

# Research on the Multiple Values of Farmland in Alberta

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With support from the Alberta Land Institute



# Study scales – White Zone, Edmonton-Calgary Corridor, Alberta Capital Region

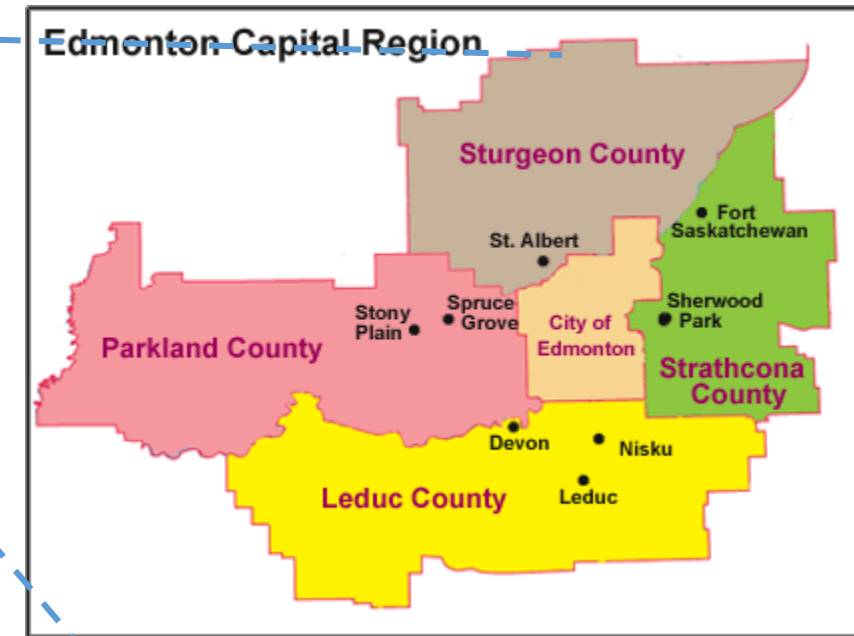


(With Qi Wang)

Edmonton-Calgary Corridor  
Counties and Major Urban Areas Comprising the Study Area



(Scott Jeffrey's presentation)



(With Haoluan Wang)

