Environmental Management Framework







A Brief Overview For Maple Ridge

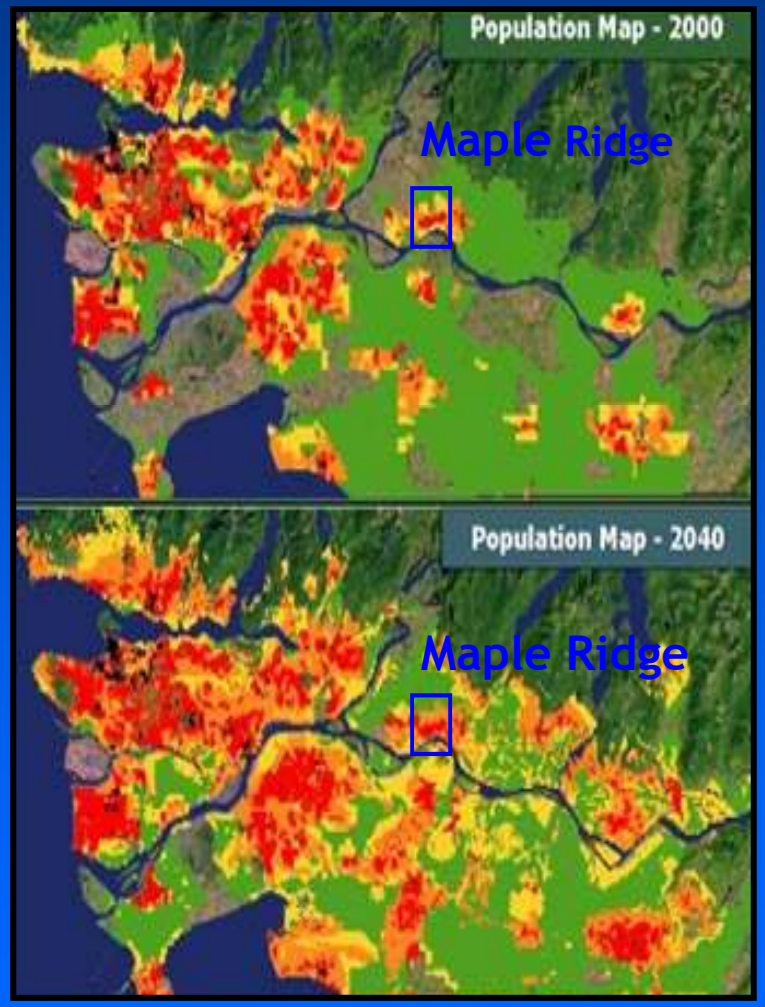
MAPLE RIDGE
British Columbia

Overview

1. Existing Environmental Framework
2. Integrated Environmental Solutions
3. A Municipal Ecological Management Strategy
4. The Next Steps?

Maple Ridge Context

- Population around 70,000 for Maple Ridge in 2006 reaching 148,000 by 2040
- Intend to absorb 50% of new dwelling units in town centre in response to public support for infill strategy
- Climate change influence on storm events, drought, wildfire
- Increasing development pressure , fragmentation of landscape, ecological health



Official Community Plan
An Environmental Framework

- ✓ OCP. (2004) — **Environmental Background Report**
  Background Paper For Major Issues, Information Gaps, and Priorities for the Community

- ✓ OCP. (2005) — **Adoption of Official Community Plan**
  Integrated Approach with Focus on Ecological Planning For Land, Water, and Air Resources

Principal Environmental Goals of OCP

- Protect significant ecosystems in the Municipality
- Anticipate and respond to impacts of climate change on land, water, and air resources;
- Determine guidelines and standards that are necessary to protect and manage in and around environmentally sensitive areas;
- Identify situations where additional environmental studies or assessments are required as part of the development process; and
- Maintain and improve ecosystem health and human safety.

What Is The Vision?

