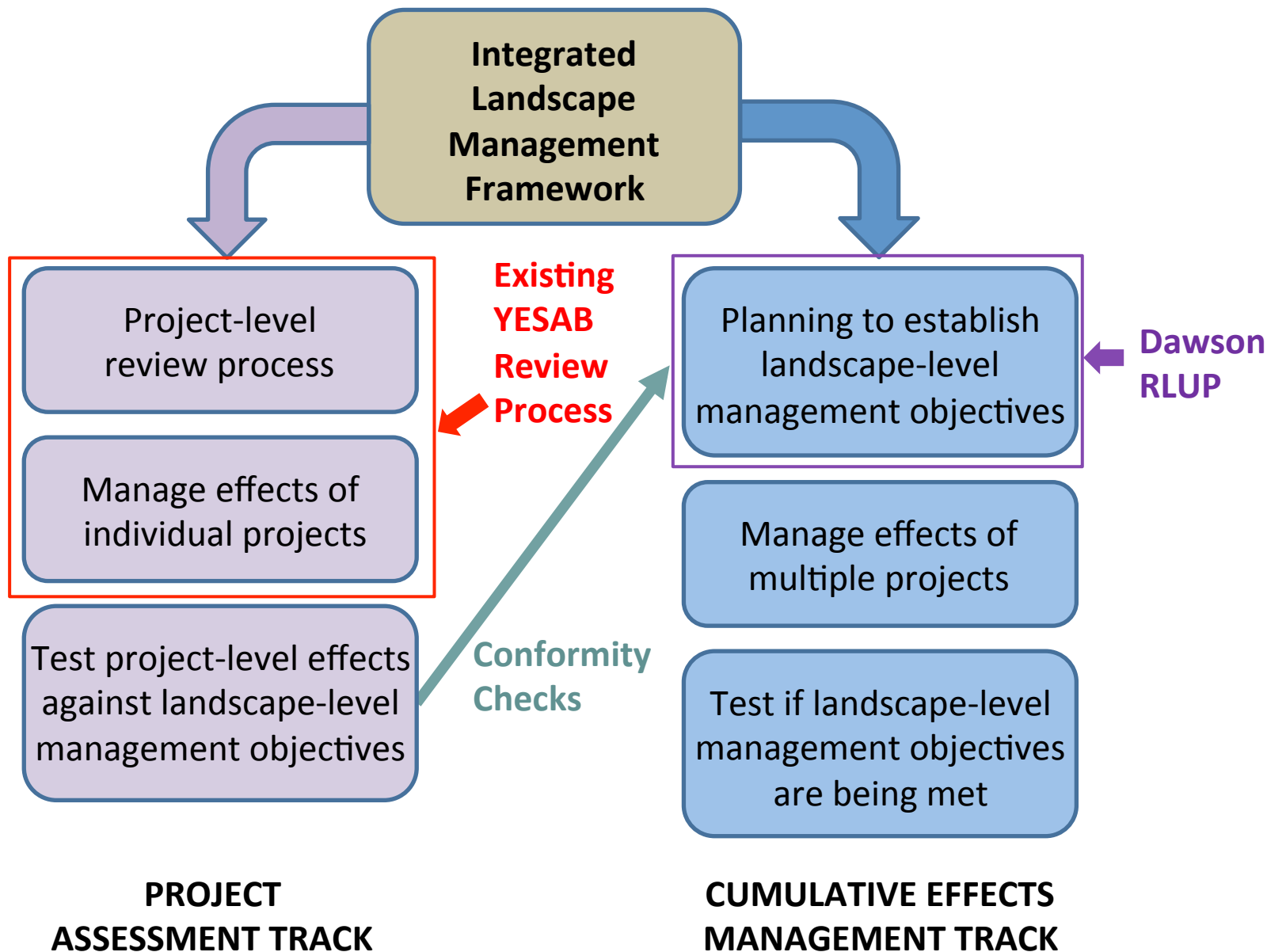


**YUKON LAND USE
PLANNING COUNCIL**

Overview

- Role of Cumulative Effects “levels” in the Dawson Plan
- North Yukon example
- Work to date
- Upcoming work
- Expected outcomes





Land Designation System

	Integrated Management Area**	Yukon River Corridor	Traditional Economy Area	Conservation Area	Protected Area
	<p>Enables all activities within acceptable limits that are meant to maintain ecological and cultural values. These limits may encourage innovation and cooperation among land users. This management regime is most restrictive for Zone II and least for Zone IV. Management tools may include adaptive management, a range of cumulative effects indicators and threshold levels, access and seasonal restrictions/allowances, research and monitoring recommendations, and/or the newly created measures for Class 1 mining activities.</p>				
Can current management be maintained?	No	No	No	Sub-regional plan	To be determined
Subsequent Planning Examples	North Yukon and Peel Watershed Land Use Plans IMA's			No Land Use Designation - no examples available	Management Plan Fishing Branch Habitat Protection Area Management Plan Tombstone Territorial Park

COMMUNITY AREA: Area identified to enable potential future expansion of Dawson City municipal boundary and/or additional land for residential development, infrastructure, and recreational purposes.



