



# Okanagan Irrigation Management OKIM

**B.C. Ministry of Agriculture and Lands  
Sustainable Agriculture Management Branch**

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Senior Engineer**



# Water Use in the Okanagan

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- Agricultural irrigation uses close to 70% of total water use in the Okanagan
- Landscape irrigation is estimated at 15% of total use
- Irrigation is estimated at 85% of total use.

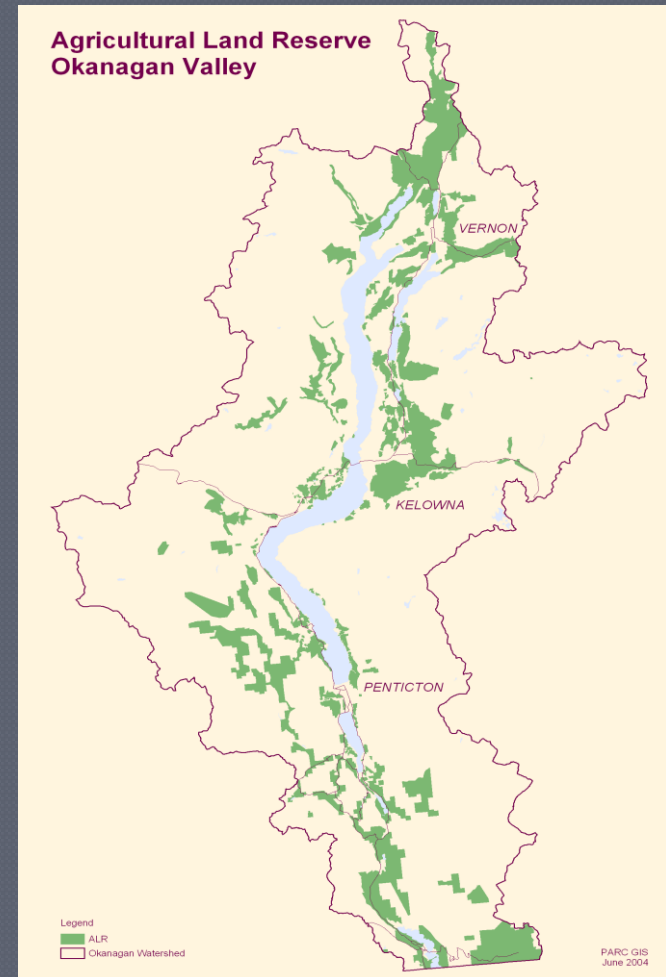


# Irrigation Demand Model



Model calculates:

- Farm irrigation water use
- Landscape irrigation water use
- Golf course irrigation water use



# Irrigation Demand Model

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## Objective:

Develop a model that calculates agriculture's irrigation needs by purveyor, municipality, district and sub-watershed.

## Methodology:

Determine Property-by-Property water use

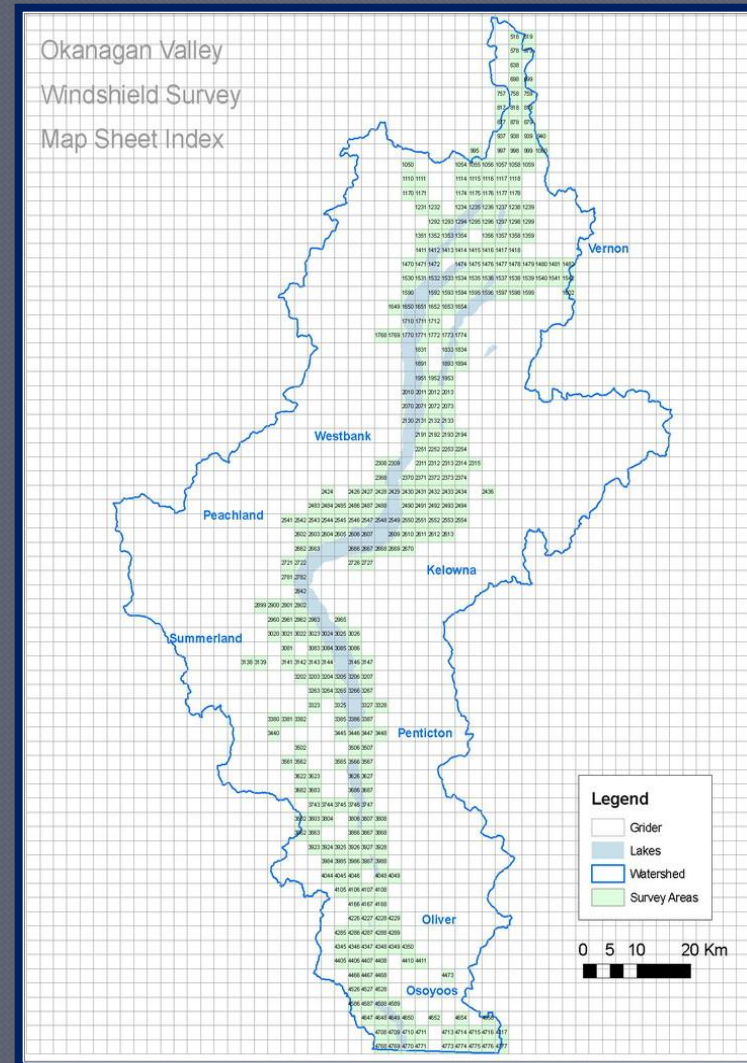
## Result:

Planning Tools that secure water for current and future agricultural needs



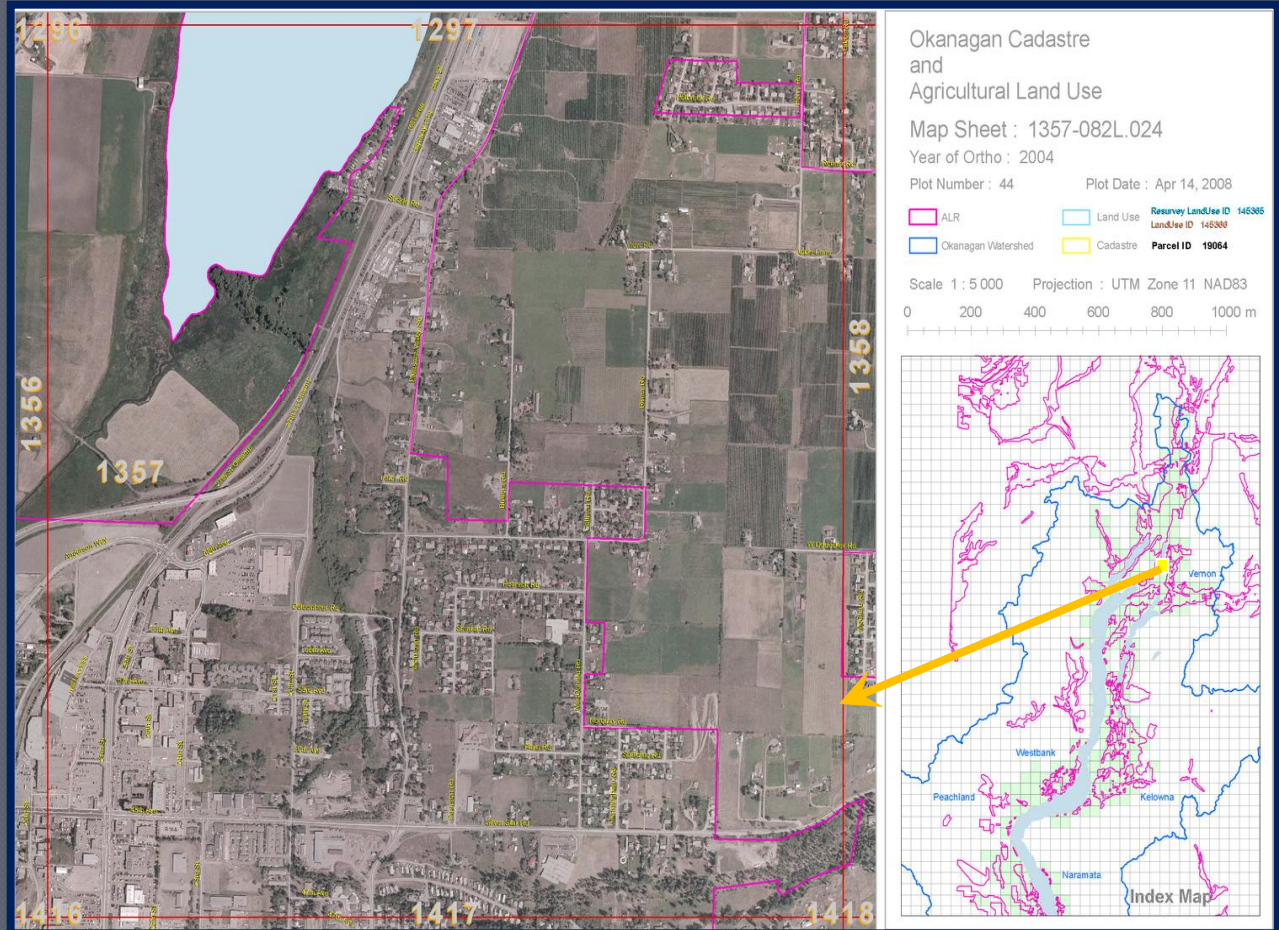
# Unified Cadastre

The Okanagan Basin developed area is divided into 398 map sheets



# Land Use Data

Map sheets were developed using GIS and aerial photography. Cadastre and land use polygons were added by technicians.