# Assessing the Multiple Values of Land in Agricultural Uses in the Alberta Capital Region

Haoluan Wang, Brent Swallow

## Background:

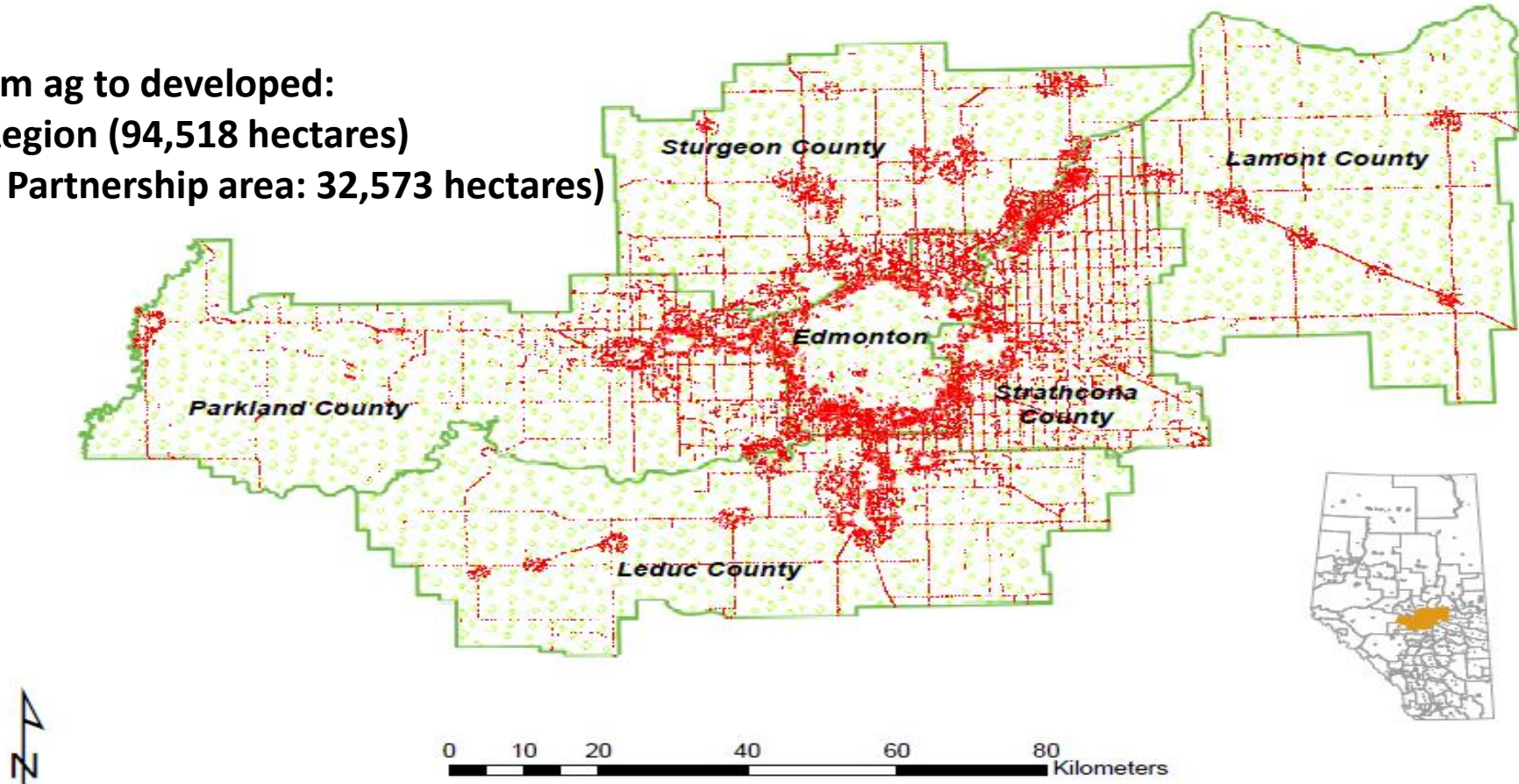
- Survey of Edmonton residents indicates significant public concerns about the rate of conversion of farmland around Edmonton, but less about why
- Edmonton's Food and Agriculture Strategy does not clarify how to manage tradeoffs between conversion and conservation
- Land Use Framework encourages municipalities to minimize conversion of land out of agriculture, but little about how, where, or why
- Capital Region Board indicates need for integrated strategy, but recognizes challenge of how to implement

# Conversion from agriculture to development (2000-2012):



Total conversion from ag to developed:

- Alberta Capital Region (94,518 hectares)
- Calgary Regional Partnership area: 32,573 hectares)



**Figure 1 Agricultural Land Conversion in the Alberta Capital Region (2000-2012)**

# Objectives

1. Identify and estimate the non-market values that residents of the region place on conserving land in agricultural uses
2. Identify areas and land uses that are of particular interest for conservation

# Methods

1. 3 expert focus group discussions (Aug – Oct 2014)
2. 1 public focus group discussion (Nov 2014) – (with *Aventis*)
3. On-line survey with 320 adult residents of the Capital Region (with *Qualtrics*)


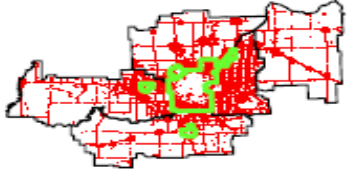
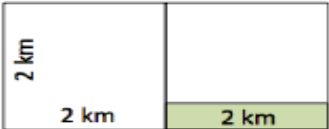
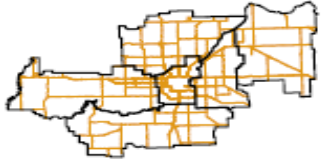