OCP Environmental Principles and Objectives

1. Value the essential services that nature provides us with;
2. Protect ecological networks, species, and their habitat to promote biodiversity;
3. Build ecological resilience;
4. Connect people and Nature;
5. Foster ecological innovation and integration

The Environmental Framework
Strategies and Evolution of Programs

- ✓ Phase I. (2000) Bio-physical Inventory and Survey Of Significant Environmental Features, Functions, and Sensitive Areas

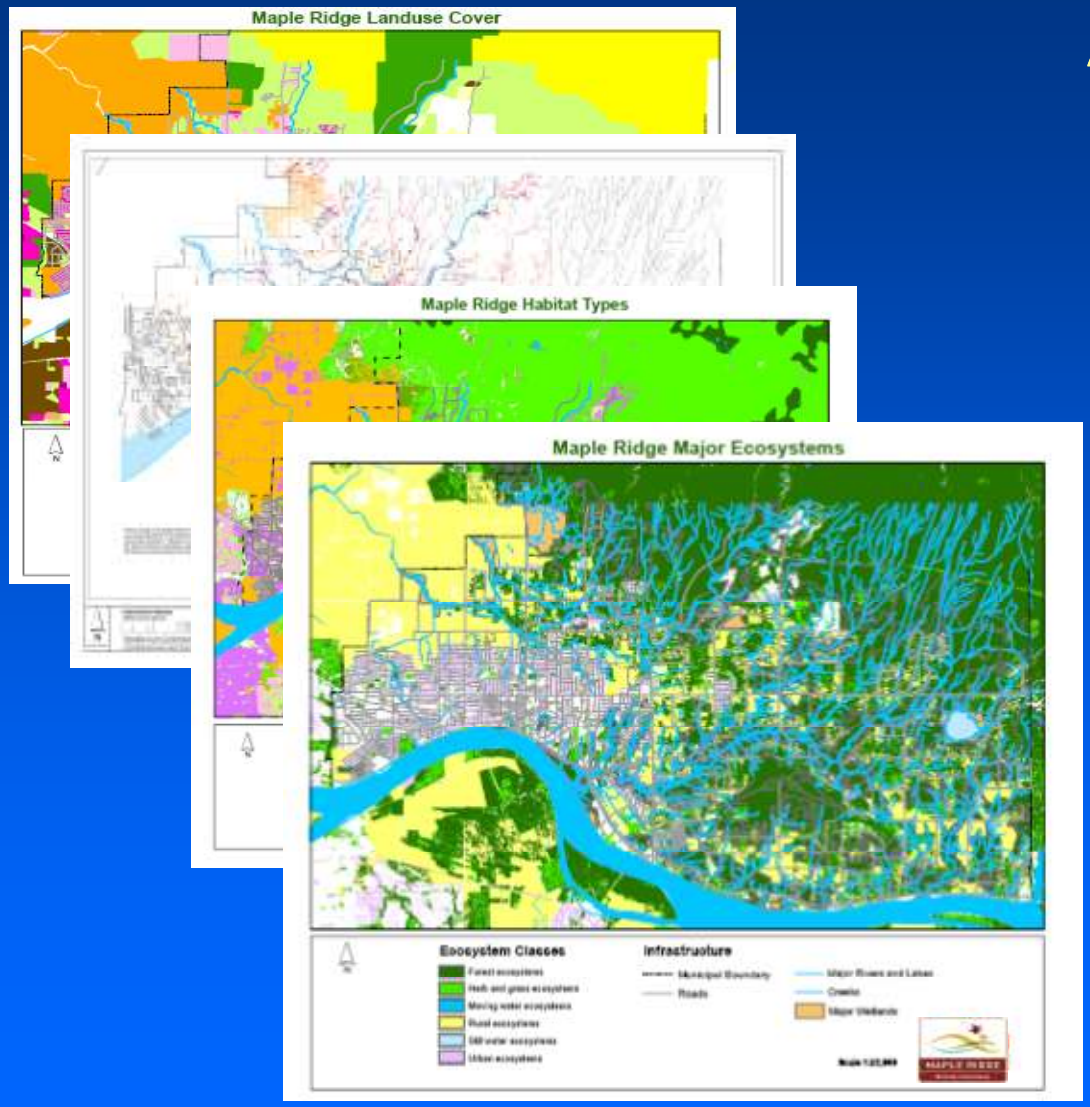
- ✓ Phase II. (2004) Develop A Municipal Environmental Mapping and Information Management Support System for Development Review and for Community Stewardship

- ✓ Phase III. (2005) Develop An Integrated Environmental Policy and Regulatory Framework For the District

Phase IV. (2006 -) Develop Environmental Development Permit Review Process to Help Guide Sustainable Development, and Encourage Conservation Enhancement Opportunities

Phase V. (2008 -) Develop An Ecological Management Information System And Implementation Strategy To Promote Conservation Networks, Hazard Abatement, and Awareness

