



Water – Land Nexus: The Fraser River and Agriculture

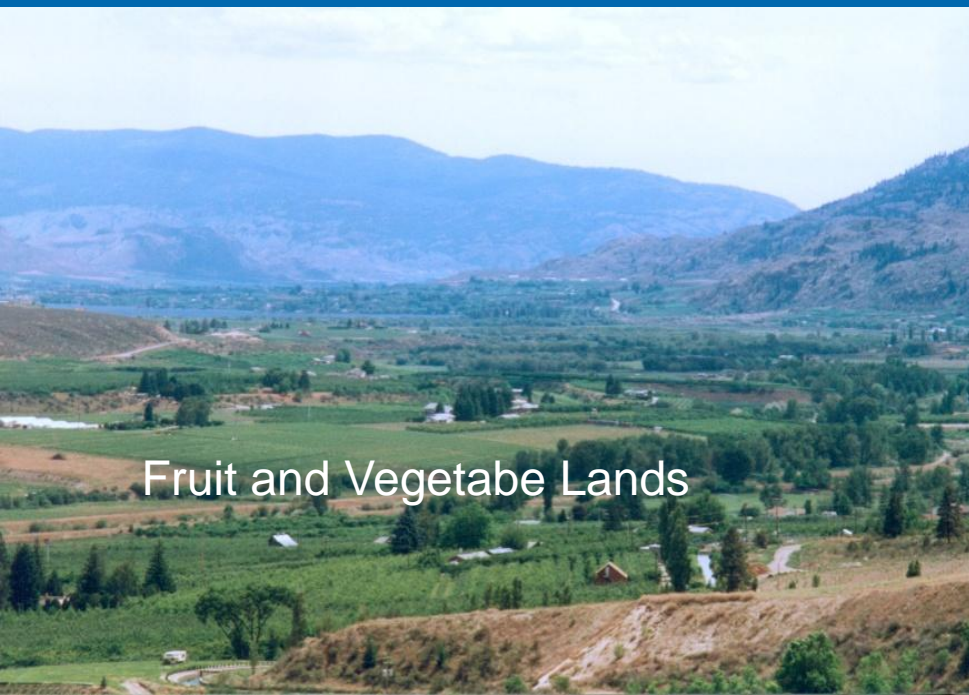
**T.W. van der Gulik – President
Partnership for Water Sustainability in British Columbia**



