Company: _____ Date: _____

County of Grande Prairie Oil + Gas Study

The Project

The County of Grande Prairie is undertaking a study to better plan for the development of oil and gas-based industry while providing some certainty of where it may expand to in the future. Identifying these locations will enable the County to analyze what existing infrastructure may need to be upgraded or expanded to support the industry while identifying methods to balance the impact on landowners, recreational users, and infrastructure within the County.

The oil and gas industry study leverages a GIS multi-criteria decision analysis (GIS-MCDA) to analyze the location/intensity of oil and gas-based industry relative to municipal infrastructure and transportation networks, and other spatially mapped criteria. The criteria are then comparatively weighted against one another, and a result is a heat map indicating where oil and gas "hotspots" may occur in the future, based on all the inputted criteria.

Active oil and gas companies within the County were engaged between April 2020 and August 2020 to help develop the criteria to assist with developing GIS methodology prior to proceeding with the analysis. The first phase of the industry engagement involved the project team reaching out to a total of eighty-three (83) companies who have active interests in the County of Grande Prairie to explain the project and to ask representatives to answer six (6) questions. The second phase of the industry engagement included obtaining feedback on the GIS methodology from industry representatives that responded in the first phase.

Feedback received, paired with provincial regulations and AER provisions, helped form what is known as "constraint" and "proximity" criteria that forms the current GIS methodology.

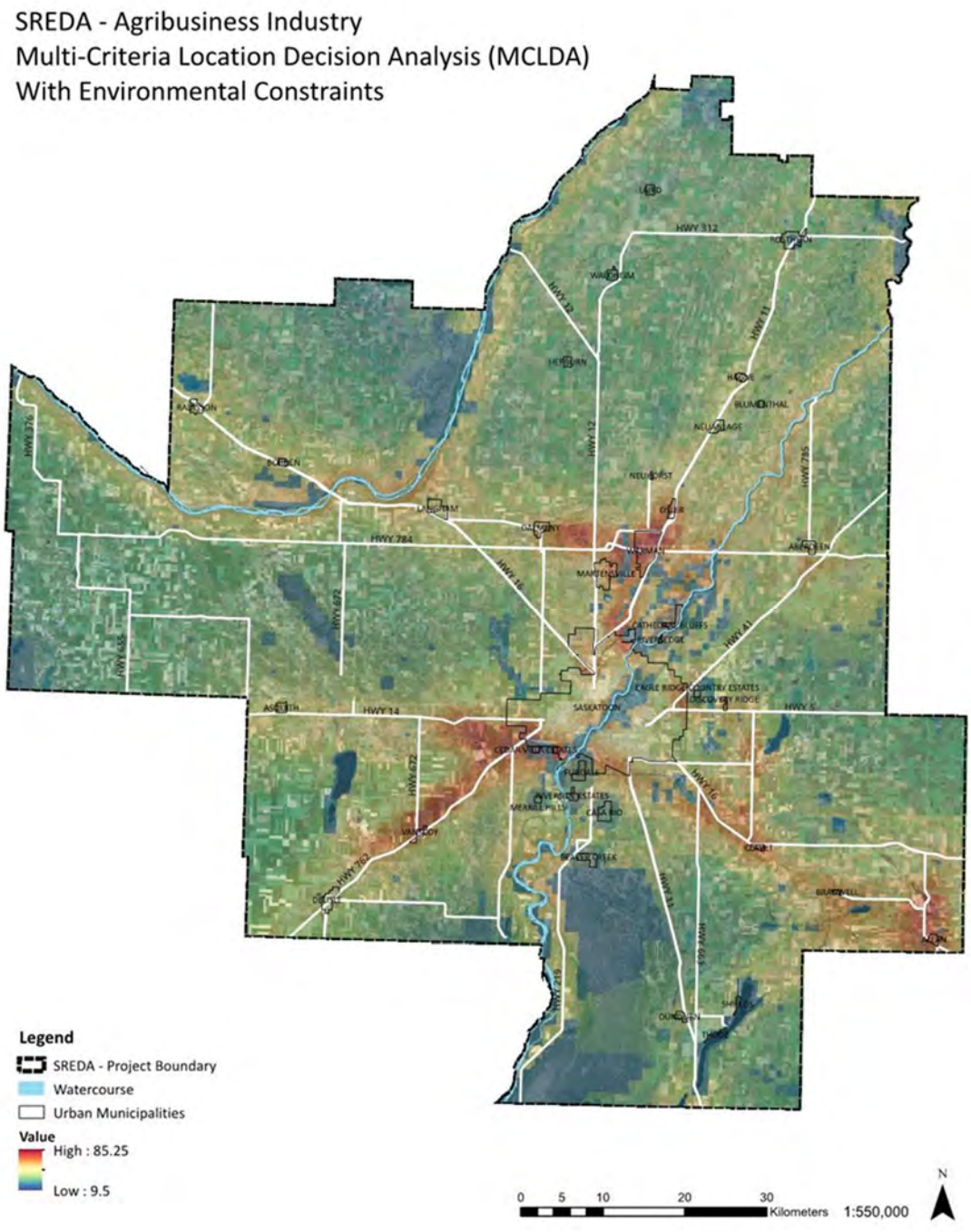
1. **"Constraint"** criteria differentiates between lands that are suitable for development and those that are not. Examples of "constraint" criteria in this analysis are waterbodies, built up urban areas, provincial parks, existing roadway infrastructure, etc., where oil and gas development is not expected/ or not allowed to occur. These areas are eliminated from the start of the analysis, and will show up as "cold" on the MCDA. Lands within the study boundary at this stage are binary – they are either considered suitable for development, or unsuitable.