Integrated Environmental Solutions



Application Principles

- Appropriate Technology
- Quick and Easy Queries and Access To Info
- Integrated Analysis
- Simulation & Forecasting Capability
- Recognized Standards
- Multiple Scales

Appropriate Technology and Innovative Solutions

High End GPS With Digital Photos

- **GPS With Real Time Correction**
- **Hand Held Computer Technology**
- **Digital Photography**

Remote Sensing Technology

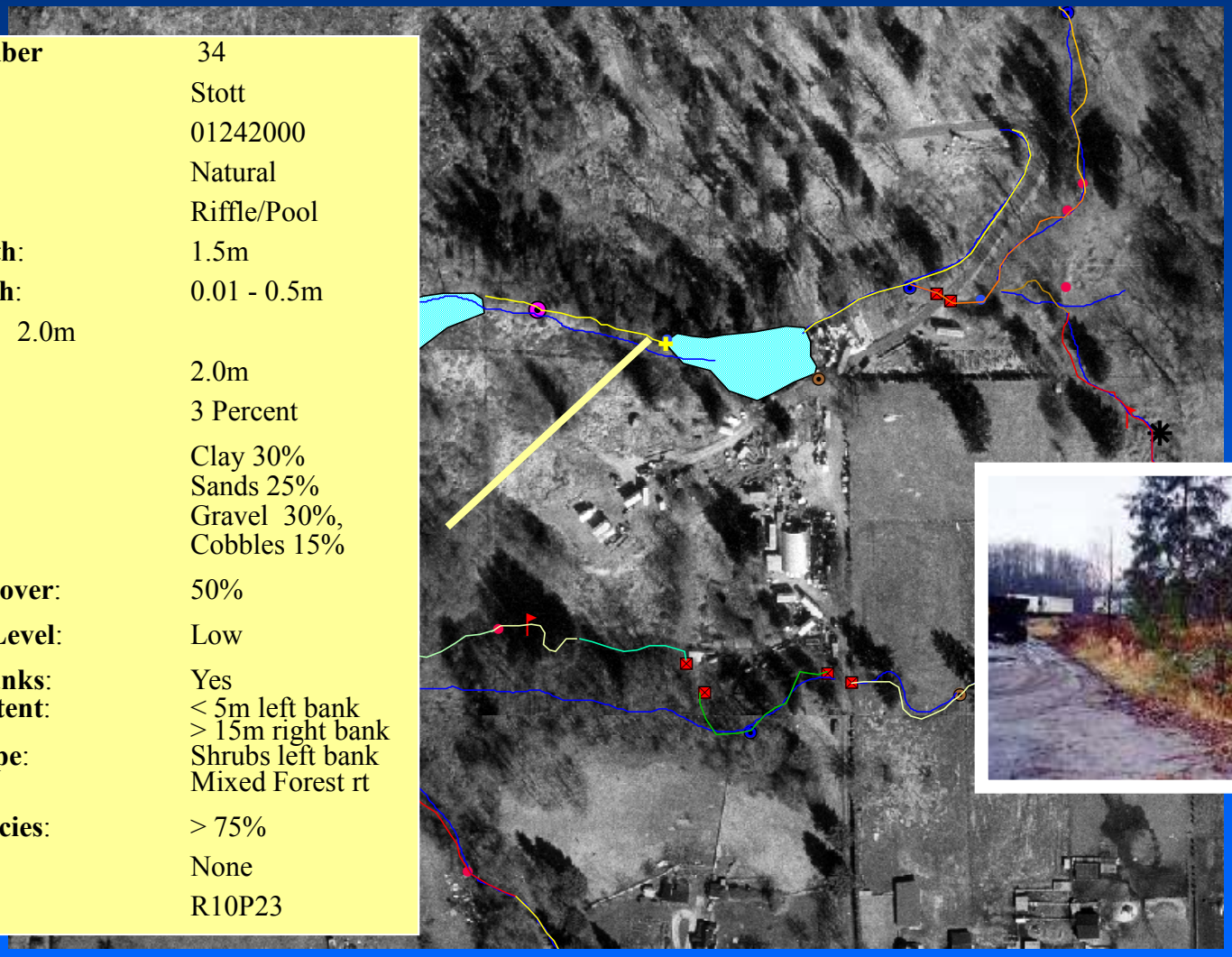
Geographic Information Systems

National, provincial, and regional awards for collaborative community based efforts, innovative information systems sustainable action strategies