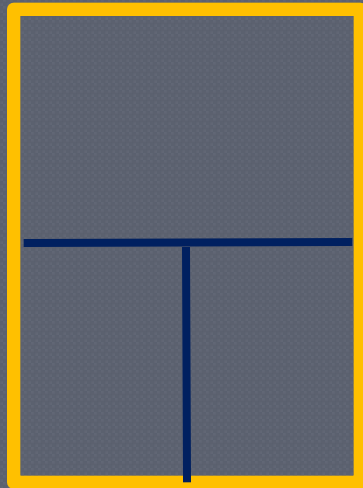
# Land Use Data

Cadastre



# Land Use Data

Cadastre



**Crop Cover**  
**Irrigation System**  
First Entered by GIS





# Land Use

## Crop Type:

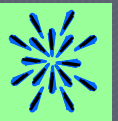


Apple

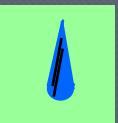


Pasture

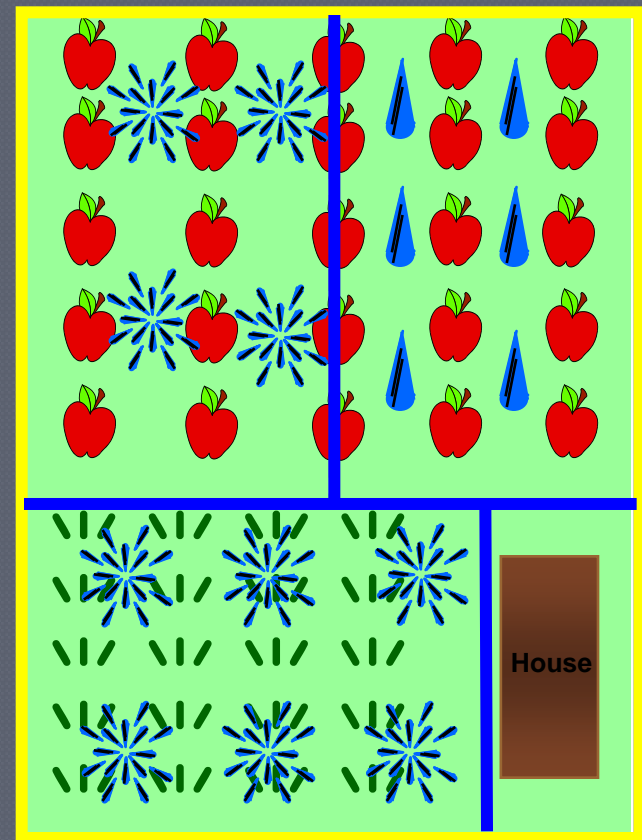
## Irrigation System Type:



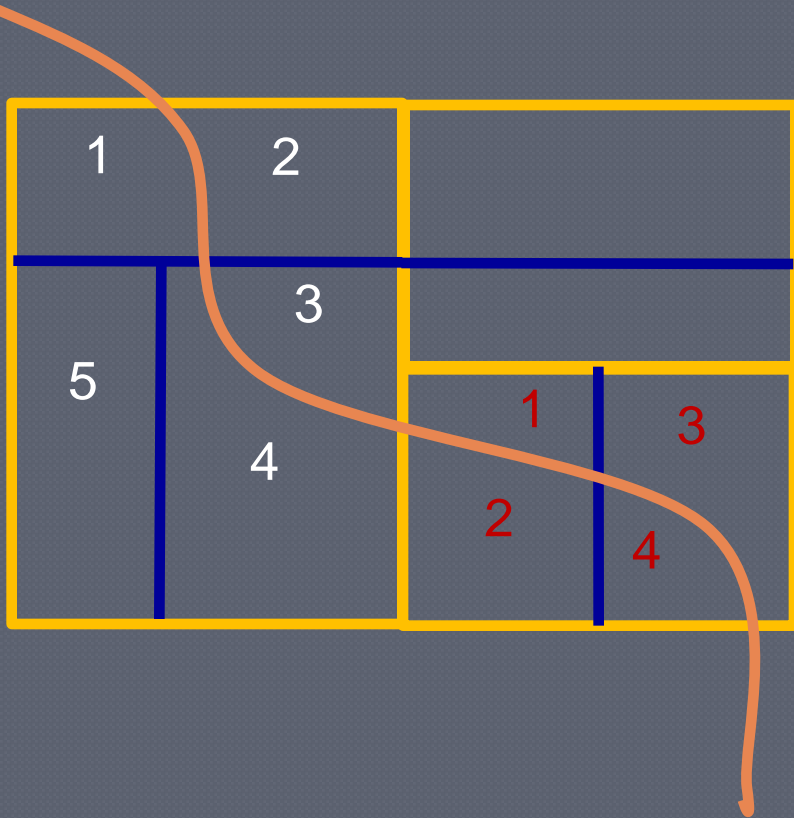
Sprinkler



Drip



# Soil Boundary

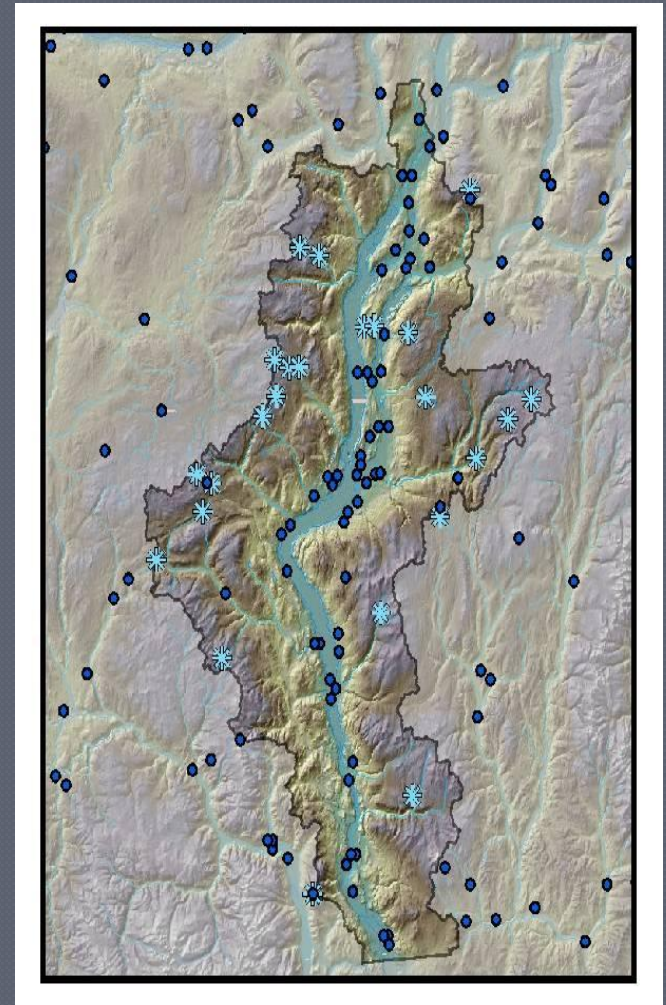


There are 126,000 polygons generated for the Okanagan in the farming areas

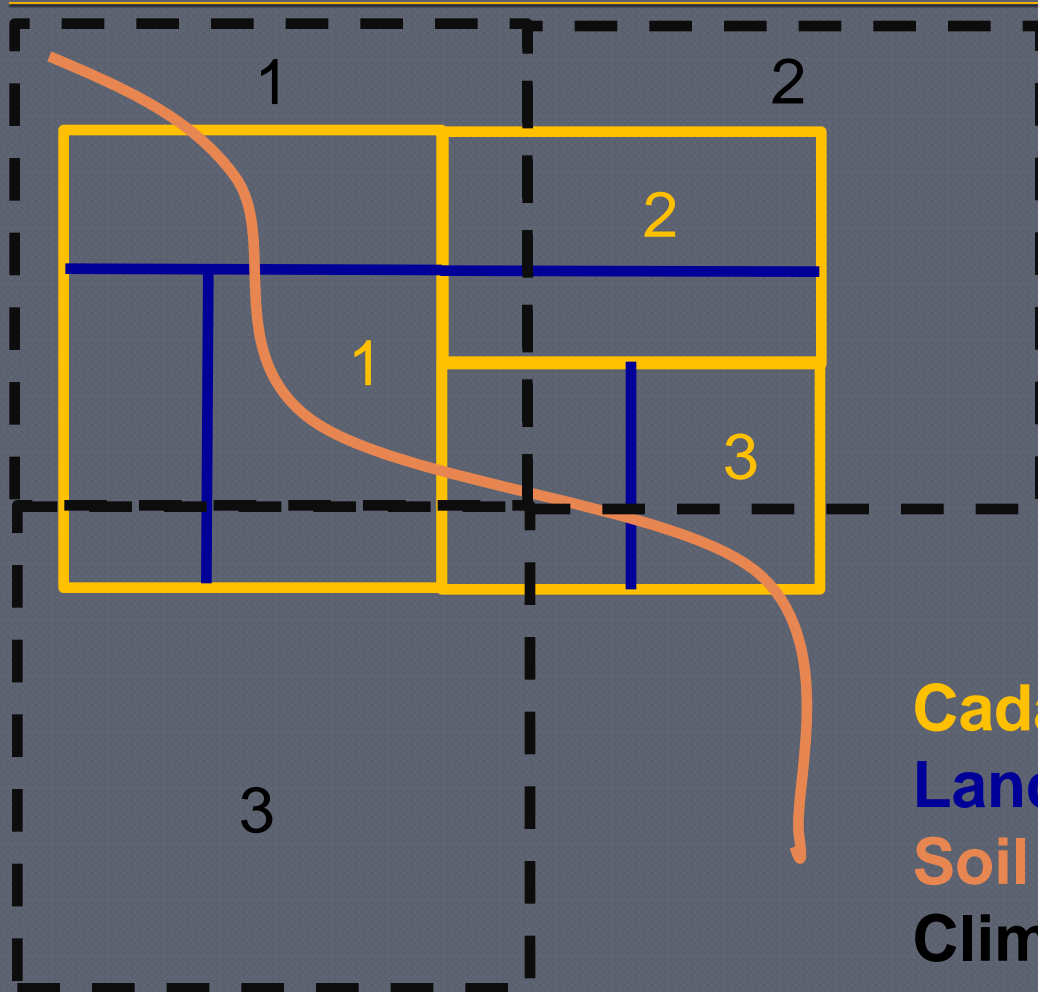
**Cadastral**  
**Land and Crop Polygon**  
**Soil Boundary**

# Climate Data

- A 500 m x 500 m climate grid has been developed for the basin – 32,000 grid cells
- Each grid cell contains daily Tmin, Tmax and Precip from 1961 till 2006
- Six global Climate Change scenarios have been developed and each grid cell populated with this data