Land Use Designation System

- General expression of “Management Intent”
- Different types of designation systems:
 - **Prescriptive** (detailed lists of allowable activities and rules)...e.g., RUWA in Peel Plan
 - **Flexibly prescriptive** (all activities allowable, provided they meet specific objectives)
 - “**vague**”... anything goes, no rules other than existing regulations and maybe highest use

“we want certainty, and flexibility”



Ways to Differentiate the IMAs

“Prescriptive”

- Simpler
- Doesn't address CE problems
- Immediate and possibly unnecessary restrictions in some places

“Flexibly Prescriptive” = “Tiered”

- More complicated, but YG gaining experience
- Increased restrictions kick in only after cumulative effects have exceeded the “level” for the LMU.



Cumulative Effects Indicators

There are many possible indicators:

- Varies by species or value
- Ecological and socio-economic
- Habitat-based indicators
 - Amount of habitat or disturbance
- Population-based indicators
 - Population levels or aspects of that (e.g. trends, population levels, recruitment)

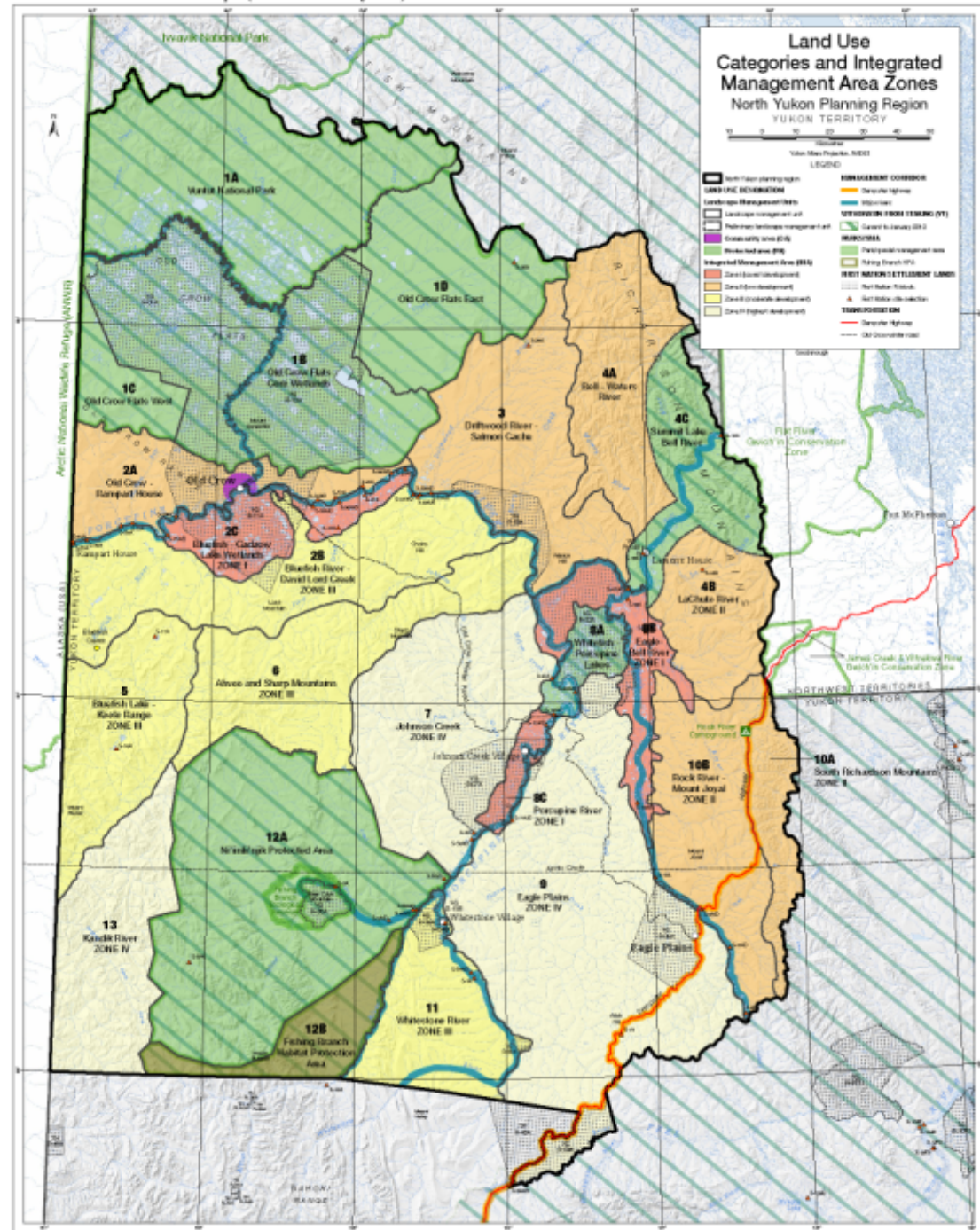
Cumulative Effects Indicators

Key Points:

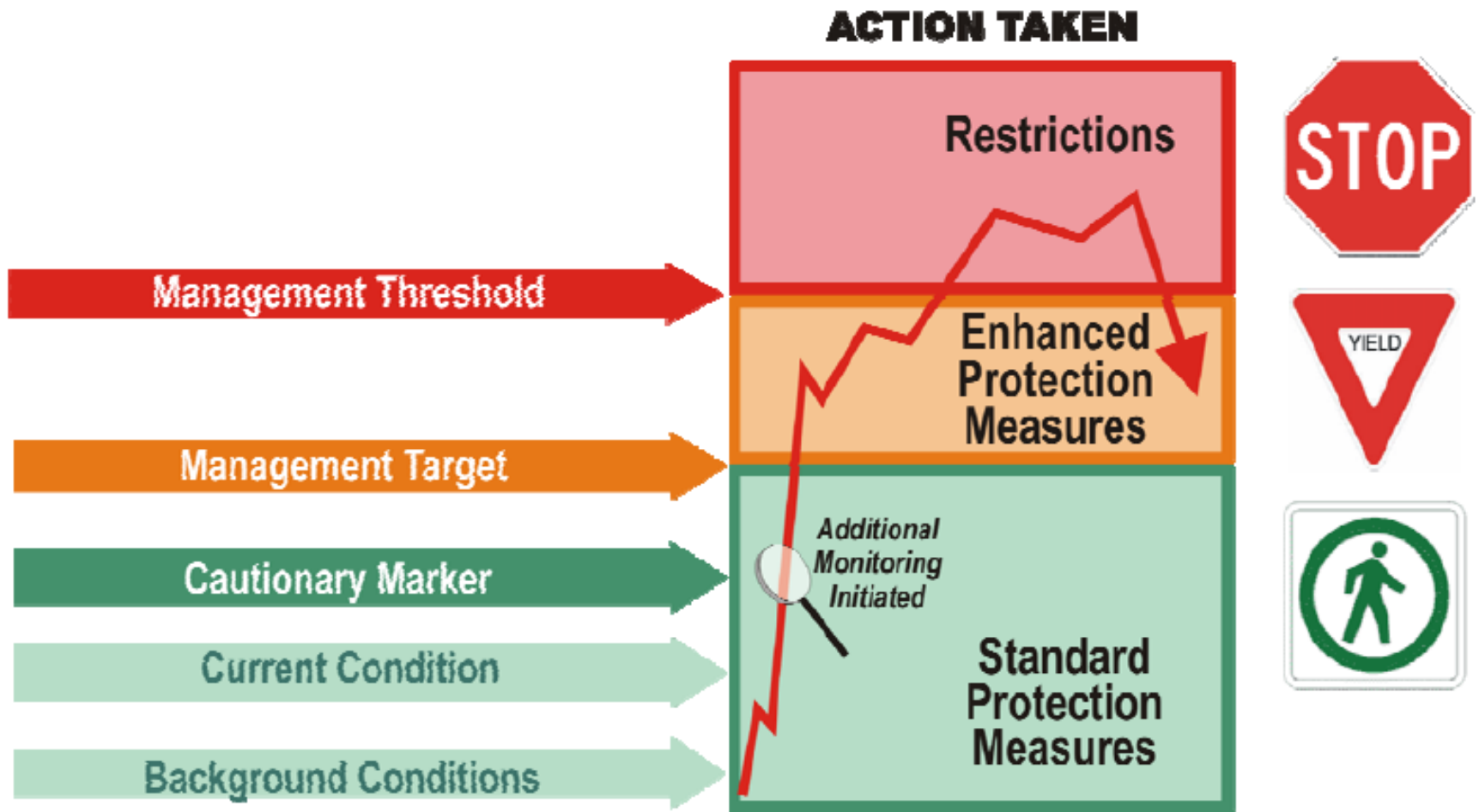
- Human feature mapping is the basis for most habitat-related indicators and approaches.
- Human features are tied to assessment and permitting regime.
- Population-related indicators are challenging and expensive to monitor.
- There may not be a clear, absolute link between habitat and population...but with increasing levels of habitat change come increasing risk of population change.