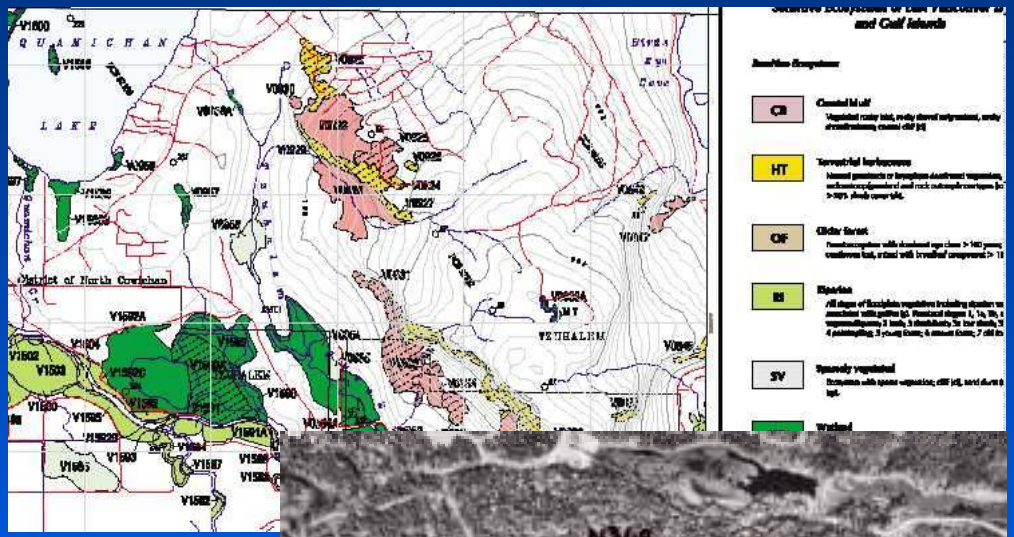
Reliable and Useful Information

Example Of Watercourse Section Profile

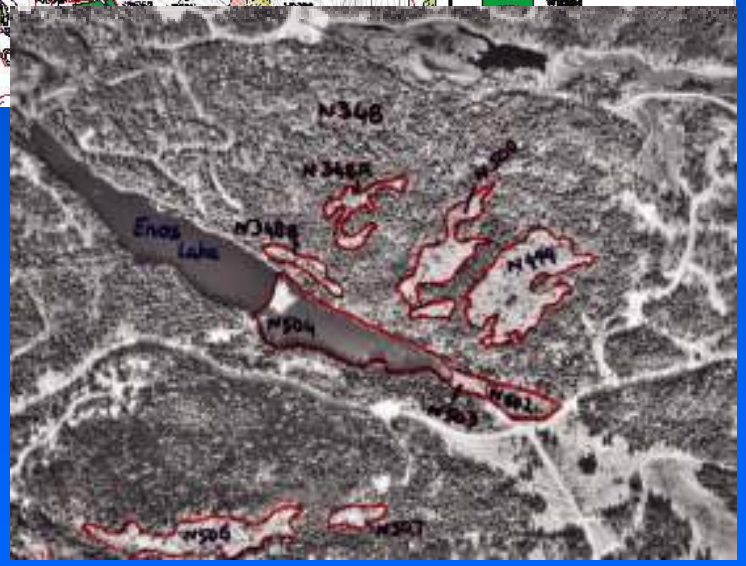
Section Number	34
Crew:	Stott
Date:	01242000
State:	Natural
Flow Type:	Riffle/Pool
Wetted Width:	1.5m
Wetted Depth:	0.01 - 0.5m
Bank Width: 2.0m	
Bank Depth:	2.0m
Gradient:	3 Percent
Substrate:	Clay 30% Sands 25% Gravel 30%, Cobbles 15%
Vegetative Cover:	50%
LOD/LWD Level:	Low
Undercut Banks:	Yes
Riparian Extent:	< 5m left bank > 15m right bank
Riparian Type: bank	Shrubs left bank Mixed Forest rt
Invasive Species:	> 75%
Comment:	None
Photo:	R10P23



Data Collection and Methodologies based on Federal, Provincial, & Regional Standards



Sample SEI Map



Sample air photo

Environmental Standards Based On:

- Senior Environmental Agencies (DFO, Environment Canada, Ministry Environment)
- Regional Government