# Climate Data



A climate cell gets assigned to each cadastre

Climate grid 1 linked to Cadastre 1

Climate grid 2 linked to Cadastre 2 and 3

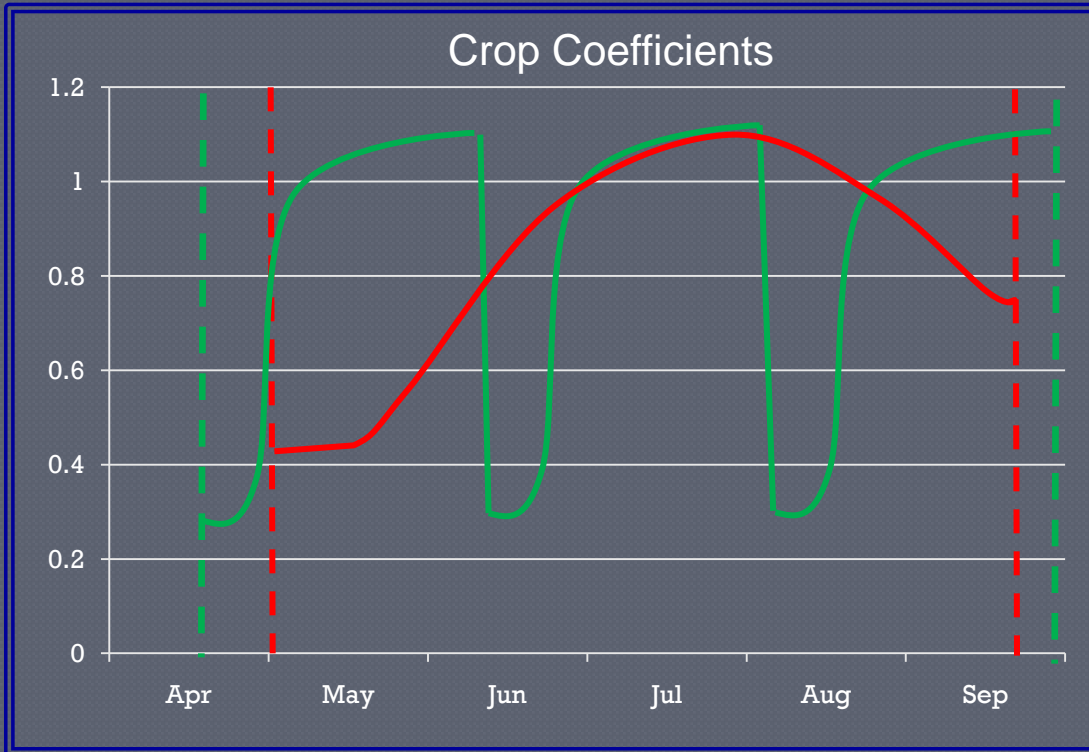
**Cadastre**

**Land and Crop Polygon**

**Soil Boundary**

**Climate Grid**

# Model



--- Apples  
--- Alfalfa

Algorithm calculates water demand from:

- $E_{To}$  calculated daily from climate data.
- Climate data to determine start and end of growing season.
- Crop coefficients to adjust daily  $E_{To}$
- Soil and rooting depth information to calculate soil water storage, percolation rates and determine soil factors
- Irrigation system efficiencies

# Results by Crop



Crop Group	Irrigated Area (ha)	Irrigation Demand (mm)
Apple	4,292	693
Berry	62	633
Cherry	1,121	733
Forage	8,520	755
Fruit	898	793
Golf	1,048	992
Grape	2,734	413
Landscape Turf	126	1,009
Nursery	385	909
Turf Farm	120	959
Vegetables	531	692
<b>Total =</b>	<b>20,033</b>	<b>704</b>

# Results

## By Irrigation System

Irrigation System	Irrigated Area (ha)	Irrigation Demand (mm)
Drip	1,490	415
Golfsprinkler	1,045	992
Gun	308	1,118
Handline	1,390	792
Landscape Sprinkler	383	674
Microspray	466	661
Microsprinkler	1,548	674
Overtree Drip	220	447
Overtree Microsprinkler	16	737
Pivot	555	536
Pivot – Low Pressure	20	543
SDI	42	548
Sprinkler	3,602	739
Solid Set Gun	12	772
Solid Set Over tree	3,073	604
Solid Set Sprinkler	134	709
Solid Set Undertree	1,790	791
Travelling gun	2,079	751
Wheelline	1,661	751
<b>Total =</b>	<b>20,033</b>	<b>704</b>



# Okanagan Irrigation Management



## OKIM

### Okanagan Irrigation Management

summerlanduser@okim.ca



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#### Tools



Landscape  
Irrigation  
Scheduling  
Calculator

#### EVAPOTRANSPIRATION

schedule your  
irrigation

#### OKIM

This website is designed for agricultural property landowners within the Greater Vernon Services and the District of Summerland to obtain information on metered water use, calculated theoretical water demand, and land use data for their properties.

If you are a water purveyor or you reside in areas where agricultural water use is metered by a water purveyor, and would like to be part of the OKIM, please email [info@Okim.ca](mailto:info@Okim.ca).

#### Log-in

For existing users, click [here](#) to log-in.

#### New User

To register as a new user, you must own an agricultural property in Vernon or Summerland, and have an email address. Click [here](#) to register.