# Targeted Farmland Conservation Scenarios

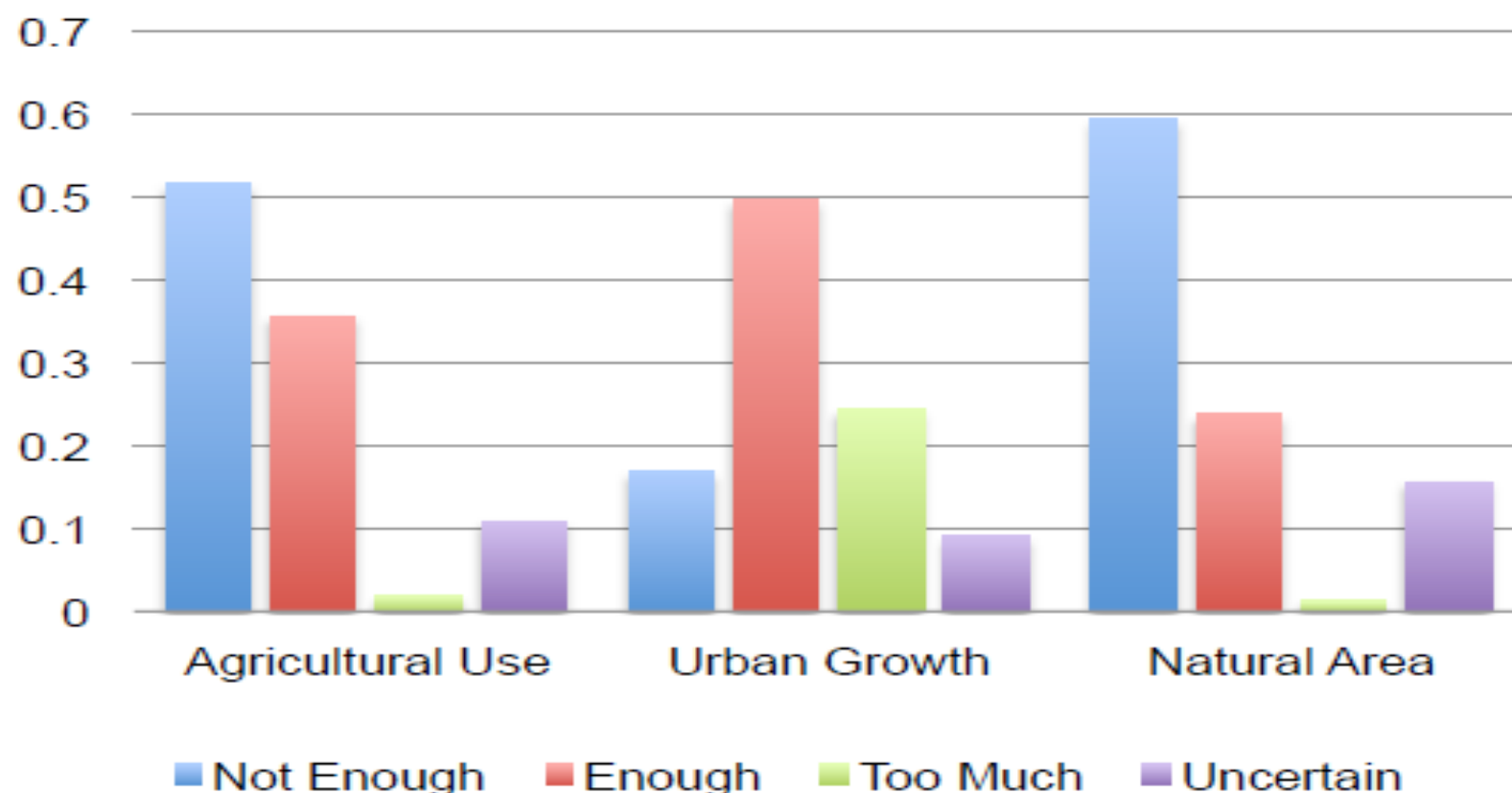
## Alternatives

- Grain / oilseed
- Livestock on native pasture
- Hay land
- Commercial vegetable farm
- Within city limits
- Within 10 km buffer of currently developed land
- 200 acres
- 500 acres
- 1000 acres
- 2000 acres
- Primary highway
- Conservation buffer