Community Consultation

- Encourage interactive and collaborative process (staff, decision makers, neighbourhoods, stewardship groups, business community) to generate civic support and education

- Focused around citizen involvement workshops and design charrette (use maps and pictures to tell a story)

- Consultation follows through to approval and implementation

Multiple Scales of Review for Landscape

Environmental Mapping Provides Multi Level Perspective For Different Users and Issues

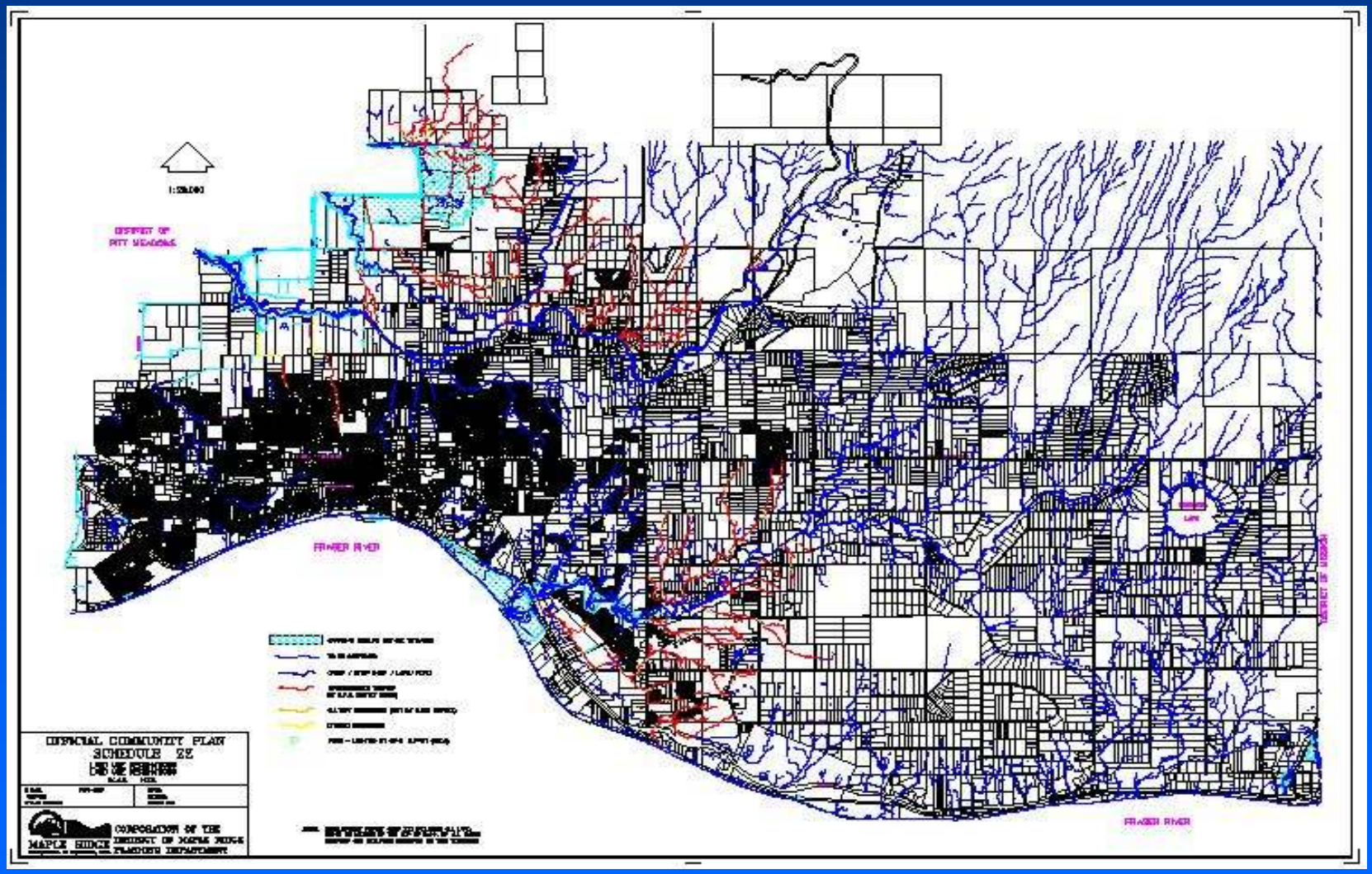
Variety of issues, users, priorities, relationships, and opportunities at a variety of scales

