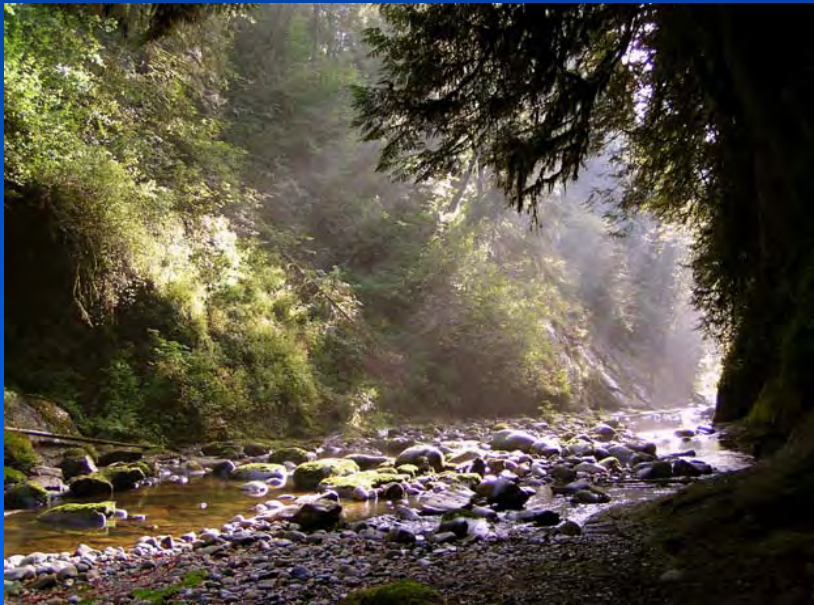


# Environmental Sensitive Area (ESA) Review



Prepared For  
The Community of Maple Ridge



# Overview

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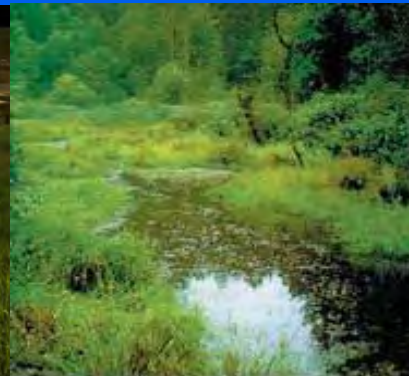
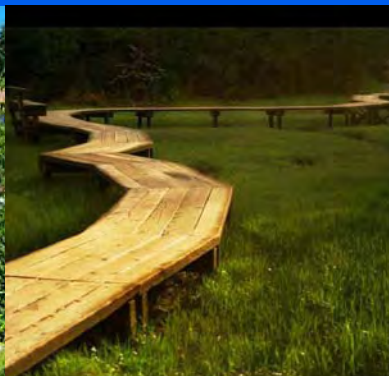
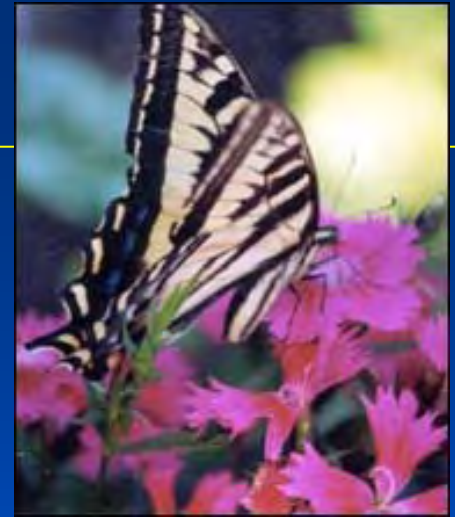
1. Why Are We Here?
2. What Is The ESA Mapping Project?
3. How Can It Help Us?
4. The Next Steps



# Natural Capital

## Nature's Green Services

- Air and Water Quality
- Bio-Diversity of Flora & Fauna
- Increased Property Values
- Recreation and Tourism Opportunities
- Storm water and Rainwater Management
- Risk Management
- Health and Well Being



# What Do We Value?

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## In The District's Official Community Plan Community Values Include...

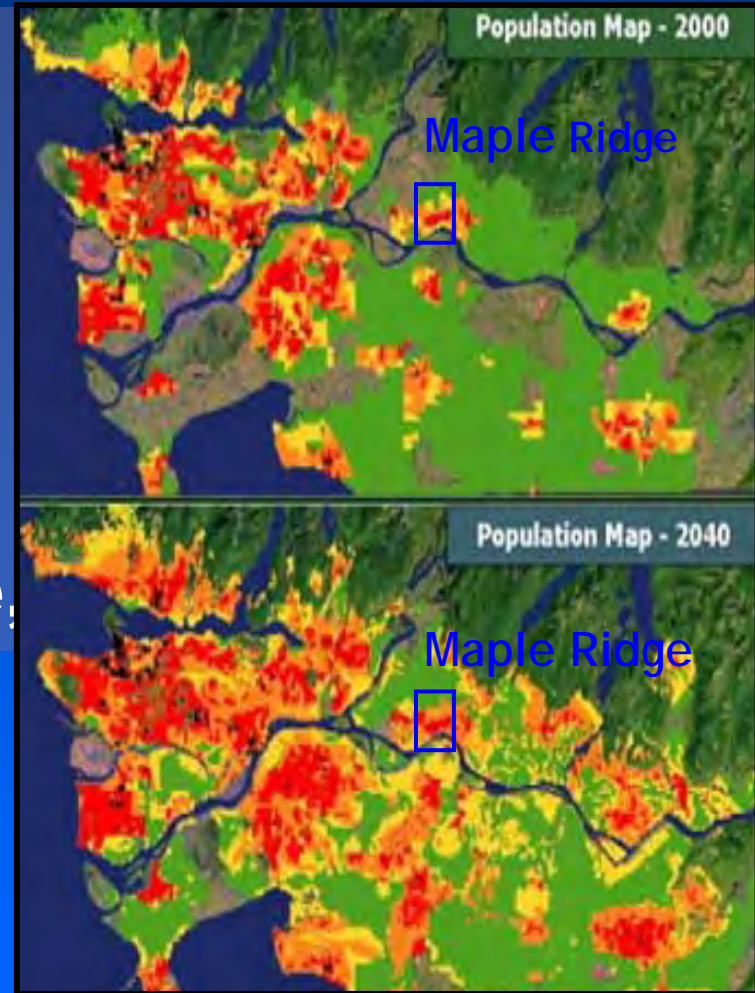
1. Sustainable development and protection of environmentally sensitive areas.
2. Integration of natural features and functions with development through planning and design.
3. A 'smart growth' and pro-active management strategy for our environmentally sensitive areas