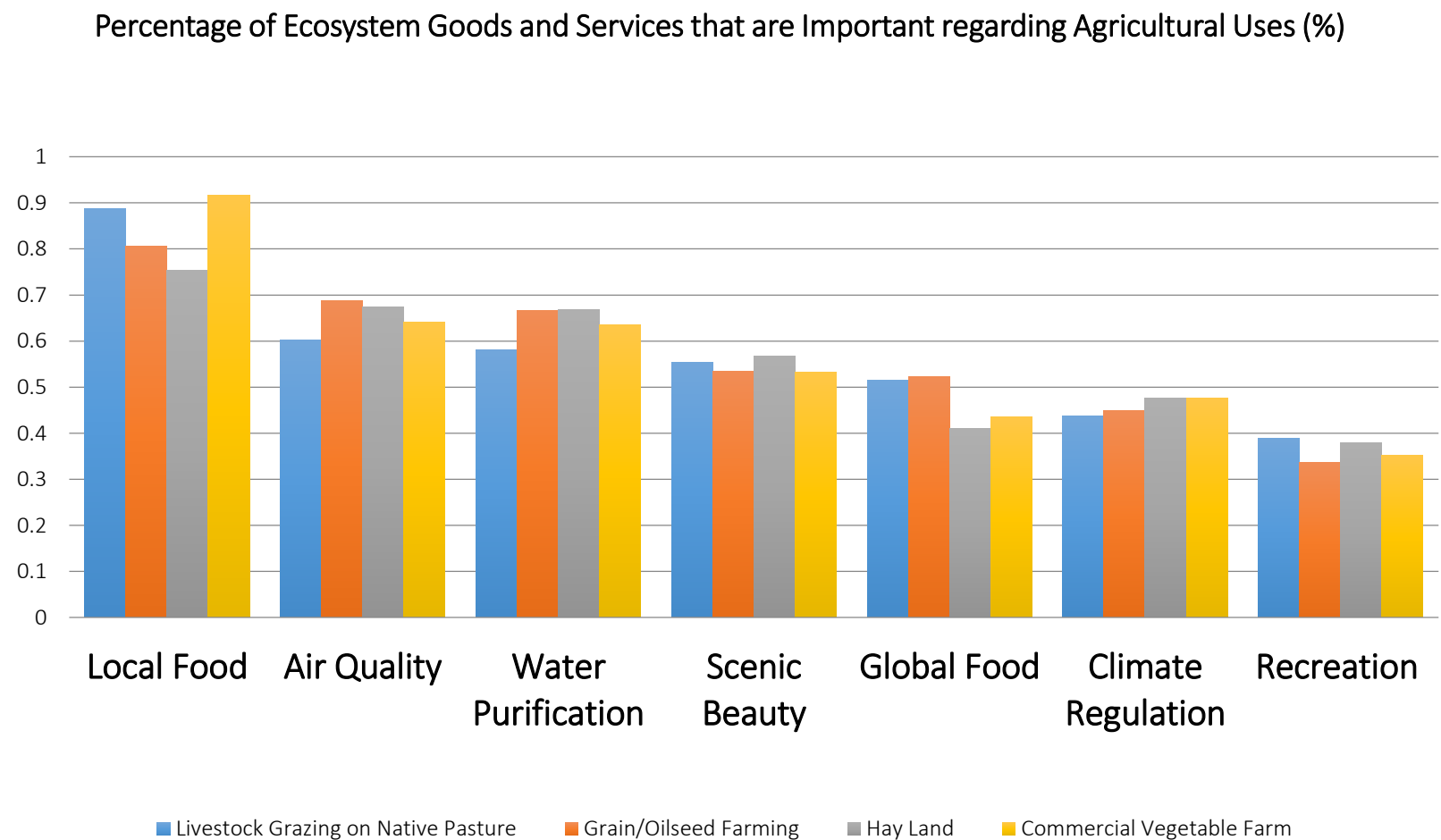
\$25, \$50, \$100, \$300, \$600

Conservation Strategy		Status Quo
Type of Agricultural Use	<b>Livestock Grazing on Native Pasture</b> 	<b>No Public Conservation Strategy for Land in Agricultural Uses</b>
Location Proximity	<b>Within City Limits</b> 	
Acres Conserved	<b>200 acres (2 km x 0.4 km)</b> 	
Adjacent Area	<b>Adjacent to Primary Highway</b> 	
Property Tax or Rent Increase Next Year Only	<b>\$ 100</b>	<b>\$ 0</b>

