

**2014 Esri International User Conference**

July 14-18, 2014 | San Diego, California

# **GIS Study to Locate Emergency Animal Composting Sites**

**Shannon Sigurdson**

Fraser Valley Regional District



# Foot & Mouth Disease outbreak in England (2001)

Foot & Mouth Disease outbreak  
in England (2001)

Avian Influenza Emergency in  
British Columbia's Lower  
Mainland (2004)

Foot & Mouth Disease outbreak  
in England (2001)

Avian Influenza Emergency in  
British Columbia's Lower  
Mainland (2004)

Foot & Mouth Disease outbreak  
in South Korea (2011)

Foot & Mouth Disease outbreak  
in England (2001)

Avian Influenza Emergency in  
British Columbia's Lower  
Mainland (2004)

Foot & Mouth Disease outbreak  
in South Korea (2011)

Balkan Flooding – Worst in 100  
years (2014)

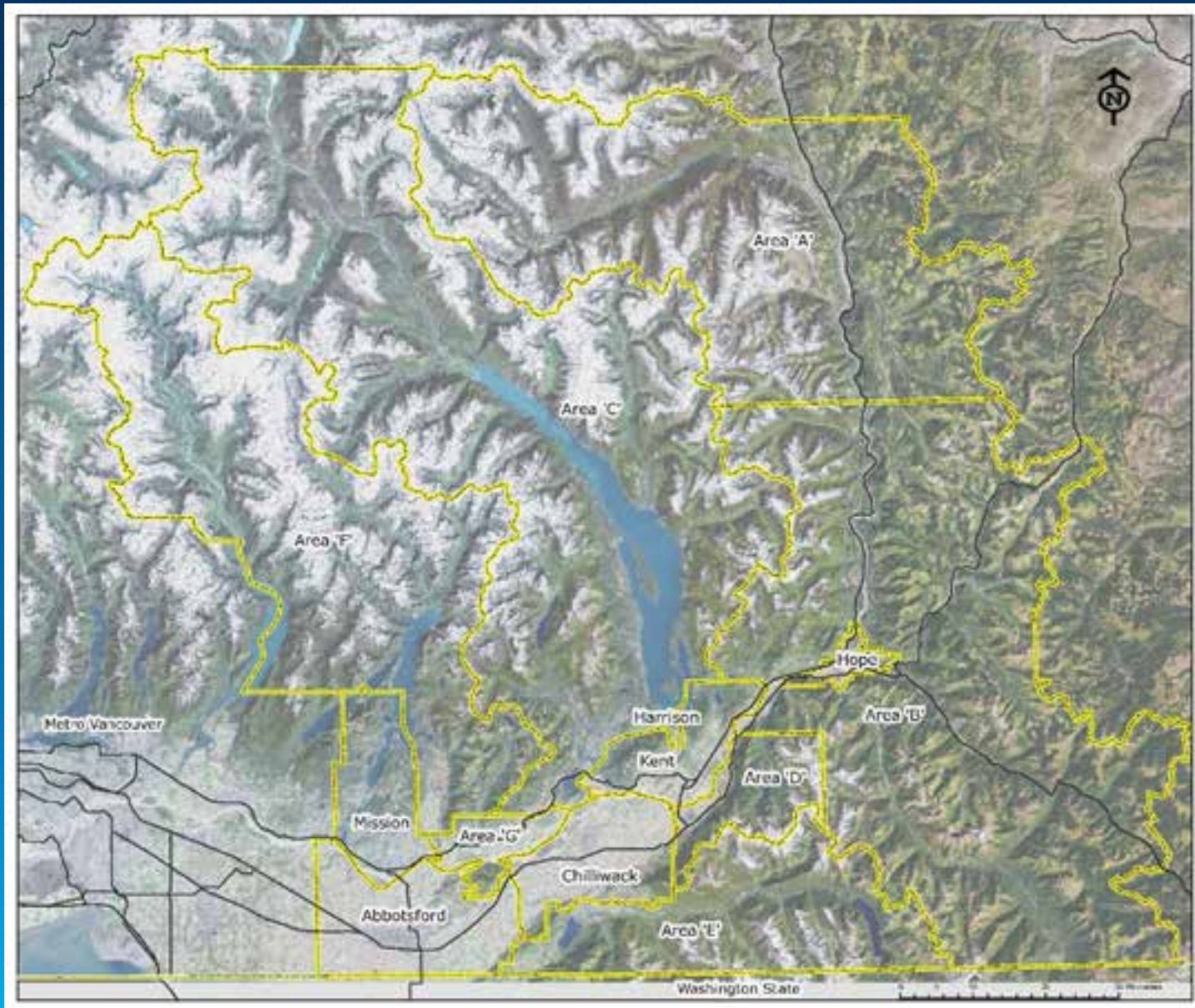
# Question

What do you do when you are faced with disposing of thousands of dead farm animals due to a catastrophic event, such as a flood or disease outbreak?