- Indicators were developed by modeling oil and gas activity in Eagle Plain.
- Considered risk to caribou and moose, and socio-economic objectives
- Indicator levels were never intended to be used across all Yukon regions.

North Yukon Land Use Plan: Map 1 (Amended January 2012)

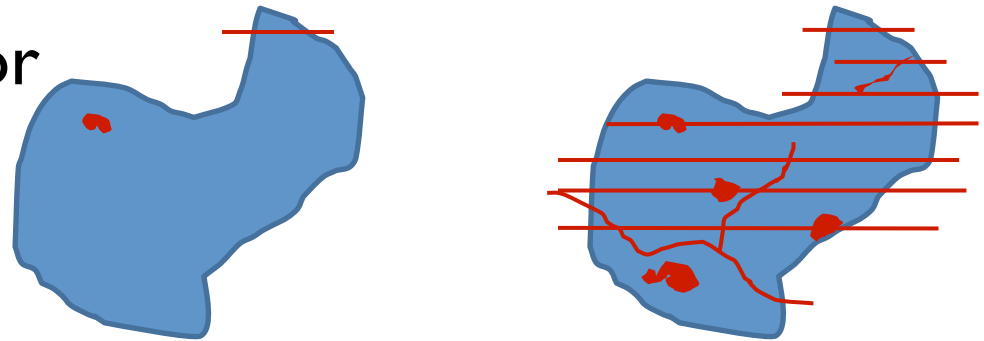


Concept of Tiered 'thresholds'



Cumulative Effects in the North Yukon

- Describe disturbance or development limits for each zone

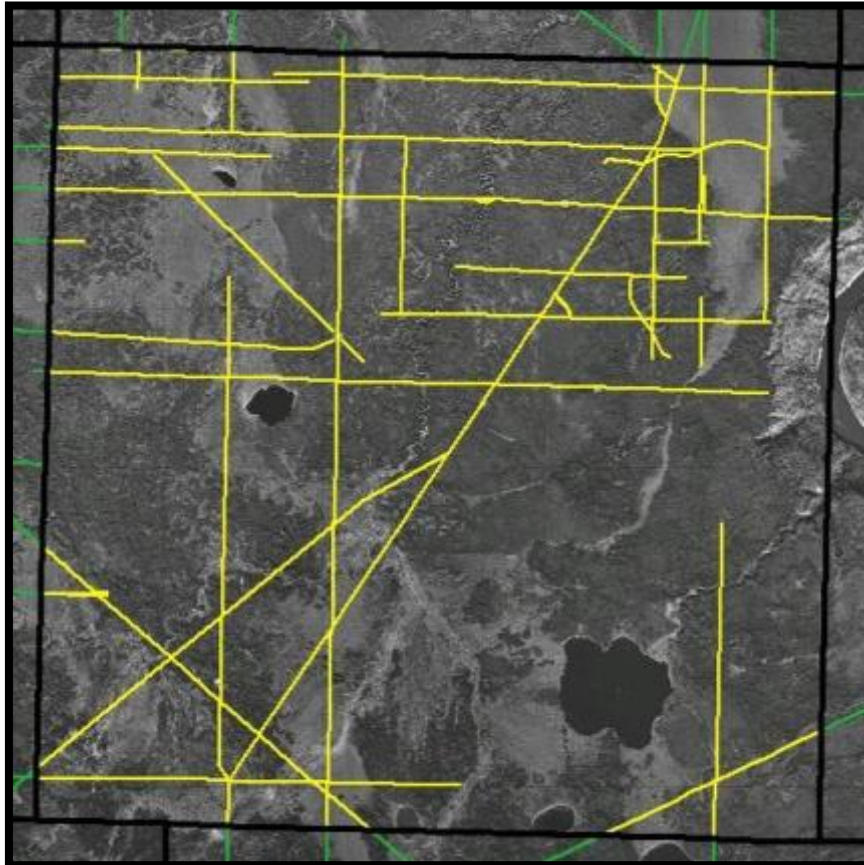


IMA Zone	Management Intent	Cumulative Effects Indicators	Cautionary Level ¹	Critical Level
Zone I ²	Lowest development	Surface disturbance	0.075%	0.1%
		Linear density	0.075 km/km ²	0.1 km/km ²
Zone II	Low development	Surface disturbance	0.15%	0.2%
		Linear density	0.15 km/km ²	0.2 km/km ²
Zone III	Moderate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