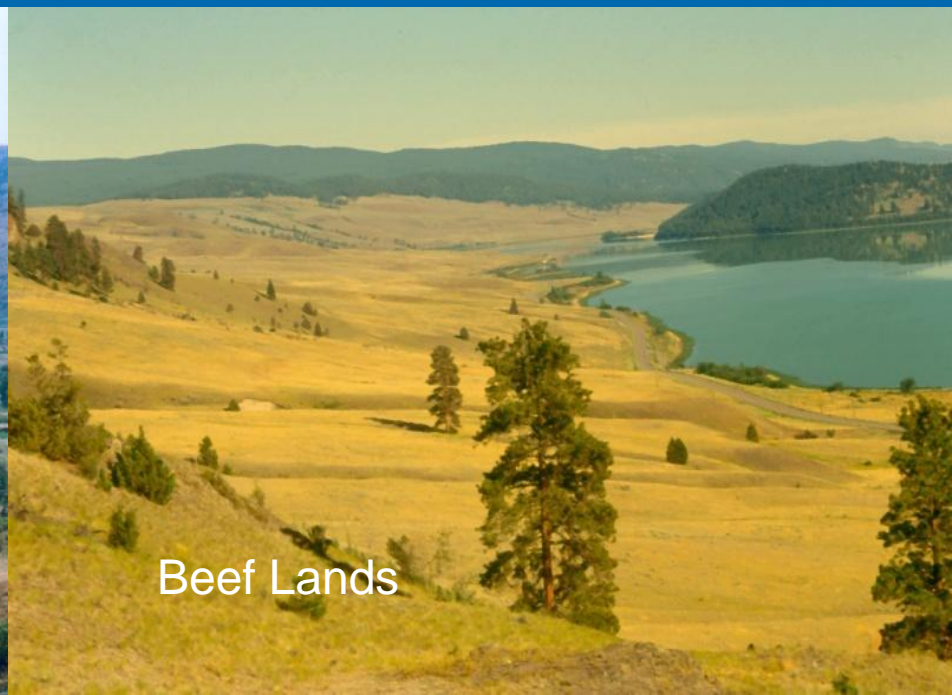
Grain Lands



Dairy Lands



Fruit and Vegetable Lands



Beef Lands

Food Self Reliance in BC

Foods Group	BC Consumption Million Kg's	BC Production Million Kg's	% Self Reliance
Dairy	1080	617	57%
Meat	467	298	64%
Vegetables (BC Grown)	764	331	43%
Fruit (grown in BC)	172	273	159%
Grain for Food	315	43	14%
Total – (Grown in BC)	2798	1562	56%
Fruit (not able to grow in BC)	310		
Vegetables (not able to grow in BC)	1		
Sugar	136		
Total - BC	3245	1562	48%

For a healthy diet every person requires 0.5 ha of land to grow their food

The Fraser Valley with less than **3%** of the provincial ALR land base generates over **50%** of the province's farm gate receipts.



AWDM Results for Metro Vancouver

Crop Group	Total Area (ha)	Irrigation Area (ha)	Irrigation Demand (mm) 2003
Blueberries	5504	4106	332
Cranberries	2591	2570	567
Forage	8776	1561	561
Golf	1170	1170	613
Nursery	715	125	370
Raspberries	177	119	374
Strawberry	180	82	321
Turf Farm	105	105	545
Vegetables	4515	2365	351
Greenhouse	466.6	466.6	1060
Total =	28,222	13,070	441

Irrigation Demand Fraser Valley

Fraser Valley AWDM Results

Region	Irrigated Area (ha)	Average Demand 2003 (mm)	Average Demand 1997 (mm)	Total Water Use 2003 (million m3)
Metro Van	13,070	439	276	60.7
FVRD	15,285	441	233	67.4