# Environmental Concerns:

## Growth Rates – expansion and consumption

### Expected Growth

- 40% population increase for Metro Vancouver in the next 20 years
- Maple Ridge population base is expected to double reaching 148,000 by 2040
  - Stats Canada



# Environmental Concerns: Diminishing Ecosystems and Degradation

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- Loss of Bio-Diversity habitat and species
- Global Warming
- Sprawling Land Consumption Patterns
- Increasing Demands and Ecological Limits
- Quality of Life & Our Connection to Nature



48% of streams in the Lower Fraser Valley are endangered, 23% threatened, and 15% lost, only 14% of the streams are considered wild



# Environmental Concerns:

Local species at risk & endangered habitat continues to rise...



## SPECIES AT RISK

SPECIES AT RISK IN THE GEORGIA BASIN -  
PUGET SOUND ECOSYSTEM



# **Environmental Concerns:**

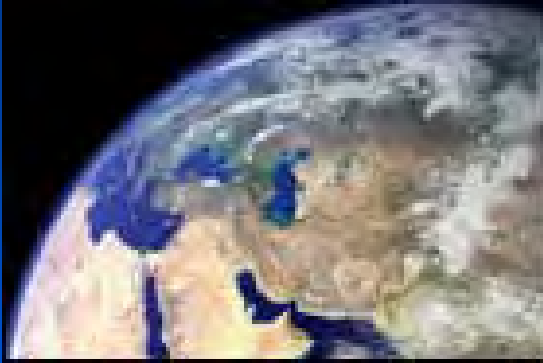
## **Economic and Social Costs ?**

- **Eliminated streams and wetlands**
- **Destruction of forest lands**
- **Lost recreation & eco-tourism opportunities**
- **Stormwater runoff & infrastructure costs**
- **Hazard and risk management buffers**
- **Air quality and water quality concerns**
- **Soil productivity**



# What Can We Do?

## Think Global, Act Locally



### Current Work Completed

- What Do We Have?
- What Condition Is It In?

### The Next Steps

- Step 2. What Do We Value?
- Step 3. How Do We Get There?



# What Have We Done?

In 2005, Council directed staff to carry out an ESA Mapping Project to...

1. Define the significance of environmental sensitive areas (ESA).
2. Identify the location and condition of ESA's.
3. Develop the ESA mapping system to be accessible for pro-active decision making.

# The ESA Framework

## The Three Stages of the ESA Review

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- ✓ Phase I. Define Project Framework  
(2005) and Implement Data Collection Strategy
- ✓ Phase II. Design A Municipal ESA Mapping  
(2007) and Information Management System
- Phase III. Develop an ESA Management Strategy  
(2009)



# **Stakeholders and Standards:**

## **1. Senior Government Agencies**

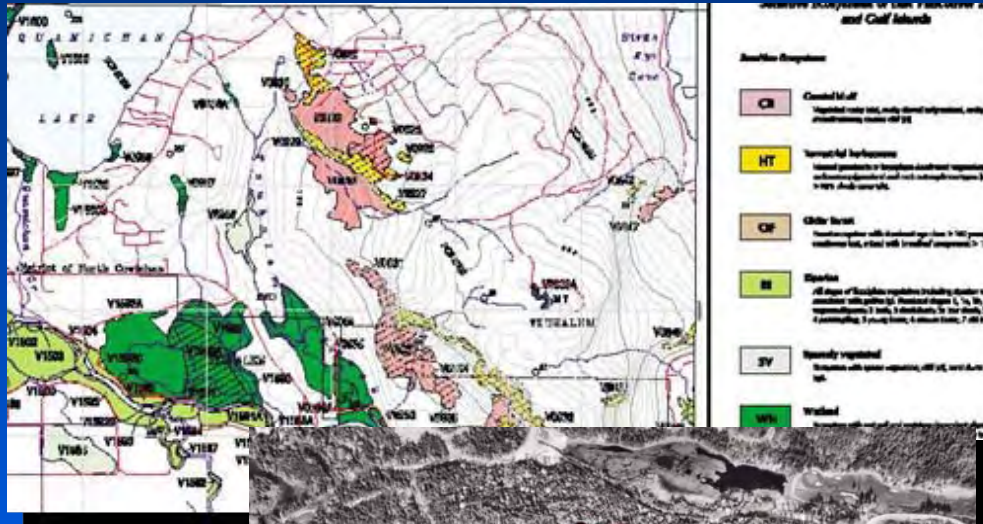
- **Federal Agencies:** DFO, Canadian Wildlife Service, Environment Canada
- **Provincial Agencies:** Ministry of Water, Land, and Air Protection

## **2. Regional Government: GVRD Biodiversity Conservation Project**

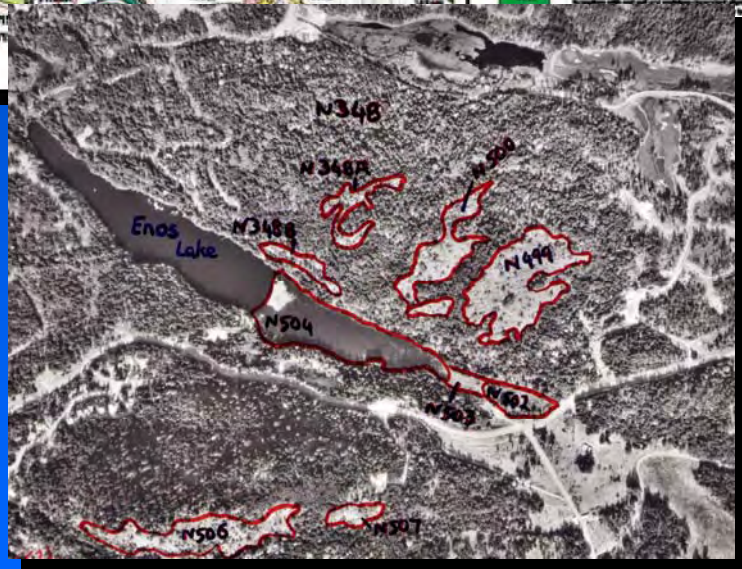
## **3. District of Maple Ridge professional studies**