## Respondents' Attitude towards Land Uses in the Alberta Capital Region (Percentage %)

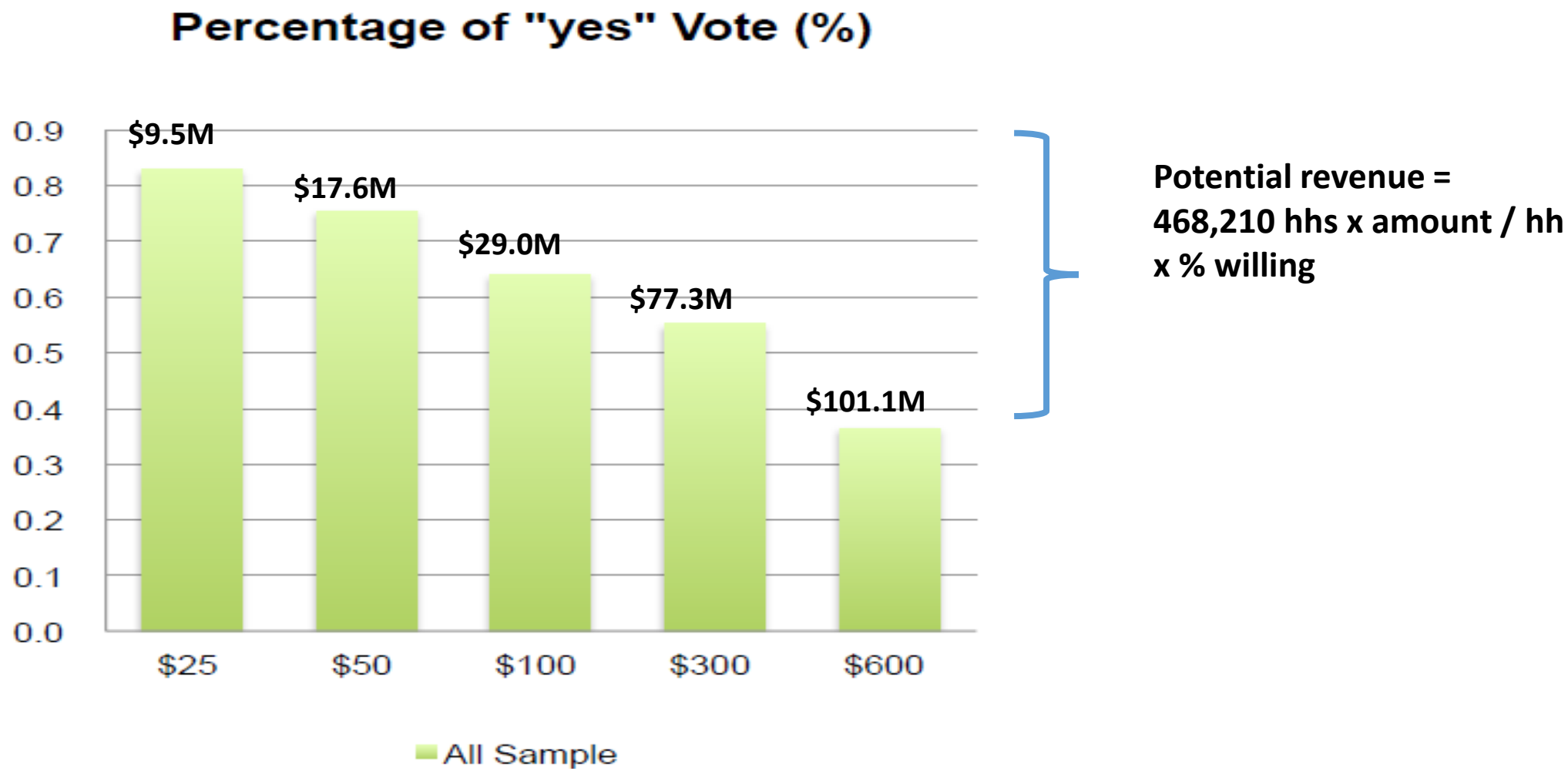


# Why do people care?





If you care, are you willing to pay through a one-time increase in taxes or rental costs?