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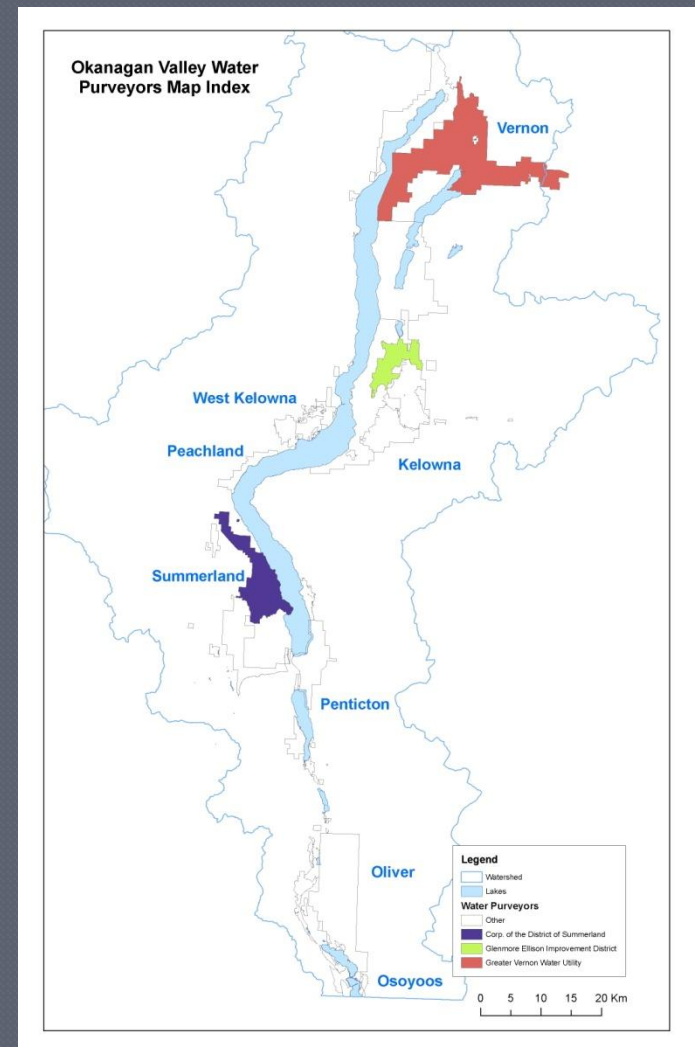
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Demonstrated in the Summer of 2010 – 2011

Water purveyors that are part of OKIM are:

- Glenmore Irrigation District
- Vernon Water District
- Municipality of Summerland



# OKIM – Real time climate

**farmwest.com**

Ask A Question | Buy & Sell | Events | Forum | Interviews | Industry Directory | Islands  
Library | Links | **Climate** | Environment | Dairy | Forage | Fruit | Variety Testing | Photos  
Buy & Sell Hay

Welcome To Farmwest.com [Login](#) | [Sign Up](#)

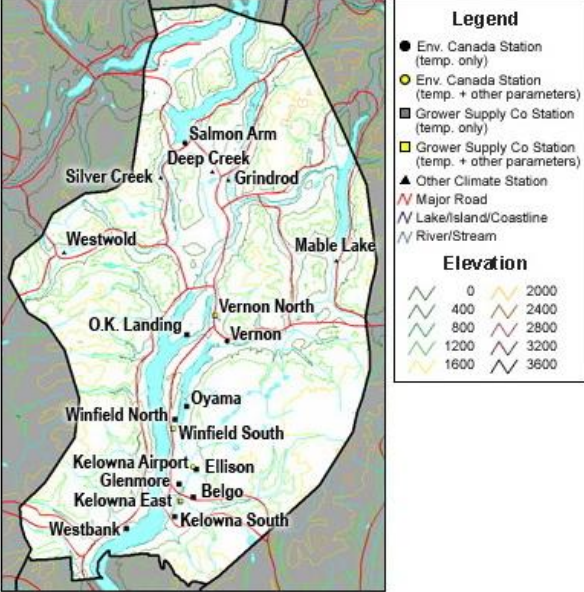
**CLIMATE**

Weather Forecast  
Evapotranspiration  
Corn Heat Units  
Temperature Monitor  
Growing Degree Days  
T-Sum Calculator  
Ammonia Loss From Manure  
Expanding The Farmwest Climate Station Network

[Homepage](#) » [Climate](#) » [Evapotranspiration](#) » [BC Map](#) »

### Okanagan North

Select a station on the map below.



**Legend**

- Env. Canada Station (temp. only)
- Env. Canada Station (temp. + other parameters)
- Grower Supply Co Station (temp. only)
- Grower Supply Co Station (temp. + other parameters)
- ▲ Other Climate Station
- Major Road
- Lake/Island/Coastline
- River/Stream