# Answer

Why Use GIS of course!

# The Fraser Valley Regional District





# Agriculture in the FVRD

The FVRD has an extensive agricultural presence;

- 32% of all Provincial farm receipts
- 2,500 + farms operating
- 120,000 + acres being farmed

Source: FVRD Regional Growth Strategy 2004

# The Problem

These recent events have created high volumes of dead stock which require complex emergency planning and operations for safe and effective carcass disposal.

# The Problem

To deal with the emergency disposal of farmed animal carcasses following a disaster, the Ministry of Environment has asked Regional Government's to identify possible disposal sites in their area.

# Project

Emergency Composting Site Criteria:

# Project

## Emergency Composting Site Criteria:

### **Land Size:**

- Minimum 35 acres (could be spread out over 4 or 5 sites)

### **Set Backs:**

- 1 metre to seasonal high groundwater table
- 15 metres from any watercourse
- 30 metres from any domestic water source
- Sites should be on high ground, away from flood prone areas

### **Ownership:**

- Preferably Provincial or Municipal owned parcels

# Project

## Emergency Composting Site Criteria:

### Soil Base:

- Not on bedrock
- Preferred soil type is clay (low permeability)
- Thickness of clay should be at least 30cm
- Surfaces like concrete or asphalt are also acceptable
- No steep slopes

### General Location:

- Not over an aquifer
- Not within a right-of-way
- Must be accessible by truck
- Close enough to power, to bring to possible site

# Project

Obtained various data sets

GIS Modelling begins

- Buffer Creation (*watercourses, wells, etc.*)
- Clipping (*parks, aquifers, floodplain, etc.*)
- Slopes were assessed using 3D Analyst  
(*no steep slopes allowed but slopes of 2 – 4% are preferred*)