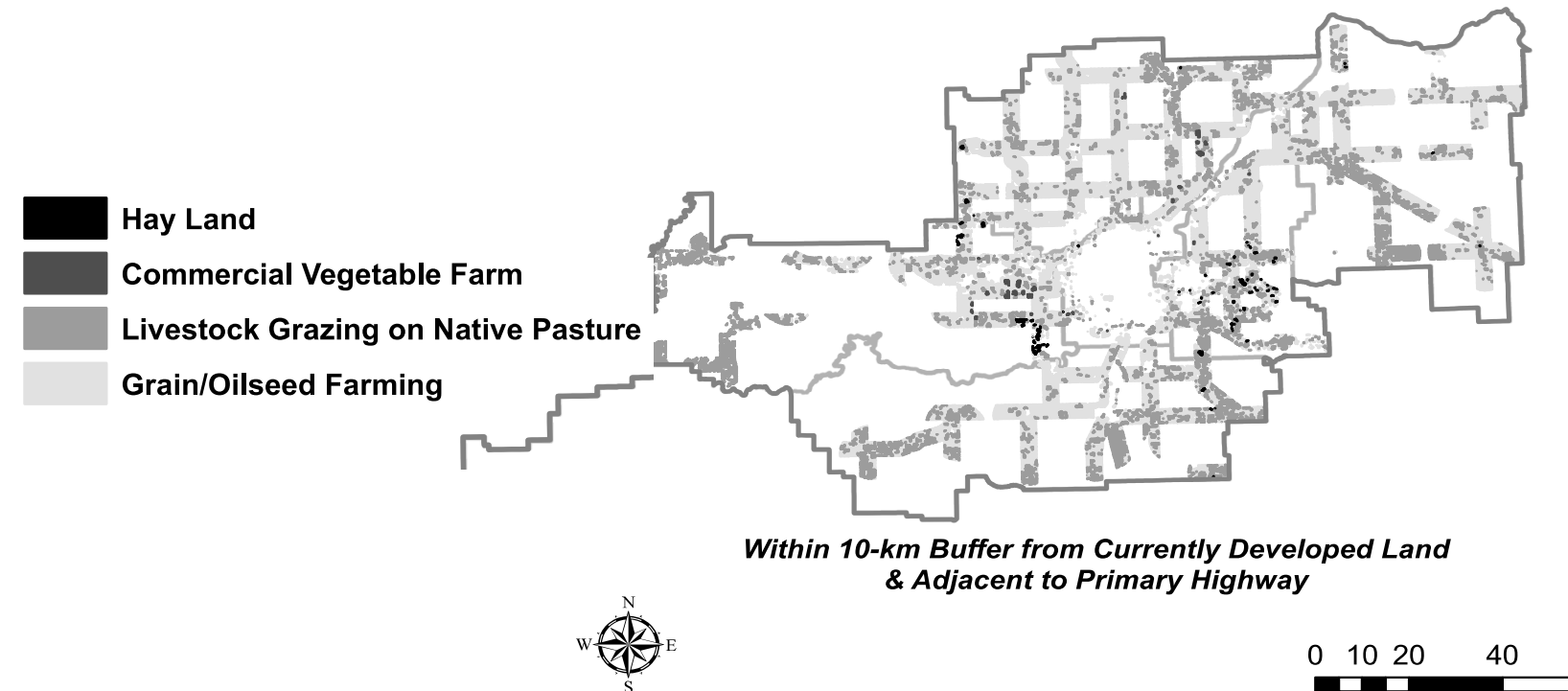
**Figure 2 Percentage of Respondents Who Voted "yes" to the Valuation Questions at Each Cost Level**

# What separates those who are willing to pay more?

- **Latent class analysis shows two groups: 81% interested in action to counter conversion , 19% not interested**
- **Interested group are concerned about ag land conversion, see the need for conservation, and favour infill development**
- **Among people with those concerns, younger people, women, people outside of Edmonton, and lower income people willing to pay more.**