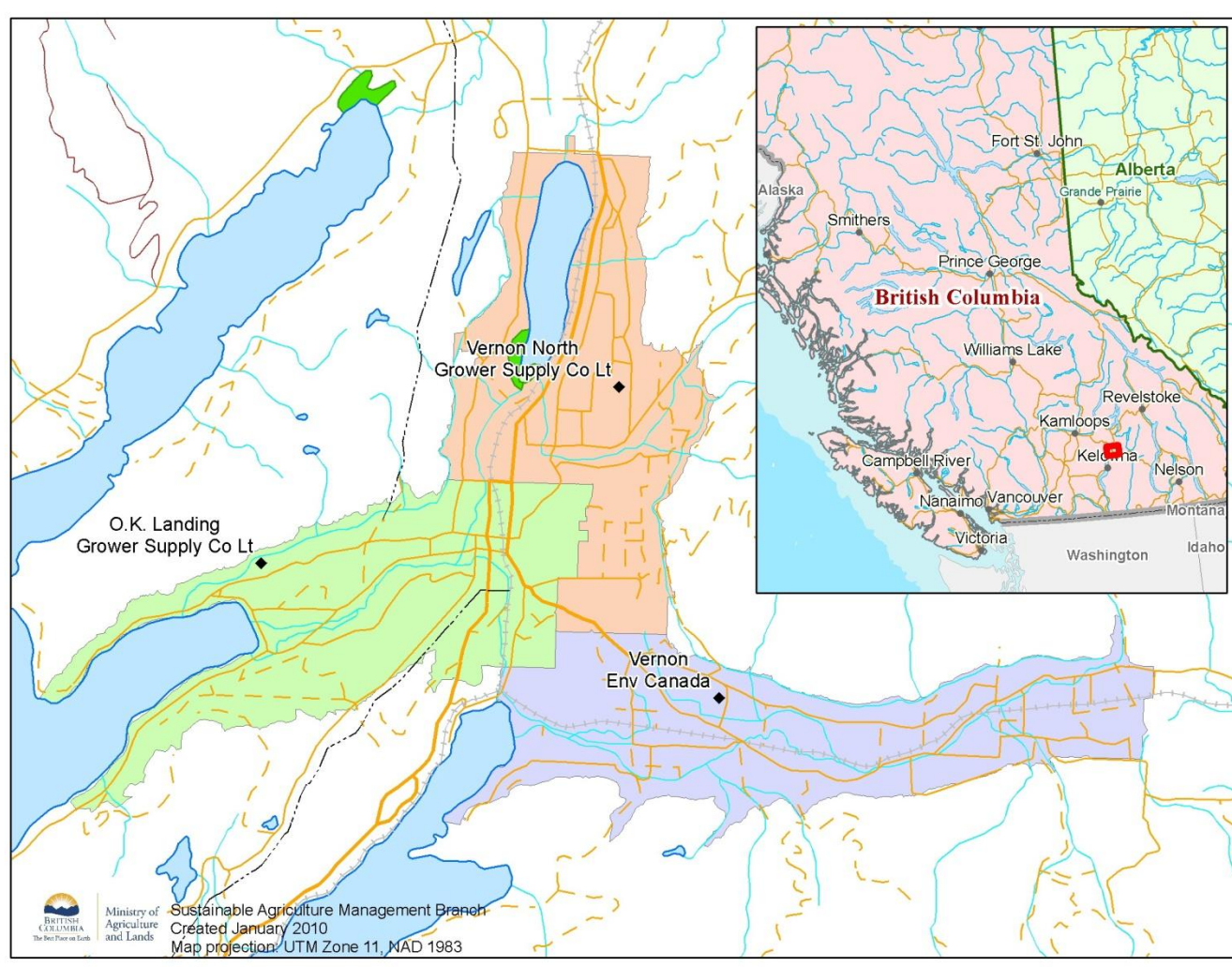
**Elevation**

0	2000
400	2400
800	2800
1200	3200
1600	3600

Map labels: Silver Creek, Westwold, O.K. Landing, Winfield North, Kelowna Airport, Westbank, Salmon Arm, Deep Creek, Grindrod, Mable Lake, Vernon North, Vernon, Oyama, Winfield South, Kelowna Airport, Glenmore, Kelowna East, Belgo, Kelowna South.

Real time climate  
obtained from  
Farmwest.com

# OKIM – Real time climate



# OKIM – Log -in



## OKIM

### Okanagan Irrigation Management

Anonymous user

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#### Tools



Landscape Irrigation Scheduling Calculator

**EVAPOTRANSPIRATION**  
schedule your irrigation

#### User Logon

Email address:

Password:

[Forgot your password?](#)

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A satellite map of North America, centered on the United States and Canada, displayed within a circular frame. The map is surrounded by a glowing blue border. In the top right corner of the map area, there is a navigation control panel with a compass, directional arrows, and zoom in/out buttons. At the bottom of the map, there is copyright information and a Google logo. At the very bottom of the page, there is a status bar with coordinates, zoom level, and eye altitude.

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Image © 2008 TerraMetrics  
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Google™

Pointer 49°39'57.91" N 119°44'36.49" W Streaming 100% Eye alt 7571.91 km



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32507251250

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273 m

Pointer 49°39'53.26" N 119°44'20.36" W elev 634 m Streaming 100% Eye alt 1.65



# OKIM

## Okanagan Irrigation Management

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### Results

[Detail Results](#)

Map



[Open in Google Earth](#)

<b>Local Authority</b>	Summerland
<b>User</b>	Sam Summer (summerlanduser@okim.ca)
<b>User Address</b>	PostalAddress1, PostalAddress2, PostalZip
<b>Property Address</b>	28411 GARNET VLY RD

# OKIM – Reports

## A. Agricultural Units Information :

Land Use	Soil Type	Irrigation Type	ET	Area (ha)
Grape	default	Sprinkler	834.3072 mm / 32.85 inch	0.520
Blank	default	Blank	834.3072 mm / 32.85 inch	7.190
Blank	default	Blank	834.3072 mm / 32.85 inch	0.280