Environmental Applications At Different Scales

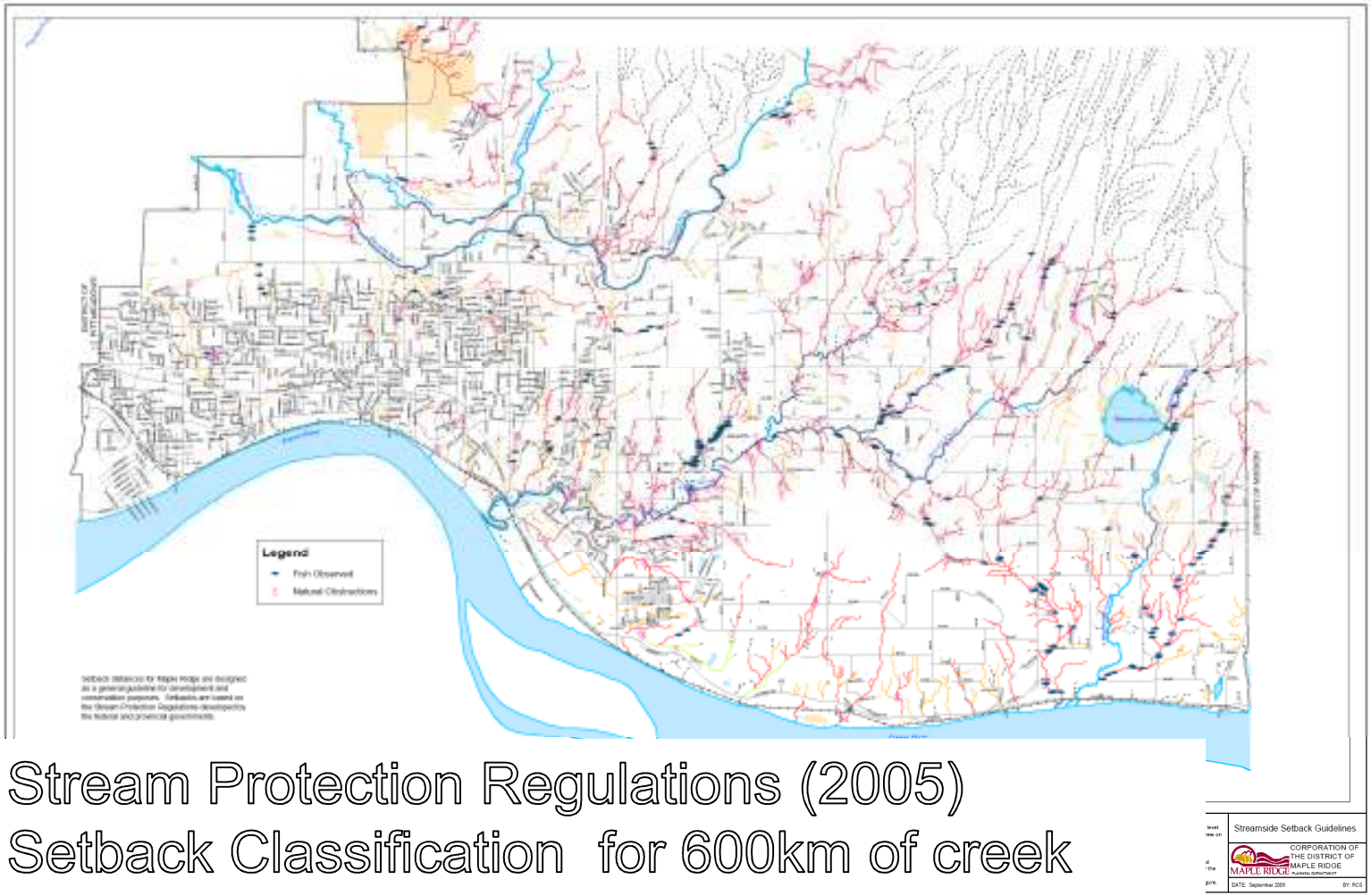
Mapping Systems Provides Valuable Baseline Information At Variety of Scales on…

- Existing Protected Areas or Features;
- Biodiversity - Unique or Significant Habitat areas;
- Hazard Mitigation and Risk Management;
- Potential Enhancement & Restoration opportunities;
- Community Greenbelt Network Strategy
- Rainwater and Stormwater Management Solutions

Goal One.
Protect, and Enhance Significant Features



Watercourse Protection Program (SPR)