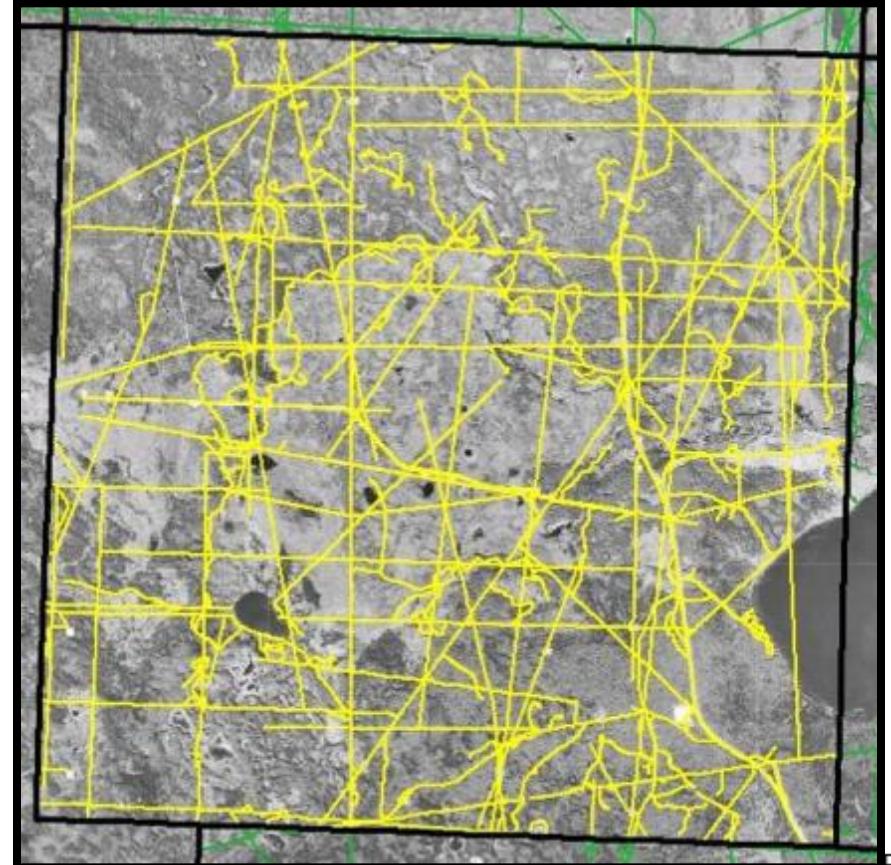


Another linear density example:

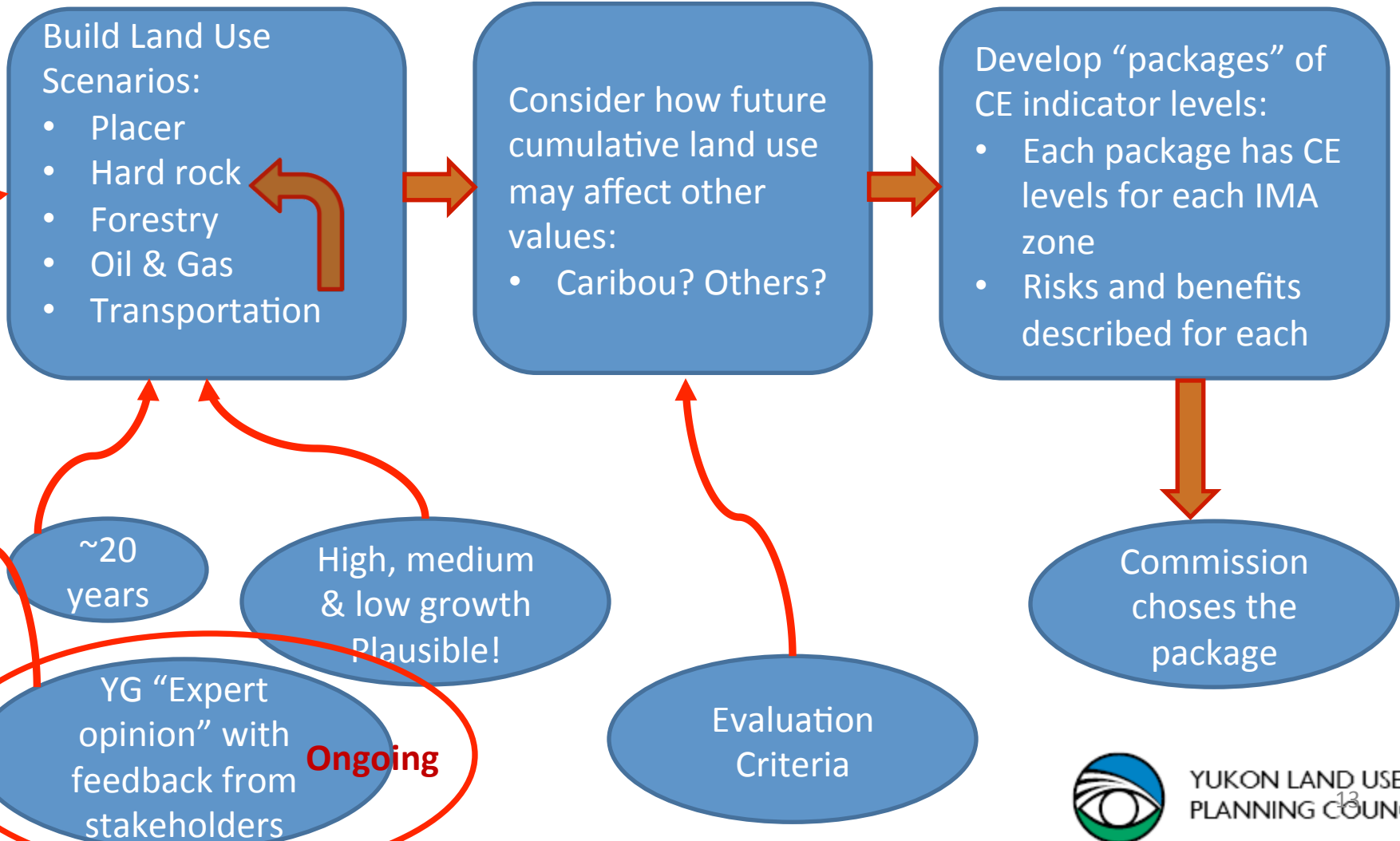
1.5 km/km²



4.0 km/km²



CE Workplan



Accomplishments

- March 12th: Technical workshop with YG “experts” from each of the “Driver” sectors. General approaches discussed.
- Sector-specific meetings
 - March 12th: Placer
 - March 12th: Forestry
 - March 13th: Hardrock
 - March 19th: Oil & Gas
- “Whitepaper” summaries for most meetings.



Possible Futures: Placer

- 90% of future activities will be within and adjacent to areas currently being mined.
- In the low-growth scenario, expansion from these areas will be confined to highly probable prospective areas.
- In the high-growth scenario, this expansion will include both the highly probable prospective areas and “frontier” areas.
- The rate of revegetation will balance the rate of disturbance in areas with much historical disturbance.



Possible Futures: Hardrock

- Low-growth: the number of active claims will decline and only one mine will start (Coffee)
- Medium-growth: no new claims and two new mines (Coffee & Brewery Ck)
- High growth: no new claims and four new mines (Coffee, Brewery Ck, Whitegold, Clear Ck)
- # of advance exploration projects will range between 2011 and 2013 #s



Possible Futures: Forestry

- Low growth: 1000m³/yr birch fuel wood, 1km/yr new road
- High growth: 5000m³/yr fuel and lumber, 2km/yr new road
- 25% of cuts count as real disturbance lasting ~15 years