## **4. Local Stewardship Groups: ARMS, KEEPS, Haney Horsemen, Alouette Field Naturalists**

# Data Collection and Definitions based on Federal, Provincial, & Regional Standards



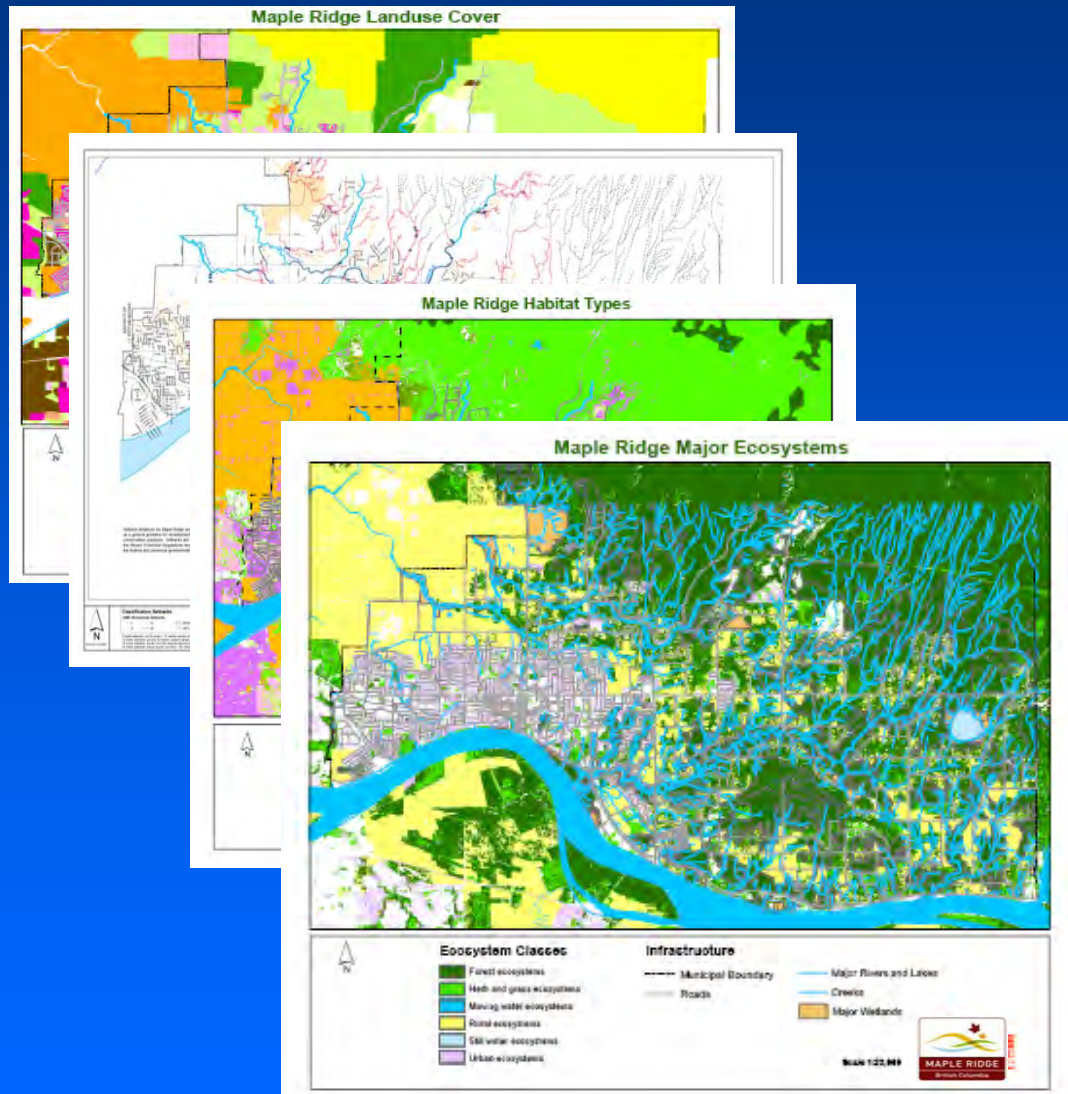
Sample SEI Map



Sample air photo

- Senior Agency data sharing and ESA standards
- Focus on Regional & Municipal significant ecosystems, features, & functions

# What Is ESA Mapping?



It allows us to carry out

- Data Collection
- Information Queries
- Analysis
- Simulation & Forecasting
- Monitoring
- Map Production