# Results

Reviewed the first set of Results

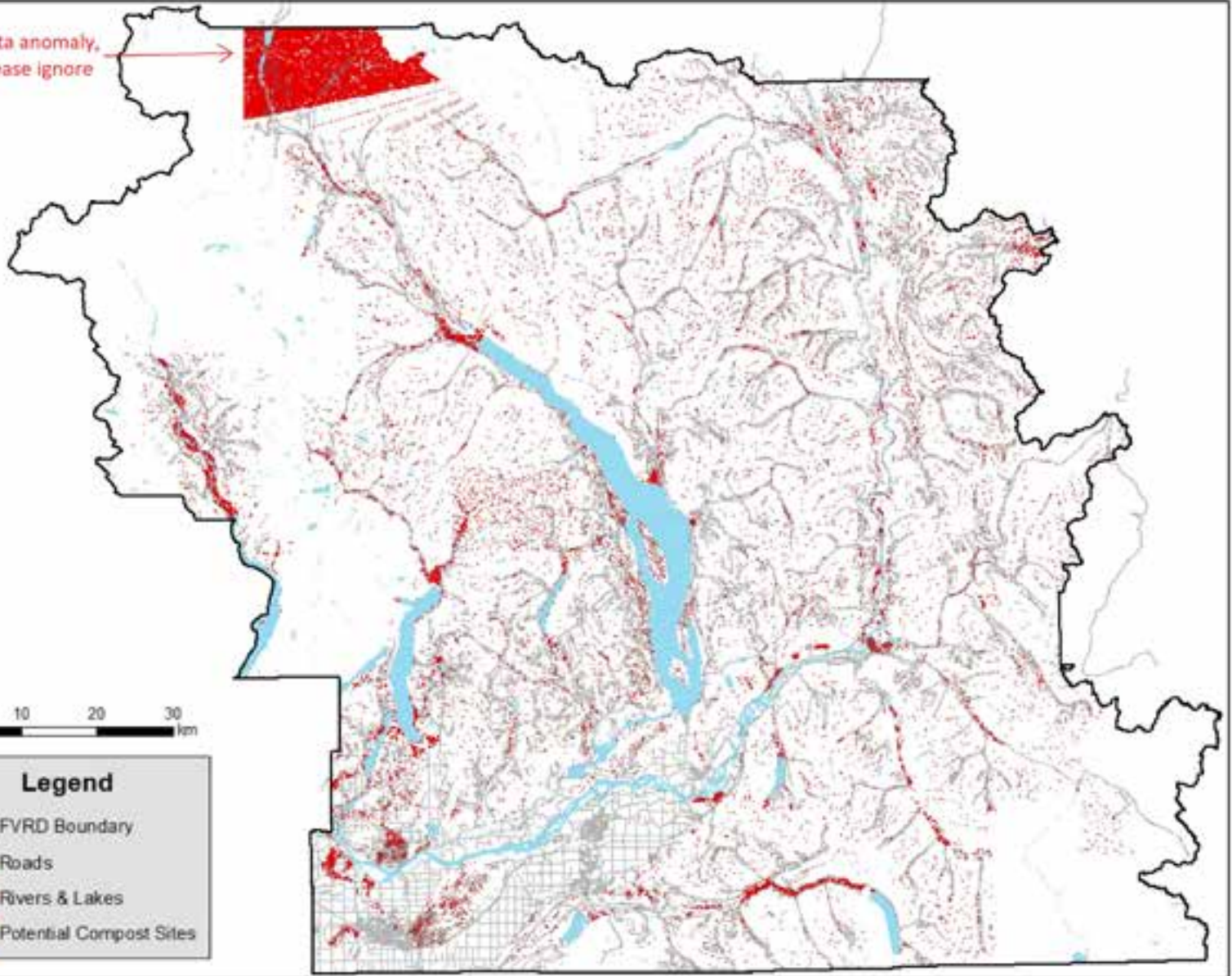


data anomaly,  
Please ignore

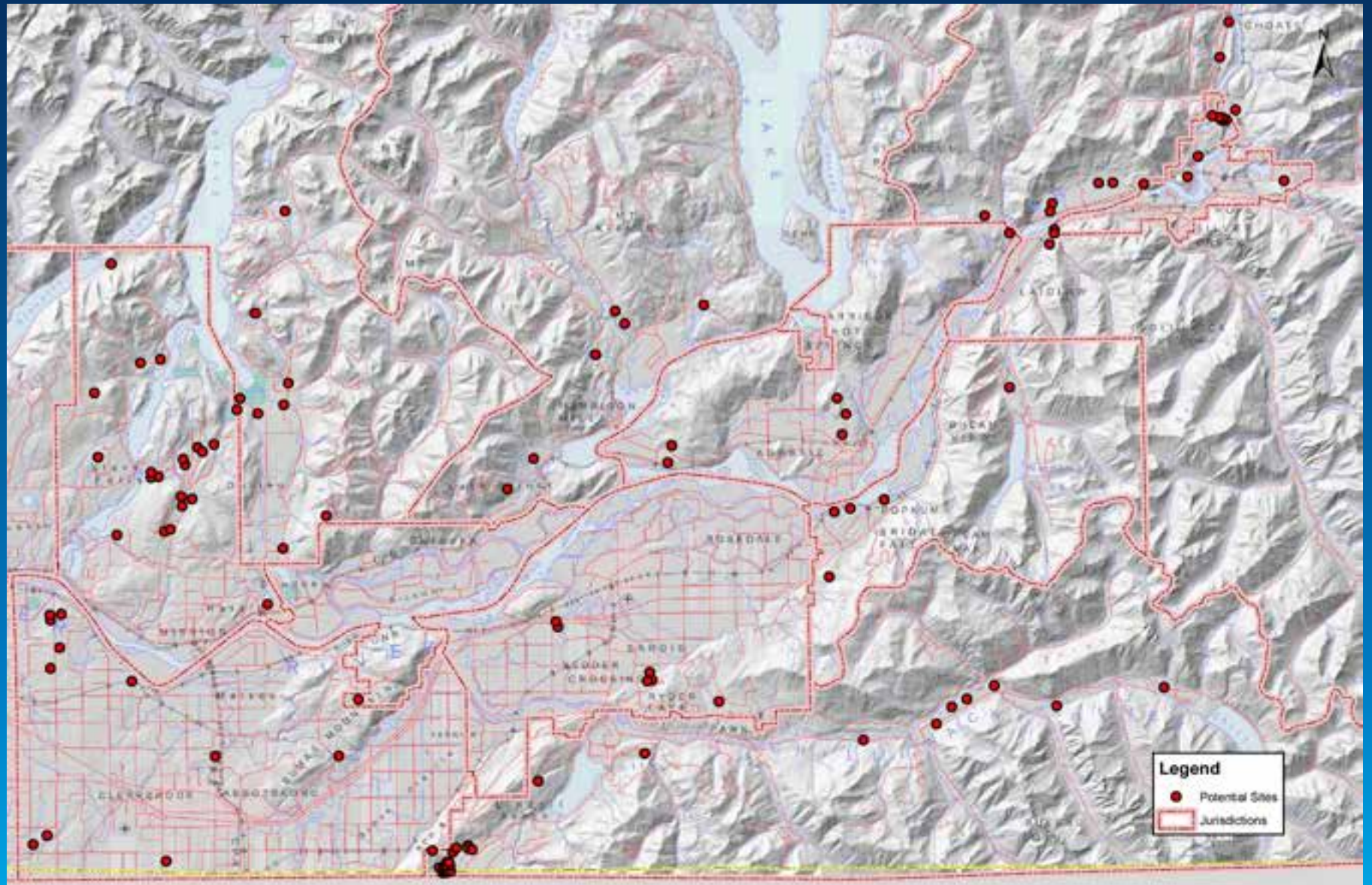