# What attributes are people willing to pay for?

- Land use: veg > hay = livestock > grain / oilseed
- Proximity: near highway > near conservation buffer
- Location: in 10 km radius of developed > within current city boundaries



# Valuing Development Rights in rural Alberta

Qi Wang, Brent Swallow

**Policy Question: What would it take to buy agricultural conservation easements in Alberta?**

**Objectives:**

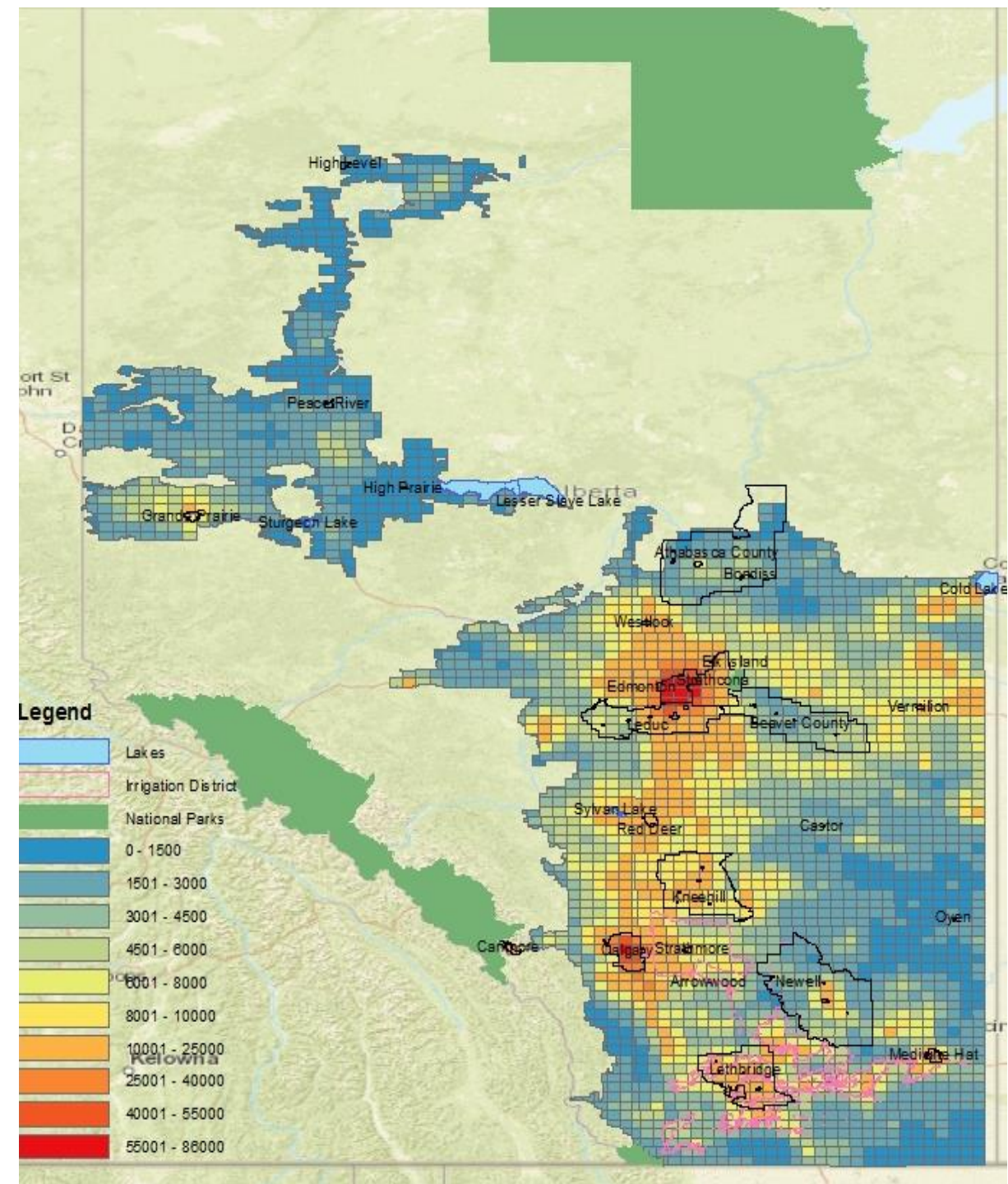
- 1. Develop a spatially-explicit model of farmland prices for Alberta**
- 2. Disaggregate the effects of agricultural production from non-agricultural development rights on farmland prices (VDR: Prices – capitalized rental value)**