# ESA Mapping

**Provides Multi Level  
Maps at Various  
Planning Scales**



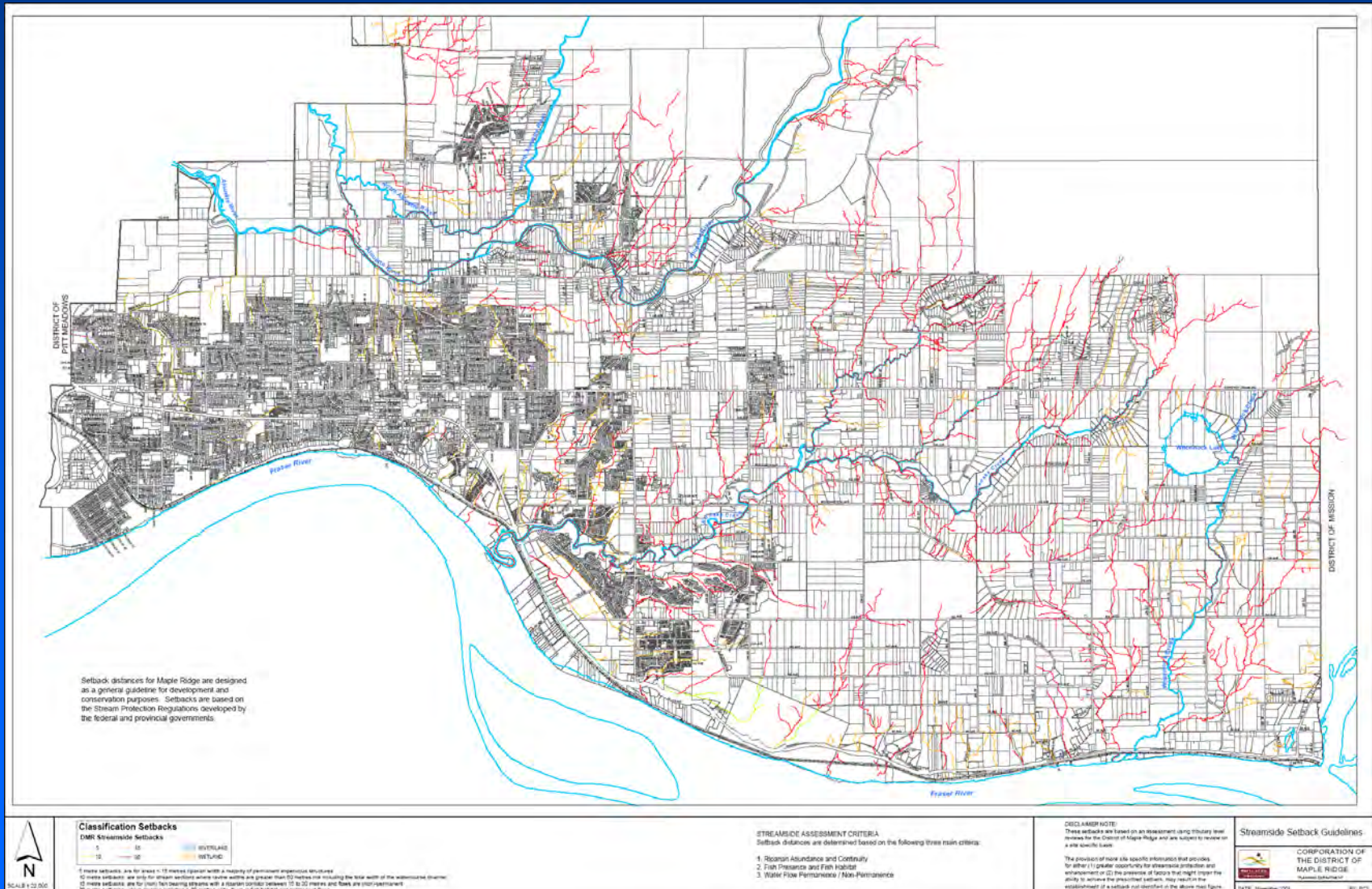
Neighbourhood &  
Site levels





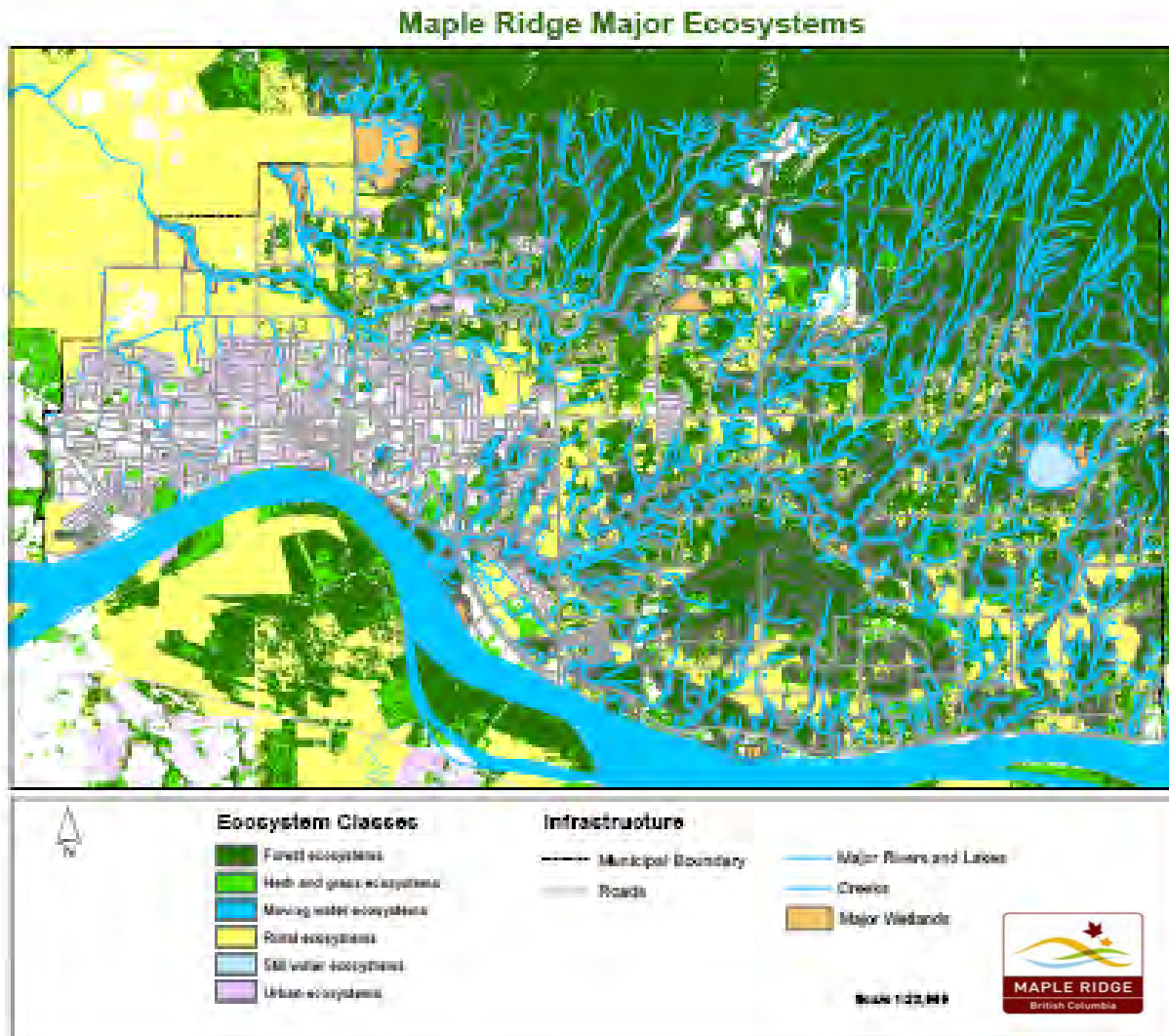
# Current Applications

## Provides Information on Watercourses & Aquatic Habitat To Help Guide Development



# New Applications

## Provides Information On Terrestrial Ecosystems To Help Guide Development



### Major Map Layers

1. Protected Areas
2. Unique Habitat
3. Movement Corridors
4. Natural Features
5. Ecological Functional Systems
6. Potential Hazard or Risk Areas