Possible Futures: Oil & Gas

- TBA



To Come

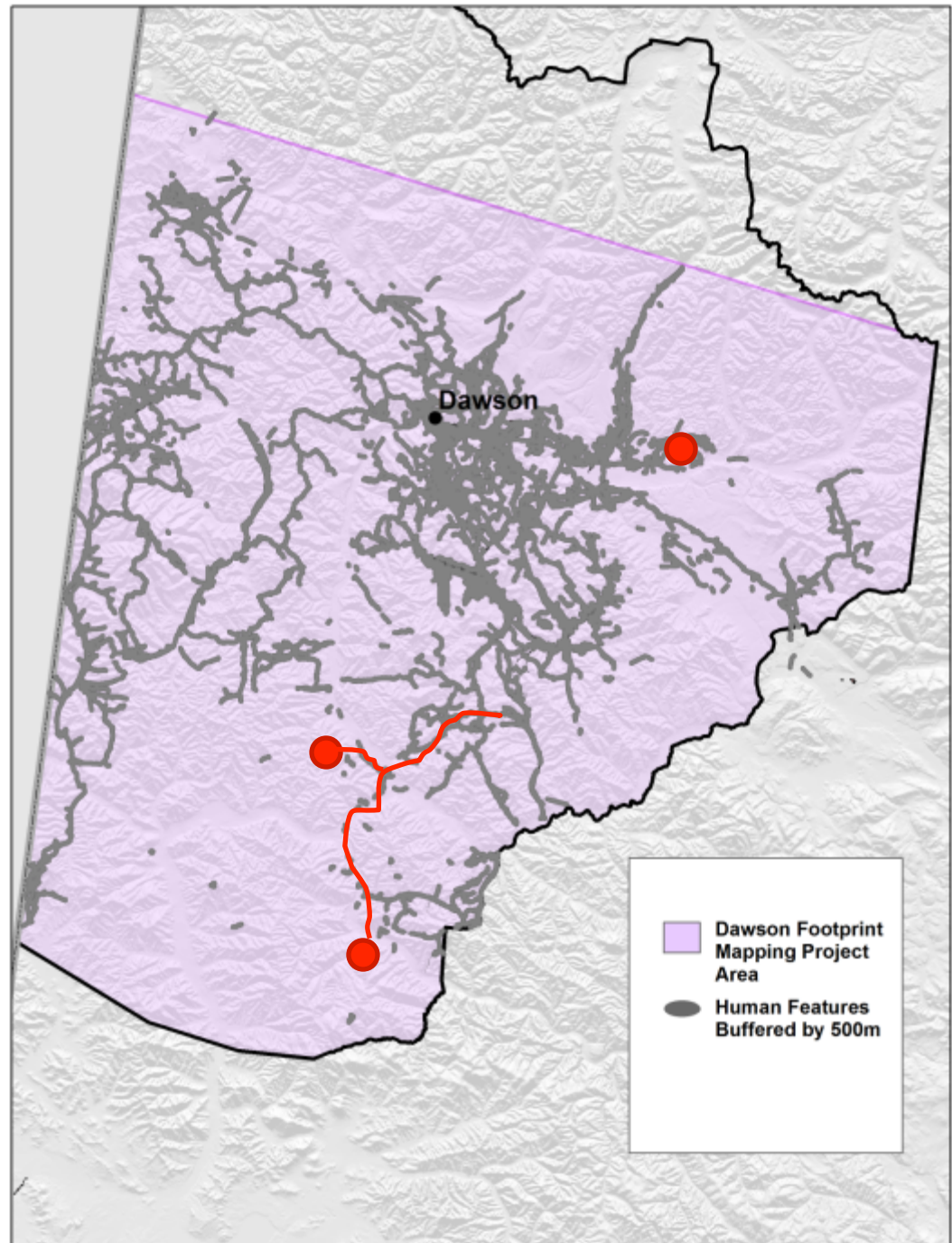
- Review feedback on whitepapers from YG “experts” and stakeholders
- Build maps of plausible growth patterns for the driver sectors (high to low)
- Overlay growth (and “zone of influence”) on evaluation criteria
- Develop CE “packages” that balance values differently



Likely Outcomes

Scenarios:

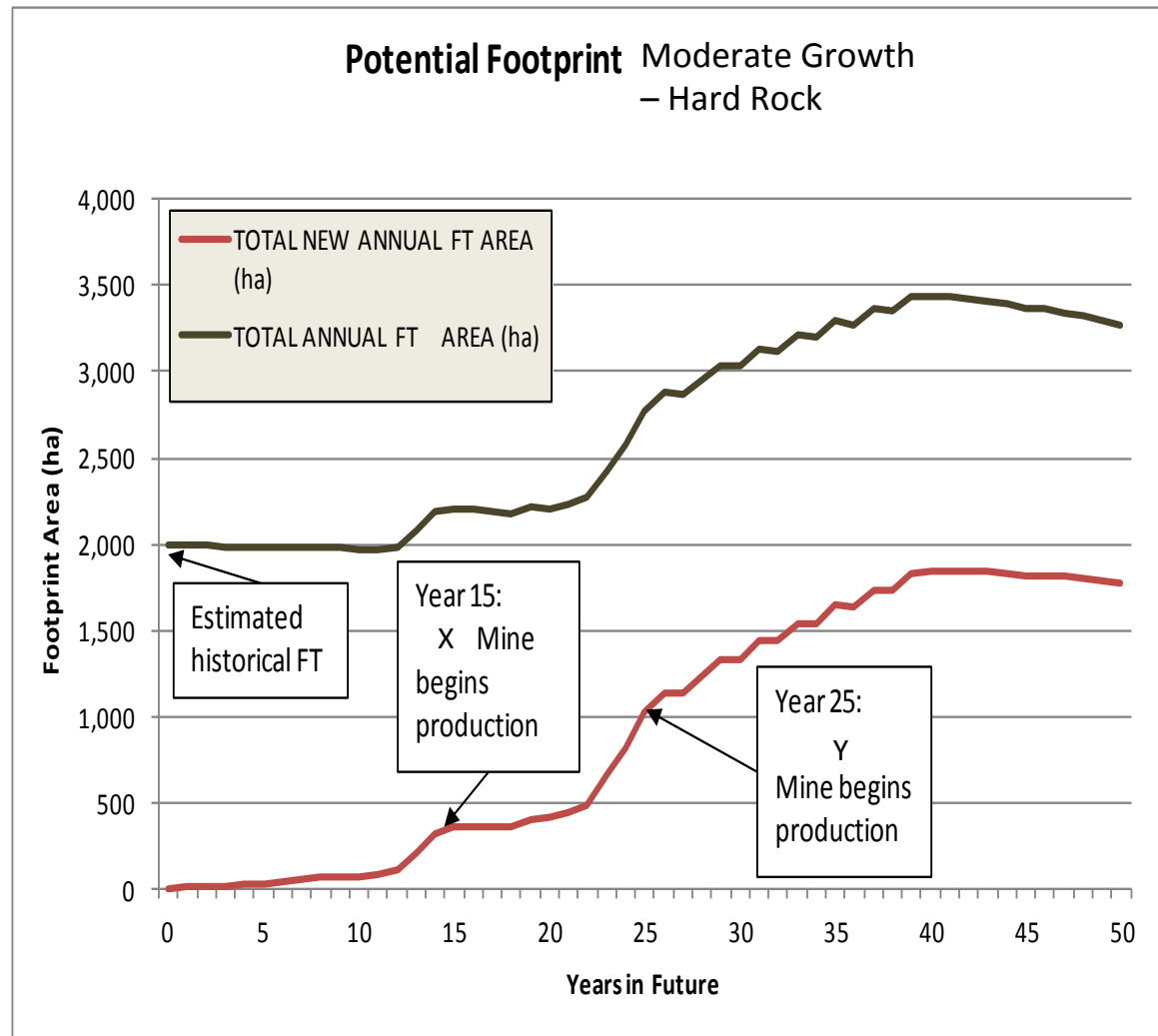
- Maps and descriptions of high & low growth scenarios for each driving sector.