Hedonic price model	Dependent variable: Agricultural land list price	
R2=0.62, rho=0.079	Significant	Insignificant
Agricultural production potential	Growing season days	Rainfall Soil quality
Homestead characteristics	Number of rooms Vacant lot Treed lot	
Land use	Pastures Developing	
Regulations	Sub-division	Surface lease income
Location	Rural Distance to Edmonton or Calgary Road density Distance to highways 1,2 or 16 Recreation areas Health points Nearest town	

# Value of Development Rights in Alberta (dollars per acre)

Value of development rights highest:

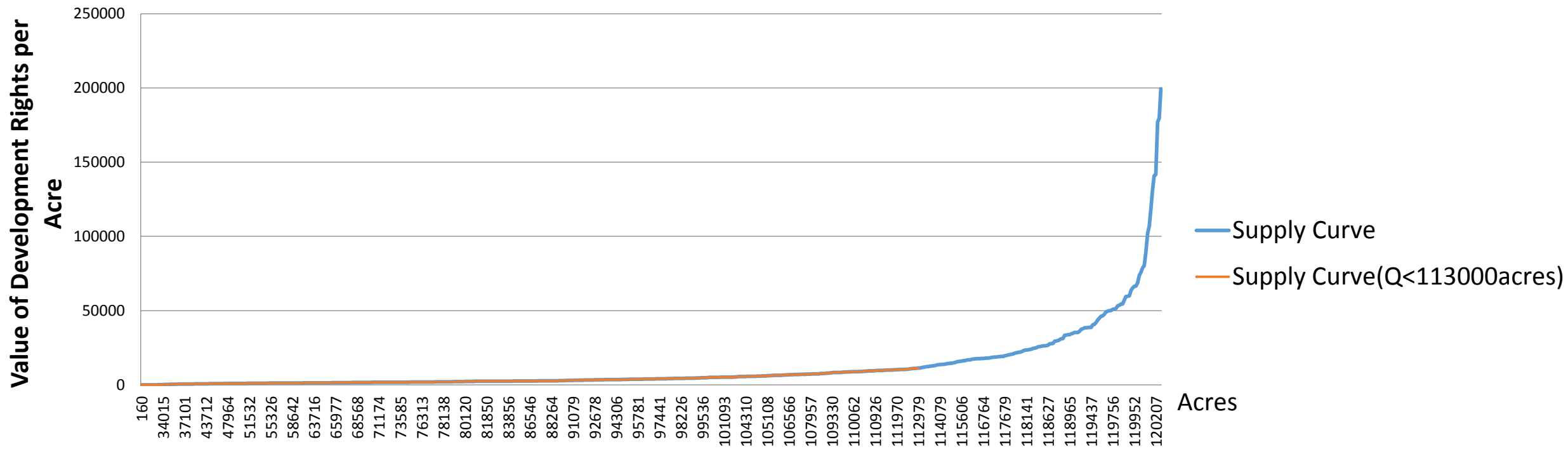
- Around Edmonton and Calgary
- In the Calgary-Edmonton Corridor
- In the Lethbridge-Vermillion-Cold Lake area



# Supply Curve of Farmlands in the Conservation Market

- Supply Curve:
- Land owners' willingness to accept the conservation easement.
- Drawn by ascending the VDRs, put the accumulative size on X axis and VDRs on Y axis.

Supply Curve in Farmland Conservation Market, Alberta





# Next steps:

- **Additional research on the multiple values of Alberta residents on conservation of agricultural land**
- **Additional research on farmer attitudes and motivations toward farmland conservation and instruments (dovetailing with conservation auction research)**
- **Additional research and engagement with municipal and regional planning processes**
- **New ALI project just beginning with Robert Summers**