**Legend**

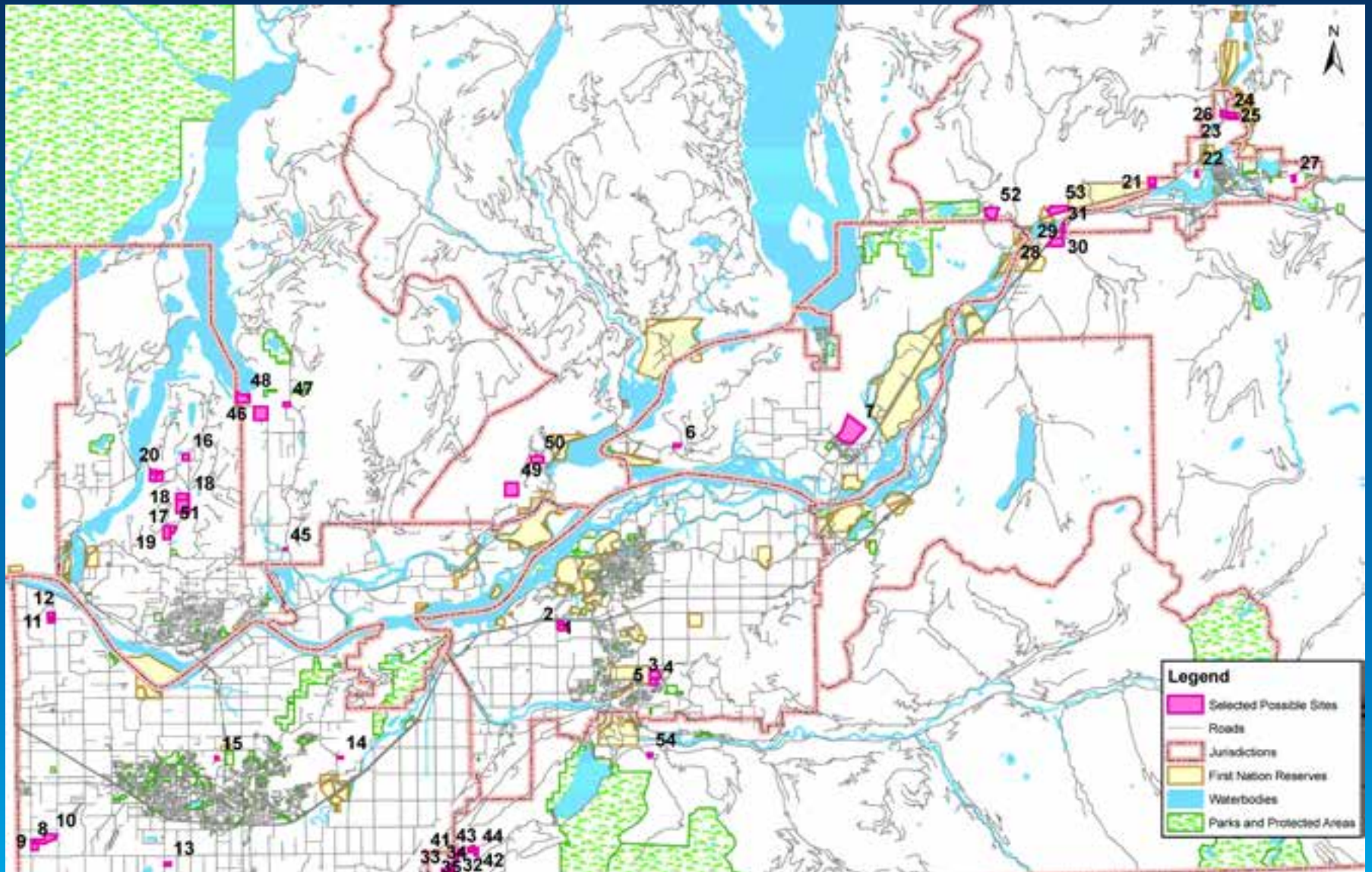
-  FVRD Boundary
-  Roads
-  Rivers & Lakes
-  Potential Compost Sites