Likely Outcomes

Scenarios:

- Maps and descriptions of high & low growth scenarios for each driving sector.



Likely Outcomes

CE “Packages”:

- Surface Disturbance (%) and Linear Density critical levels (km/km²):

Package	IMA I	IMA II	IMA III	IMA IV
A	0.1	0.2	0.5	1.0
B	0.2	0.4	1.0	2.0
C	0.5	1.0	2.5	5.0

(these numbers are for demonstration purposed only)



Likely Outcomes

Risk Analysis for the CE “Packages”:

Select Alternative
B

Objective	Evaluation Criteria	Units	A	B	C
1 Non-renewable resource potential	Placer Potential (high growth)	%	75.00%	100.00%	150.00%
2 Non-renewable resource potential	Placer Potential (low growth)	%	100.00%	125.00%	200.00%
3 Non-renewable resource potential	Mineral Potential (high growth)	%	66.00%	75.00%	105.00%
4 Non-renewable resource potential	Mineral Potential (med growth)	%	85.00%	105.00%	150.00%
5 Non-renewable resource potential	Mineral Potential (low growth)	%	110.00%	130.00%	200.00%
6 Non-renewable resource potential	Oil & Gas (high growth)	%	85.00%	105.00%	130.00%
7 Non-renewable resource potential	Oil & Gas (low growth)	%	110.00%	130.00%	180.00%
8 Wildlife	Forty Mile Caribou Herd Good Habitat	%	85.00%	75.00%	65.00%
9 Wildlife	Sheep Wildlife Key Areas	%	90.00%	80.00%	70.00%
10 Heritage and cultural resources	Heritage Routes	%	80.00%	70.00%	60.00%
11 Heritage and cultural resources	Tr'ondëk Hwëch'in merged heritage value	%	80.00%	70.00%	60.00%
12 Renewable economy	Forestry (high growth)	%	150.00%	300.00%	500.00%
13 Renewable economy	Forestry (low growth)	%	300.00%	400.00%	700.00%
14 Wildlife	Boreal Moose cow & calf high value habitat	%	75.00%	85.00%	90.00%
15 Renewable economy	High value recreation features	%	85.00%	75.00%	65.00%

Key

- Selected alternative
- Performance is significantly worse than the selected alternative
- Performance is significantly better than the selected alternative

Discussion



Ways to Differentiate the IMAs

“Prescriptive” = Escalating Regulation/Prescription

- IMA II would have more additional regulations, restrictions and/or prescriptions than III or IV
- E.g., mandatory Class I reporting, access restrictions, seasonal restrictions...
- Simpler
- Doesn't address CE problems
- Immediate and possibly unnecessary restrictions in some places



Ways to Differentiate the IMAs

“Flexibly Prescriptive” = “**Tiered**” Regulation/
Prescription (linked to CE levels)

- IMA II would have lower acceptable CE “levels” than III or IV
- Increased restrictions kick in only after cumulative effects have exceeds the “level” for the LMU.
- More complicated, but YG gaining experience
- CE indicators are a way to identify specific, measurable objectives while maintaining flexibility for regulators to exercise operational-level decision-making.
- CE indicators can ‘define’ the difference between zones (high level of activity, low level of activity).