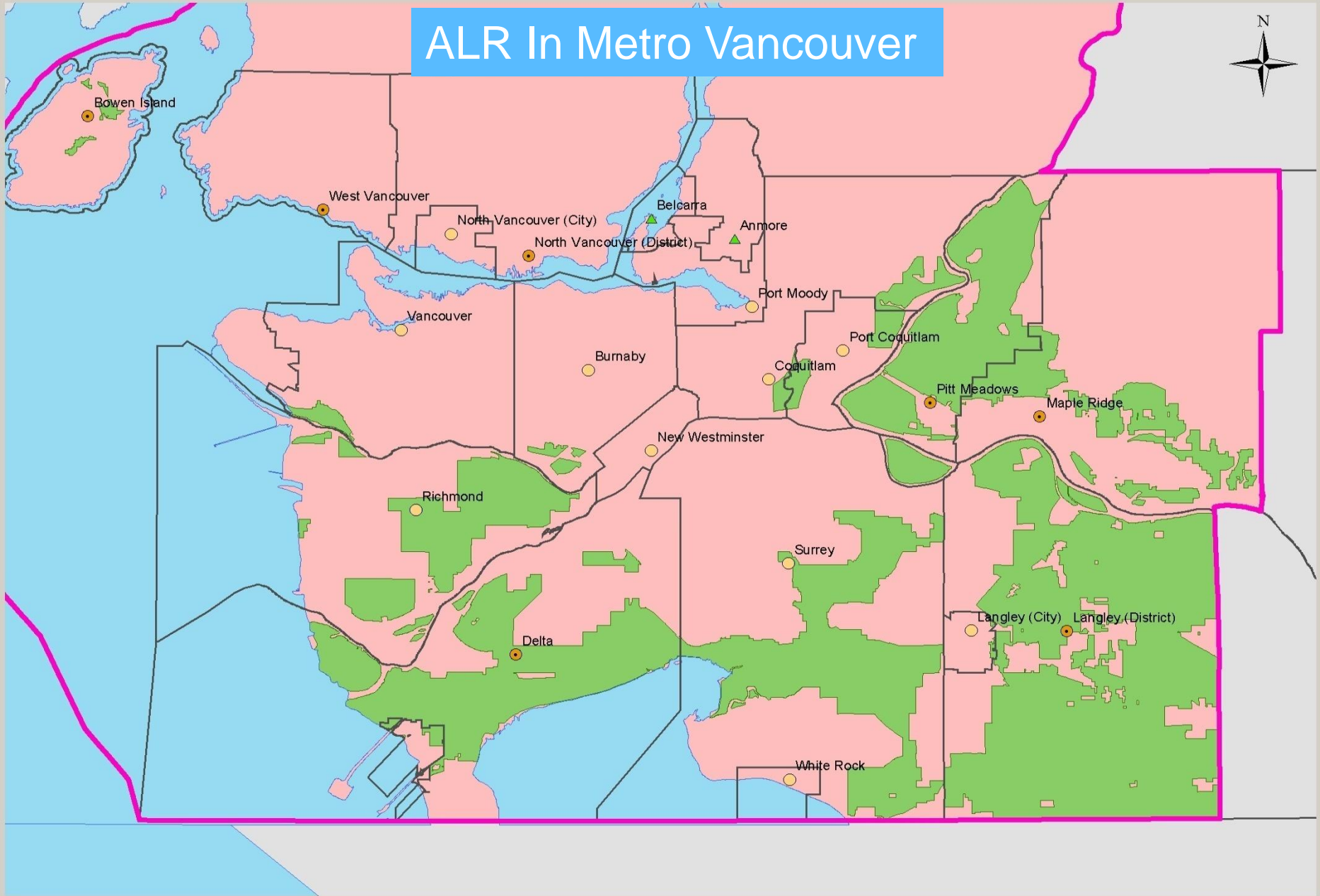
Irrigation Water Sources Fraser Valley

Fraser Valley AWDMM Results




Water Source

Region	Irrigated Area (ha)	Surface (ha)	Groundwater (ha)	Total Water Use 2003 (million m3)
Metro Van	13,070	11,724	1,346	60.7
FVRD	15,284	6,161	9,122	67.4