# ESA Mapping Layers

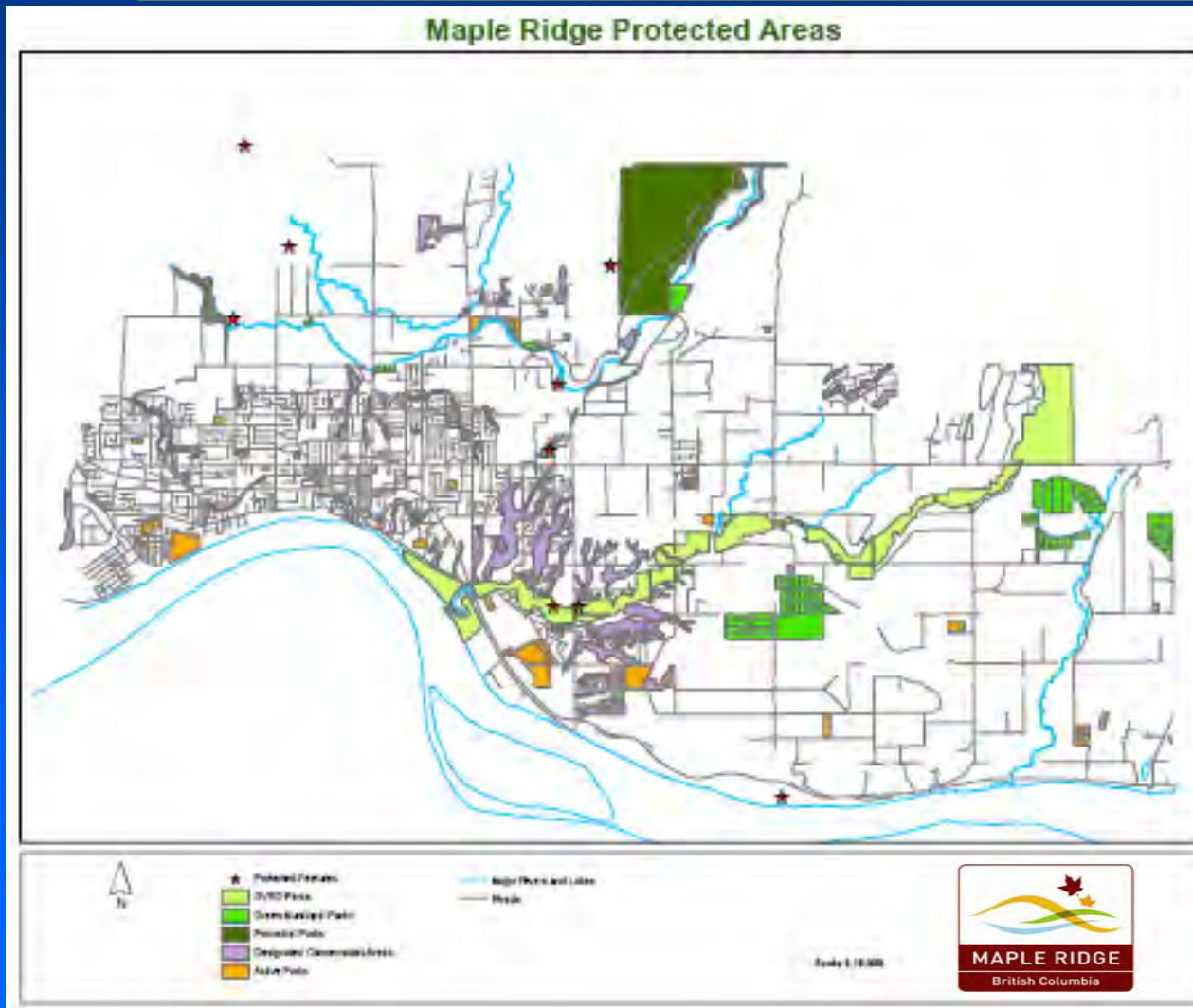
## 1. Protected Areas and Features

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Designated Conservation Areas, Natural  
Park Corridors, and Protected Features



# Municipal Protected Areas Map



- Provincial Parks
- GVRD Parks
- Dedicated Conservation lands
- Covenanted Conservation Areas
- Protected federal and provincial features such as:  
raptor nests,  
heron rookeries,  
watercourses  
wetlands  
lakes

# ESA Mapping Layers

## 2. Significant or Unique Ecosystems:

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- Habitat size; Connectivity; and Continuity.
- Diversity of structure, age, and species
- Disturbance & surrounding land use





# Unique or Threatened Ecosystem Types as defined by federal and provincial agencies

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## Wetlands (WN)



## Riparian (RI)



## Old Forest (OF)



## Deciduous Woodlands (WD)



## Inland Bluffs and Cliffs



Old Field  
Terrestrial Herbaceous

# Tidal Foreshore Areas



# Stillwater Ecosystems



## Mature Mixed Forest (MF)



Seasonal Flooded Fields

# Unique Habitat Areas Map Layer

Maple Ridge Unique Features



## Unique Feature Types

- |                                  |                                     |
|----------------------------------|-------------------------------------|
| • Unique Features                | Riparian Areas                      |
| Old Forest                       | Wetlands                            |
| Mature Deciduous Forest          | Still Water Ecosystem               |
| Mature Mixed / Coniferous Forest | Seasonal Flooded Agricultural Lands |