2. **"Proximity"** criteria is used to evaluate how likely oil and gas development is to occur based on how close it is to development drivers. "Proximity" criteria includes various forms of infrastructure, such as transportation, electricity, water, mineral rights etc. It is the proximity criteria that is comparatively weighted against one another, with weighted values of all proximity criteria adding up to 100%.

Although some WASP members provided responses to the industry engagement, the purpose of this document is to provide a final opportunity for all WASP members to provide feedback on the criteria before the analysis is conducted, as the input received has a direct impact on the accuracy of the outcome. Information from the oil and gas study will be used to help the County proactively plan what infrastructure upgrades may be required to support industry and highlight areas that need increased mitigation measures to reduce industry impacts on adjacent land uses and owners. **Please note: Your participation is critical - any information you provide will be kept confidential.**

If you have questions when completing this document, please contact Elisa Stamatakis at estamatakis@v3co.ca or 587.402.5362.

The image below is an **example** of a GIS-MCDA; the areas indicated in red (the "hotspots") are lands where agribusiness is likely to occur, influenced by the proximity criteria used. The areas indicated in blue (the "cold spots") are where agribusiness is unlikely to occur, largely due to constraint criteria and/or distance from the proximity criteria.



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Constraint Criteria

The following table outlines the constraint criteria. These criteria will be mapped out to eliminate all areas that oil and gas development cannot occur in.

CRITERIA	REASONING/ DISCUSSION
Waterbodies (Rivers, Lakes, Streams, Ponds, etc.)	Oil and gas industry cannot be located within waterbodies.
Crown Reservation	Oil and gas industry cannot be located within Crown Reservation lands. Reservations are placed on public lands to fulfill a management commitment to the parcel of land, environmental sensitives, areas of special concern or areas of Government Alberta infrastructure (alberta.ca/reservations-notations.aspx). In the study area, Reservations include the Kelskun Creek Natural Area and the Bear River Natural Area.
Key Wildlife and Biodiversity Zone	Oil and gas industry cannot be located within key wildlife and biodiversity zones.
Provincial Parks	Oil and gas industry cannot locate within Provincial Parks.
Urbans (Cities/ Towns/ Villages)	Assuming that oil and gas industry will not occur in existing urban communities.
Existing Residential Dwelling	Oil and gas industry cannot locate within (at a minimum) of 100 m from existing residential dwellings. Also indicated in the industry engagement, companies seek to reduce impact on local residents. To evaluate this, we are taking the residential districts within the Land Use Bylaw and excluding them on the basis that oil and gas development would not occur in these areas.
Transportation Network and Railway Line	Oil and gas industry cannot be located on top of existing transportation infrastructure.

Constraint Criteria Feedback:

Proximity Criteria

The table below outlines the criteria that will be used for the County of Grande Prairie Oil & Gas study. Multiple buffers are applied to each proximity criteria; buffer distances are unique to the criterion and as the buffer values increase (i.e. get further away from the criterion) their suitability ratings decrease. Each proximity criteria are also weighted according to its importance/ influence on development decision making. These values are relative to one-another and the sum of the weighting must equal 100%.

Please review the suitability buffer values, **indicated in red**, and provide feedback.

PROXIMITY CRITERIA	SUITABILITY BUFFER VALUES					WEIGHTING (%)
Likelihood of Development	**Excellent (4)**	**Good (3)**	**Average (2)**	**Poor (1)**	**Not Suitable (0)**	
% Suitability	**100%**	**75%**	**50%**	**25%**	**0%**	
Transportation						
Major Highway	**0 to 5KM**	**5 to 10KM**	**10 to 15KM**	**15 to 20KM**	**> 20KM**	**20%**
Secondary Highway (arterial)	**0 to 2.5KM**	**2.5 to 5KM**	**5 to 7.5KM**	**7.5 to 10KM**	**>10KM**	
Collector Roads	**0 to 1KM**	**1 to 2KM**	**2 to 3KM**	**3 to 4KM**	**>4KM**	
Mineral Rights	Within				Outside	**20%**
Existing Oil and Gas Industry						
Producer (Wells, etc.)	**200 M**	**400 M**	**600 M**	**800 M**	**1000 M**	**20%**
Midstream (Batteries, etc.)	**0 to 2KM**	**2 to 4KM**	**4 to 6KM**	**6 to 8KM**	**>8KM**	
Upstream (Refineries, etc.)	**0 to 10KM**	**10 to 20KM**	**20 to 30KM**	**30 to 40KM**	**>40KM**	
Pipelines	**0 to 2KM**	**2 to 4KM**	**4 to 6KM**	**6 to 8KM**	**>8KM**	

PROXIMITY CRITERIA	SUITABILITY BUFFER VALUES					WEIGHTING (%)
Likelihood of Development % Suitability	Excellent (4) 100%	Good (3) 75%	Average (2) 50%	Poor (1) 25%	Not Suitable (0) 0%	
Water Infrastructure	0 to 2km	2 to 4KM	4 to 6KM	6 to 8KM	>8KM	10%
Electricity Infrastructure	0 to 1KM	1 to 2KM	2 to 3KM	3 to 4KM	>4KM	10%
Railway Access Points (Sidings)	0 to 2KM	2 to 3KM	3 to 4KM	4 to 5KM	>5KM	10%
Waste Water Infrastructure	0 to 3KM	3 to 6KM	6 to 9KM	9 to 12KM	>12KM	5%
Gas Line Infrastructure	0 to 1KM	1 to 2KM	2 to 3KM	3 to 4KM	>4KM	5%

Proximity Criteria Feedback:

If you have any additional feedback regarding the oil and gas study, please provide it in the space below.

Additional Feedback:

Note: This analysis will be used to assist in guiding the development of including new policy relating to the oil and gas sector within the Municipal Development Plan. When this draft policy is developed it will be circulated to WASP members for review and input.