ALR In Metro Vancouver

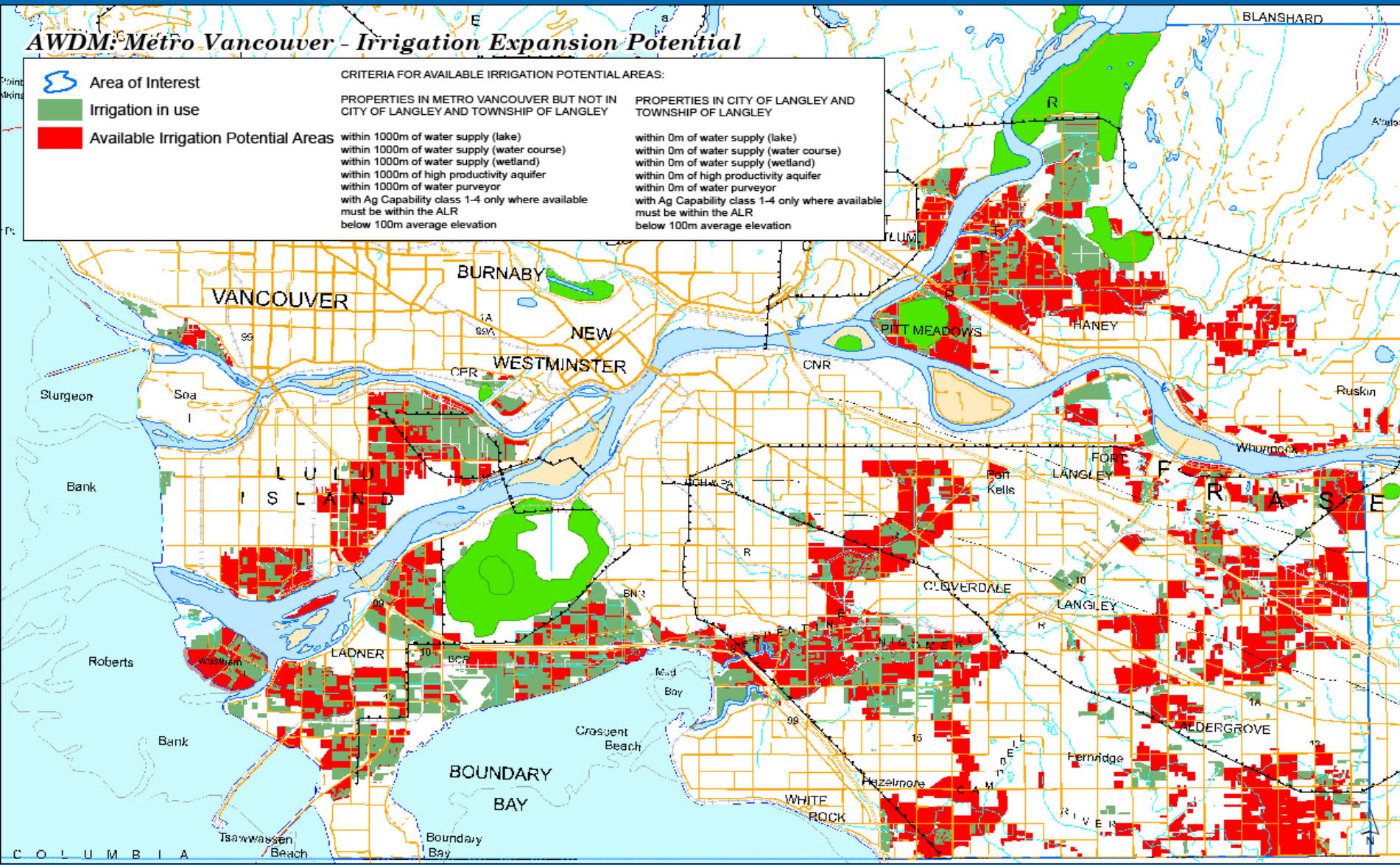


AWDM: Metro Vancouver - Irrigation Expansion Potential

-  Area of Interest
-  Irrigation in use
-  Available Irrigation Potential Areas

CRITERIA FOR AVAILABLE IRRIGATION POTENTIAL AREAS:

<p>PROPERTIES IN METRO VANCOUVER BUT NOT IN CITY OF LANGLEY AND TOWNSHIP OF LANGLEY</p> <ul style="list-style-type: none"> within 1000m of water supply (lake) within 1000m of water supply (water course) within 1000m of water supply (wetland) within 1000m of high productivity aquifer within 1000m of water purveyor with Ag Capability class 1-4 only where available must be within the ALR below 100m average elevation 	<p>PROPERTIES IN CITY OF LANGLEY AND TOWNSHIP OF LANGLEY</p> <ul style="list-style-type: none"> within 0m of water supply (lake) within 0m of water supply (water course) within 0m of water supply (wetland) within 0m of high productivity aquifer within 0m of water purveyor with Ag Capability class 1-4 only where available must be within the ALR below 100m average elevation
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Irrigation Buildout Potential Fraser Valley

Fraser Valley AWDM Results Irrigated Buildout Potential

Region	Irrigated Area 2013 (Ha)	Irrigated Area 2065 (ha)	Water Demand 2003 (million m3)	Water Demand 2065 (million m3)
Metro Van	13,070	34,675	60.7	140.2
FVRD	15,284	33,933	67.4	132.1

Climate Change Impacts

Changes in water supply and demand:

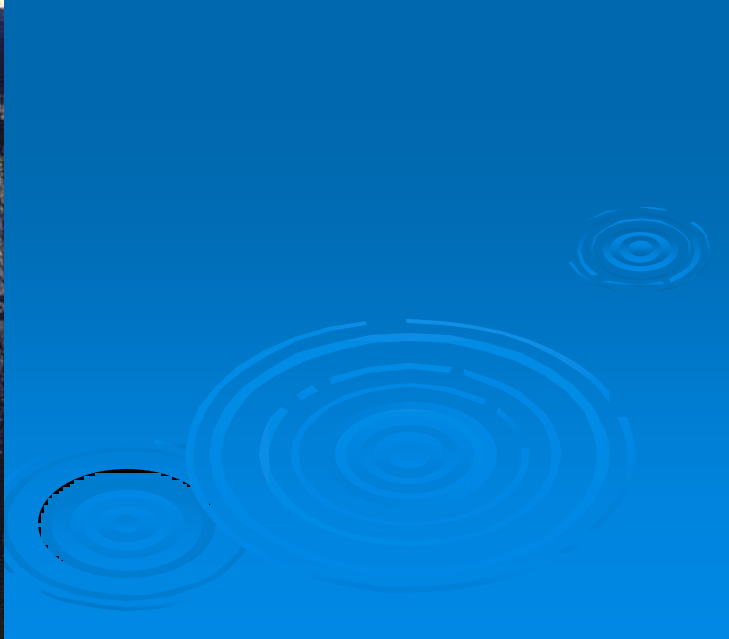
- Summers will be drier
- Summers will be hotter requiring more water
- Less snow pack and more rainfall in winter – hydrology will change