## B. Current Growing Season Water Consumption:

Period	Your Water Use (volume)		Calculated water Requirement	
	cubic meters	US Gallons	cubic meters	US Gallons
April (4/1/2007 - 5/1/2007)	100.320	26504.624	0.000	0.000
May (5/1/2007 - 6/1/2007)	103.550	27357.992	0.000	0.000
June (6/1/2007 - 7/1/2007)	116.820	30863.937	279.572	73863.144
July (7/1/2007 - 8/1/2007)	309.360	81733.157	358.748	94781.506
August (8/1/2007 - 9/1/2007)	274.010	72393.659	642.969	169872.919
September (9/1/2007 - 10/1/2007)	0.000	0.000	445.974	117826.684
October (10/1/2007 - 11/1/2007)	0.000	0.000	150.407	39737.649
Season (4/1/2007 - 11/1/2007)	877.230	231764.861	1825.240	482229.855

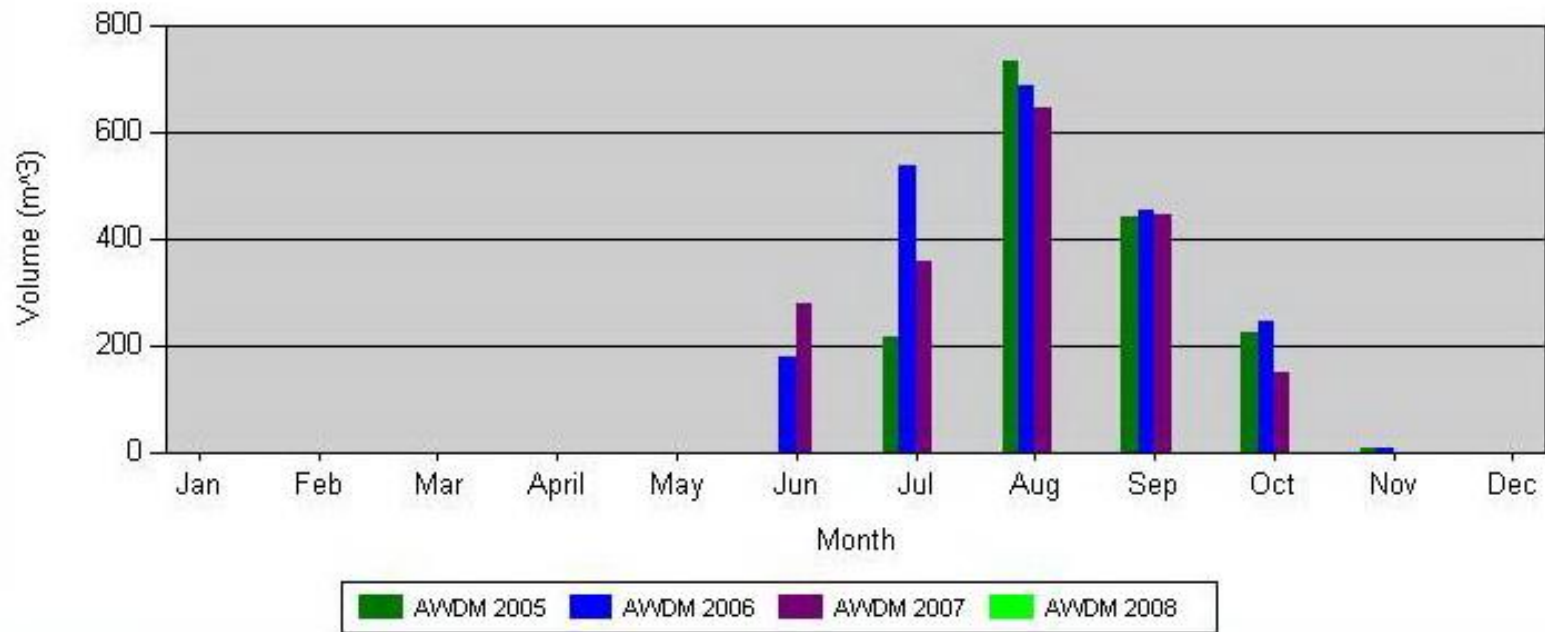


# OKIM – Reports

	Yearly Agricultural Water Demand Model in cubic meters			
Month	2005	2006	2007	2008
Jan	0.000	0.000	0.000	0.000
Feb	0.000	0.000	0.000	0.000
Mar	0.000	0.000	0.000	0.000
April	0.000	0.000	0.000	0.000
May	0.000	0.000	0.000	0.000
Jun	0.000	177.822	279.572	0.000
Jul	214.274	537.968	358.748	0.000
Aug	733.875	687.900	642.969	0.000
Sep	439.479	453.345	445.974	0.000
Oct	224.116	242.634	150.407	0.000
Nov	6.992	6.397	0.000	0.000
Dec	0.000	0.000	0.000	0.000

# OKIM – Reports

## Yearly Agricultural Water Demand Model



# OKIM – Reports

## Water Meter History

**Property Owner:** Sam Summer

**Meter Serial:** 70145334

**Legal Description:** 32507251250

**Meter Model:** Unknown Model

**Property Address:** 28411 GARNET VLY RD

**Meter Size:** 1.5 Inch

**Date:** Wednesday, March 26, 2008

**Actual and Adjusted Water Meter Readings**