- Municipal Boundary  
— Route  
— Major Rivers and Lakes

Scale 1:100,000

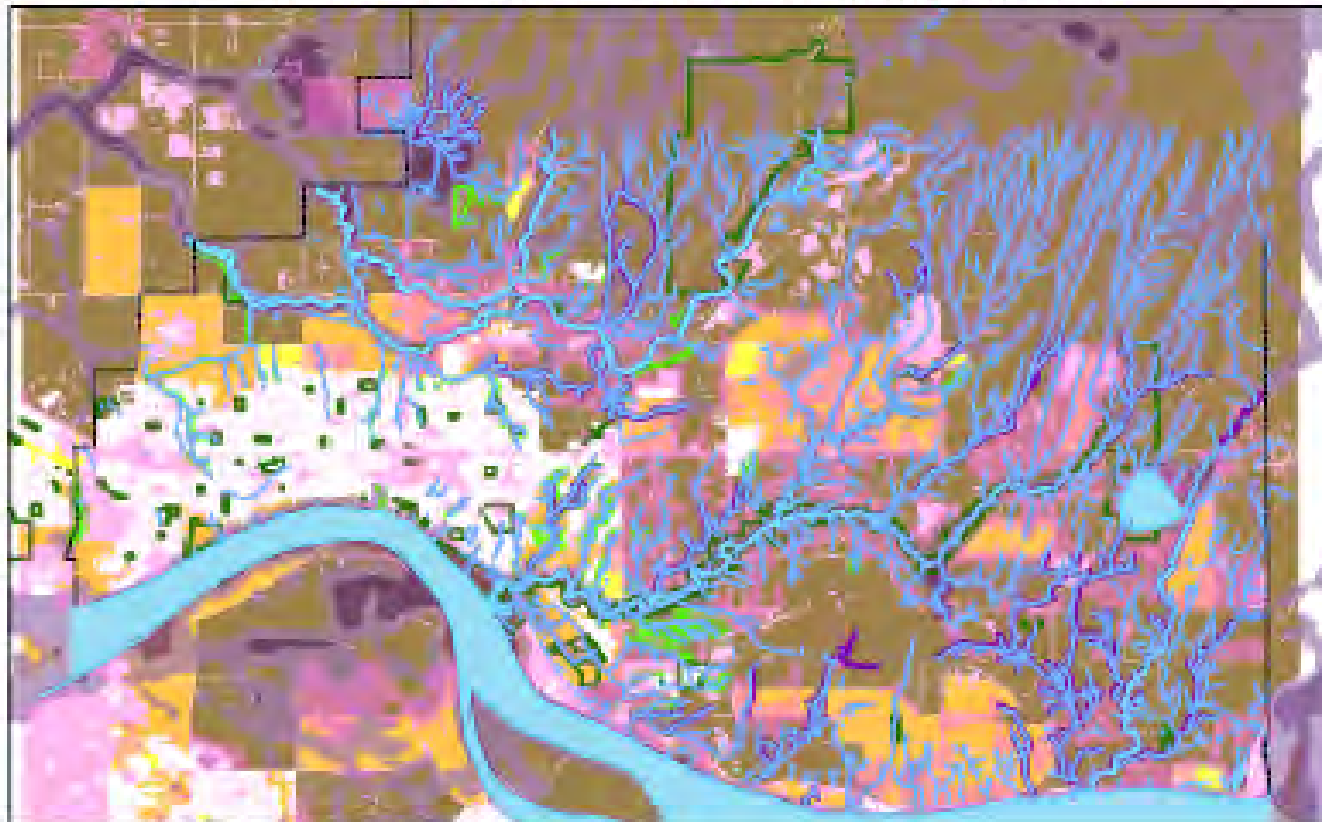


Old Forest  
Mature Forests  
Riparian Areas  
Wetlands  
Stillwater Ecosystems  
Old Field Grasslands

# ESA Mapping Layers

## 3. Movement Corridors and Habitat Size

Habitat Patch Size and Movement Corridors



### Movement Corridors

- moderate significance
- high significance

### Habitat Patch Size

- habitat refuge
- major habitat refuge
- habitat reservoir
- major habitat reservoir

- Municipal boundary
- Equestrian trails
- Major rivers and lakes
- Creeks

- Conservation area
- Active parks
- Buildup areas



Scale 1:35,000

### Habitat Patch Size ranges:

- 2 - 200 hectares

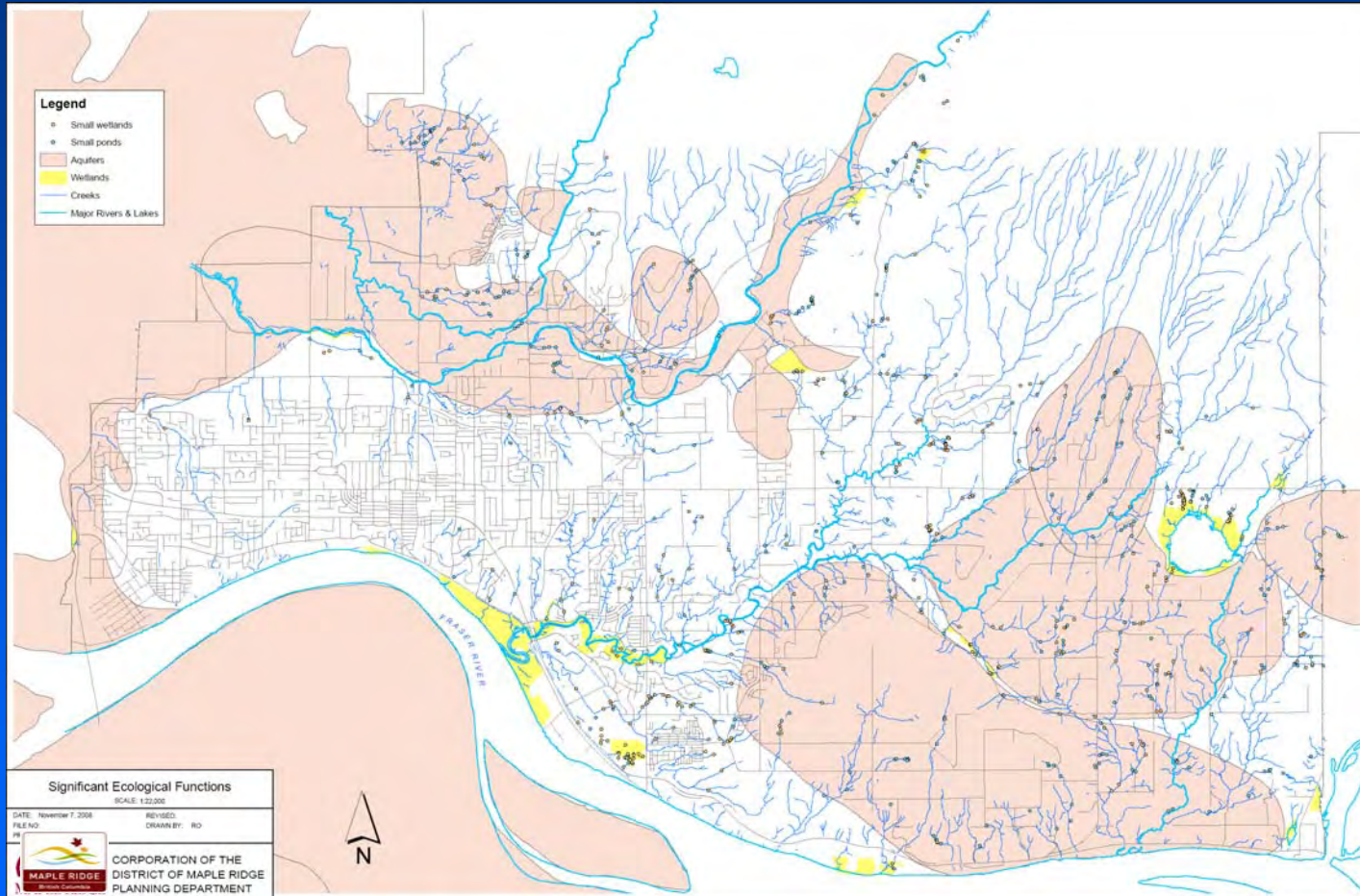
### Movement Corridors:

- Riparian corridors
- Utility corridor
- Naturalized ROWs & trails
- Historic Fields and grasslands



# ESA Mapping Layers

## 4. Significant Ecological Systems



Wetlands

Aquifers

Streams

Foreshore

Tidal Areas

Floodplains

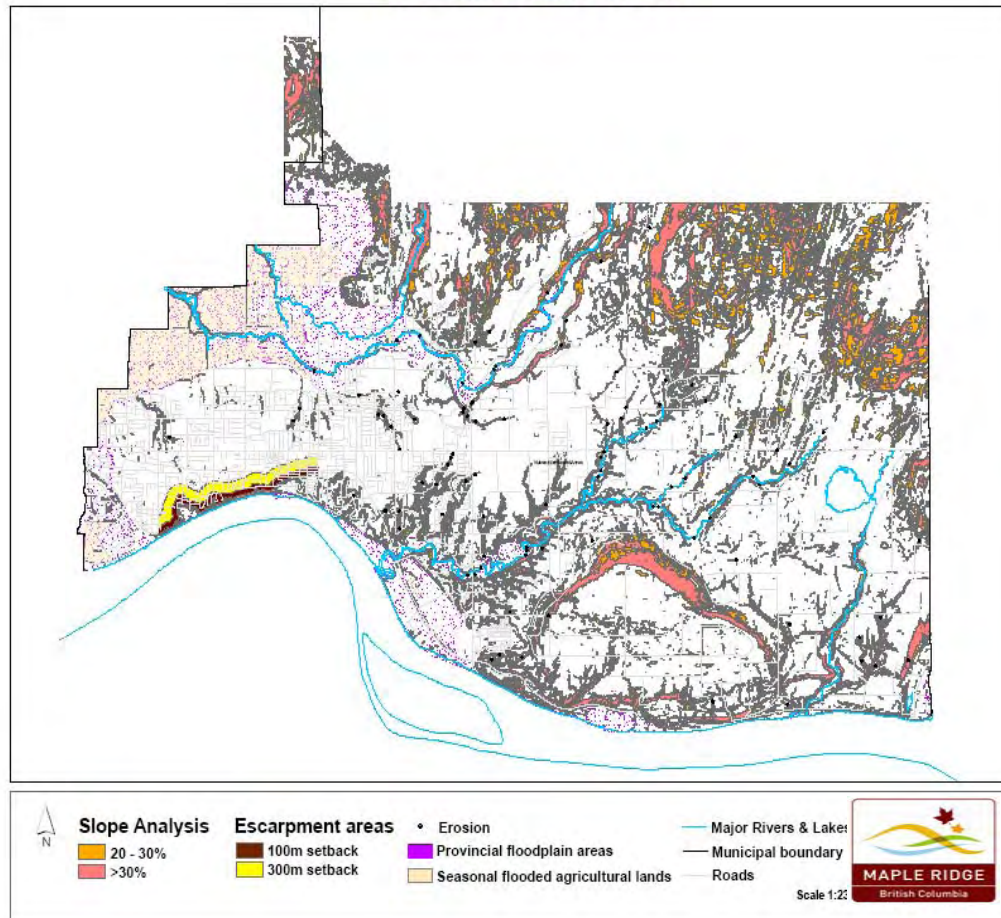
Lakes

Ponds

# ESA Mapping Layers

## 5. Potential Hazard or Vulnerable Areas

Terrestrial Hazard Areas



### Potential Risk Areas

- Steep Slopes
- Floodplain Areas
- Major Erosion Sites
- Contaminated Sites
- Geotechnical Zones

# Current Implications of ESA Maps

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## 1. ESA Mapping is designed to help ...

- Identify existing opportunities and constraints of landscapes at various scales to help encourage sustainable development choices.

## 2. ESA Mapping is not designed to ...

- **Be Site Specific.** Qualified professional consultants determine site specific information, impacts, and potential mitigation requirements.
- **Place a moratorium or additional restrictions on developable lands** other than what is already legislated or regulated.



# Benefits of the ESA Mapping work

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## 1. Provides Valuable Baseline Info on...