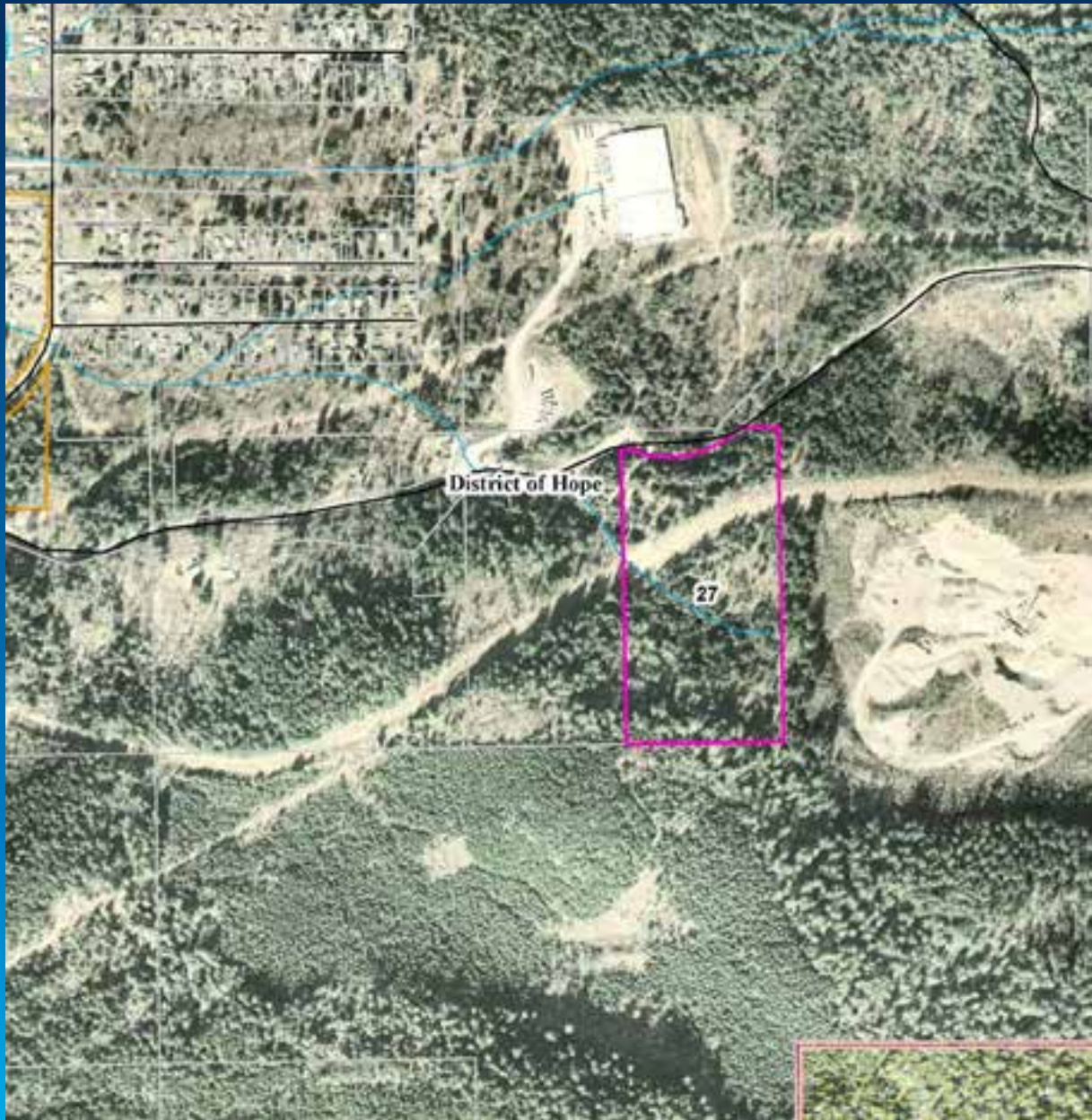












# Results

*The GIS Study is completed, about 50 sites were identified as possible sites.*

*There are ongoing discussions with various levels of Government to help determine the best 3 or 4 sites out of the 50.*

*The next step is to secure these selected sites, to establish proper access, and bring in power.*



# Thank You!

**Shannon Sigurdson**

GIS Department

Fraser Valley Regional District

## Acknowledgements

**Stacey Barker**

Fraser Valley Regional District

**Ryan Durand**

Terra Environmental

**Rick Van Kleek**

Investment Agriculture Foundation of BC