Climate Change Impacts on Water Demand

Water Demand with Climate Change

Region	Irrigated Area 2013 (Ha)	Water Demand 2003 (million m3)	Peak Water Demand 2050's (million m3)	Average Peak Demand	Average Peak Percent Increase
Metro Van	13,070	60.7	99	80	31%
FVRD	15,284	67.4	126	102	51%



Flood Impacts on Agriculture



Flooding from freshet:

Flooding is more extensive and longer term

- Livestock protection is not the only concern - livestock can block access of emergency vehicles
- They need to be dealt with early in the process

Flood Impacts on Agriculture

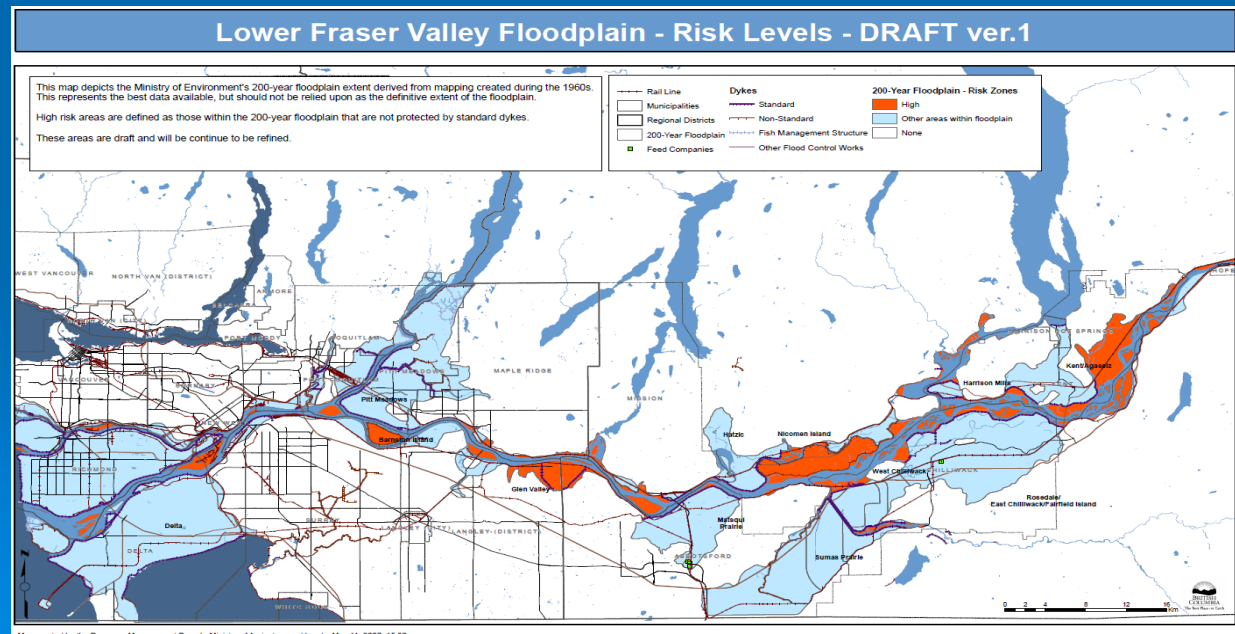


eshet:



Agriculture's Flood Plan

- High risk areas are defined using flood mapping and dyking information.
- High risk areas are usually outside the dikes or regions that are not protected by standard dikes.



Agriculture's Flood Plan

- Land use inventories are used to identify livestock operation locations