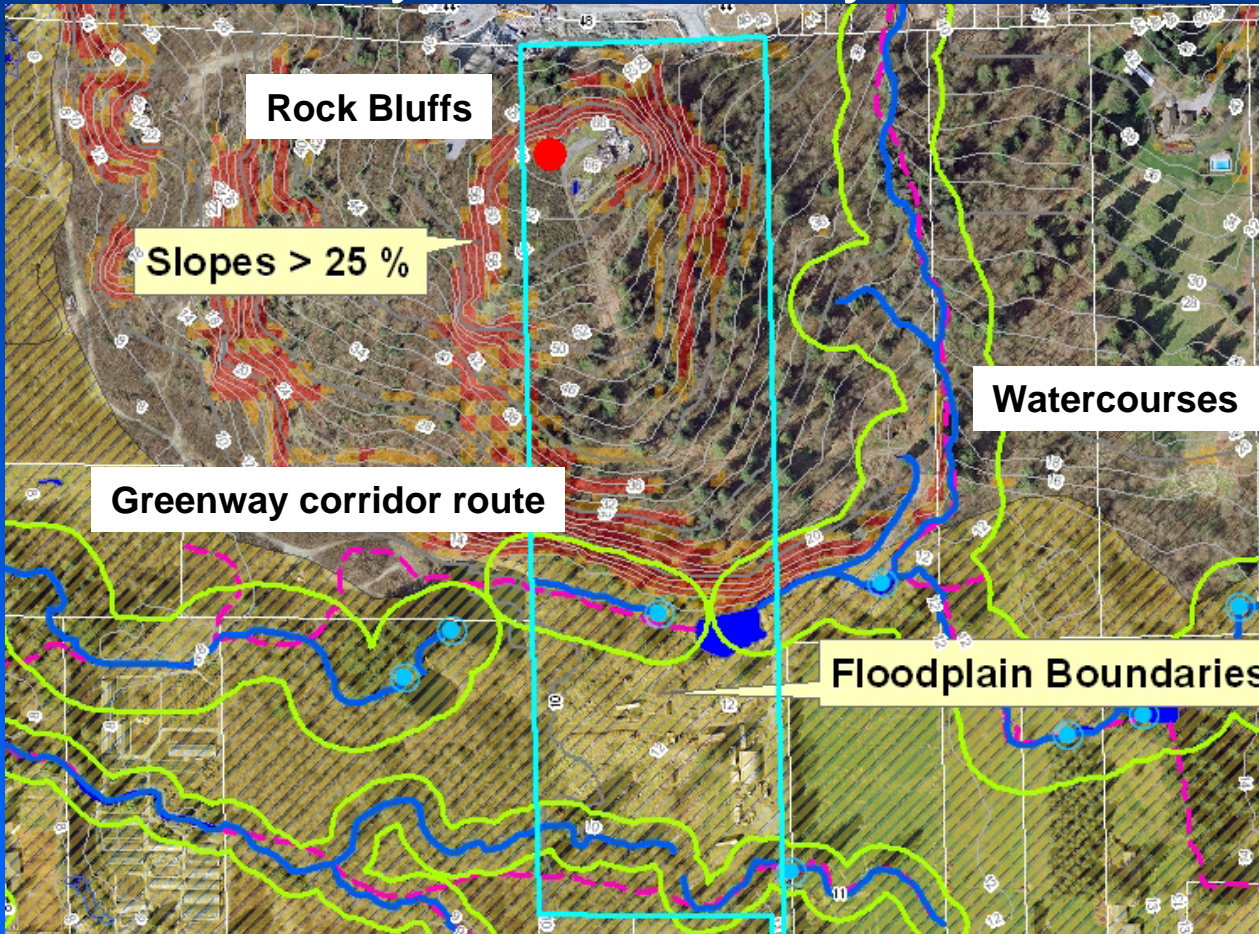
- Existing Protected Areas or Features;
- Potential Unique or Significant Habitat areas;
- Potential Hazards or Vulnerable areas;
- Potential Enhancement & Restoration opportunities;
- Possible Greenbelt Movement corridors.

# Provides Valuable Baseline Information At Different Scales

## Case Study: Silver Valley

### Baseline Information

- a) Watercourses
- b) Steep Slopes
- c) Floodplain Area
- d) Public Trail & Wildlife Greenbelt Corridors
- e) Enhancement & Restoration potential for fish habitat area



“Helps promote comprehensive plans and avoid a piecemeal approach to development”

# Benefits of the ESA Mapping Work

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## Encourage Innovative Site Design and Sustainable Development Practices for...

- Risk Management and Public Safety
- Biodiversity Conservation
- Park Dedication and Open Space Areas
- Stormwater and Rainwater Management
- Significant Connectivity or Greenway Corridors
- Enhancement and Restoration Opportunities.

“Fit the development to the landscape” – ecological planning



# Potential Development Opportunities

## Integration of Natural Services

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Desirable Park and  
Conservation lands



Greenway Corridors



Integrated Stormwater Management

# **Benefits of the ESA Mapping Work**

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## **3. Identifies Potential Impacts & Information Gaps**

- **Determines types of studies and level of detail required for each site;**
- **Identifies potential impacts, mitigation and restoration required;**
- **Encourages appropriate site design & building form;**
- **Provides monitoring potential over time.**

# Encourages Low Impact Development & 'Smart' Neighbourhood & Site Plans

Integration of existing green features and services into a development often makes sense and saves tax payers significant dollars





# Benefits of ESA Mapping Work

## 4. Socio-Economic Benefits

- Increase in park and open space areas
- Increase in aesthetic, recreational, and eco-tourism values for community
- Highly effective contribution to improving water quality
- Effective risk management tool
- Carbon sequestration, air quality improvements, and energy conservation.
- Increase in property values around green belts and natural features



# The Next Steps For the ESA Study

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## Step 1. Public Open House

Public review of existing ESA Mapping Layers.

## Step 2. Council Endorsement of the ESA Mapping as an information resource for the development of a Municipal Environmental Management Strategy.

## Step 3. Develop ESA Management Strategies with community involvement and professional support.

# Potential ESA Management Strategies

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1. Determine if current planning tools need updates or amendments including...
  - Policies;
  - Bylaws; and
  - Development Permit guidelines.



# Potential ESA Management Strategies

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## 2. Expand ecological planning strategies:

- Explore strategies that strive to protect unique or valuable natural places and a diversity of species for our enjoyment and for future generations to come;
- Continue to invest in a green economy promoting eco-friendly businesses, eco-tourism, agriculture, consumer education, (e.g. green building technologies);
- Facilitate urban ecology programs to reduce our ecological footprint and promote positive integration of nature within developable areas and access to these features and spaces;
- Encourage local enhancement and restoration opportunities including promotion of urban forestry, urban agriculture, and naturescaping practices.

# Potential ESA Management Strategies

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3. **Incentives** for land owners and developers supporting compact ecological communities or protection of non-legislated ESA's;
4. **Partnerships** with senior agencies and other organizations that promote sustainable watershed management plans for surrounding areas and incorporation of best management practices.
5. **Investment in Environmental Education** including community outreach and stewardship opportunities.

# What Are The Next Steps?

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**Step 6. Continue to Support Council To Invest In  
The Environment For Our Enjoyment And  
For Future Generations To Come.**

**Thank You For  
Your Support**