Stream Protection Regulations (2005)
Setback Classification for 600km of creek

Community Greenway Corridors

250 kilometres of multi use trail network for Maple Ridge

Community Greenways & Protection Programs

Watercourses, Wetlands, Lakes, & Major Corridors

PARTNERSHIPS

GVRD/METRO

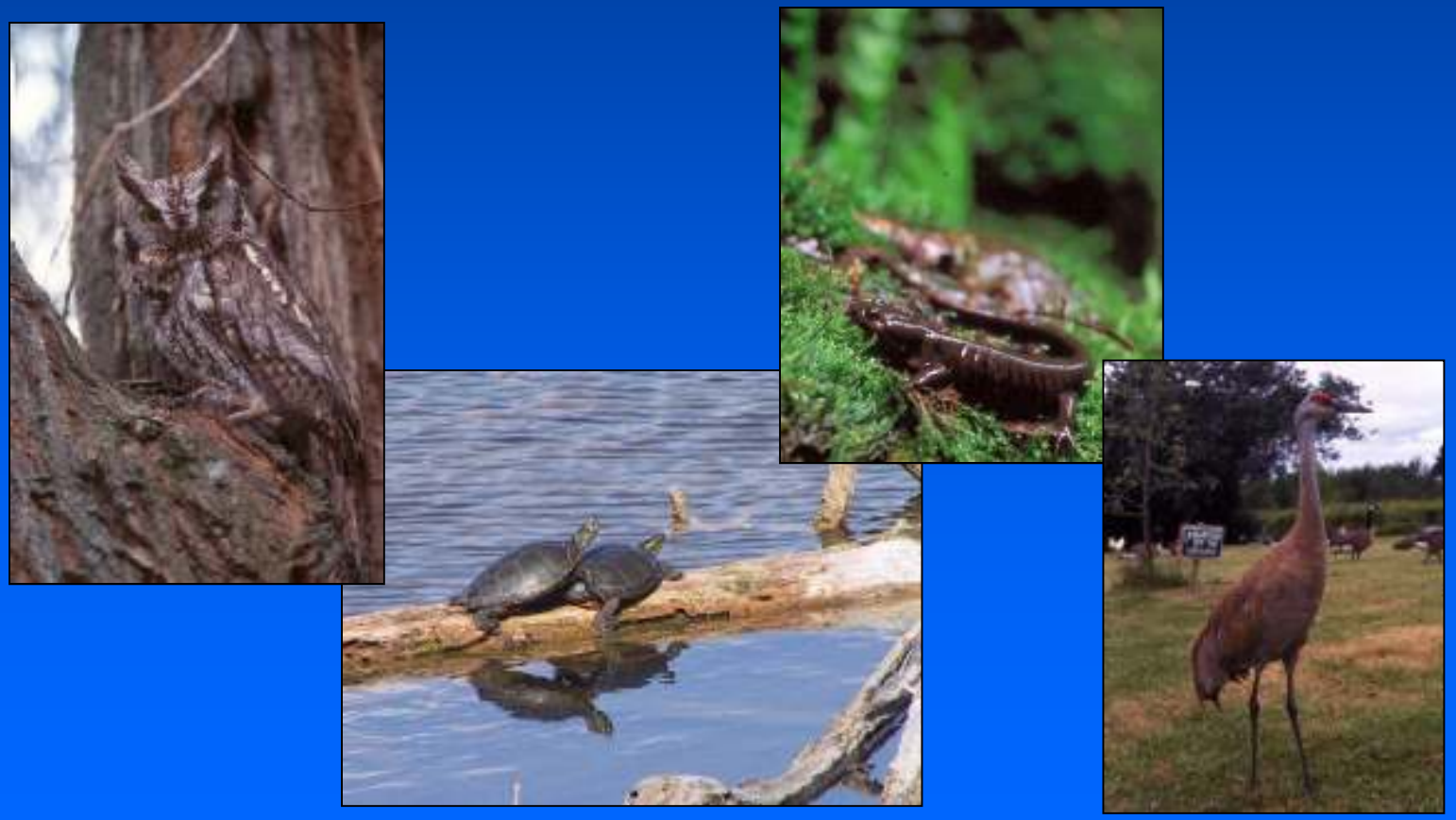
District Maple Ridge

Land Trusts

Private Owners

Protected Species and Species At Risk

Identify Designated Conservation Areas, Potential Special Areas, and Protected Species

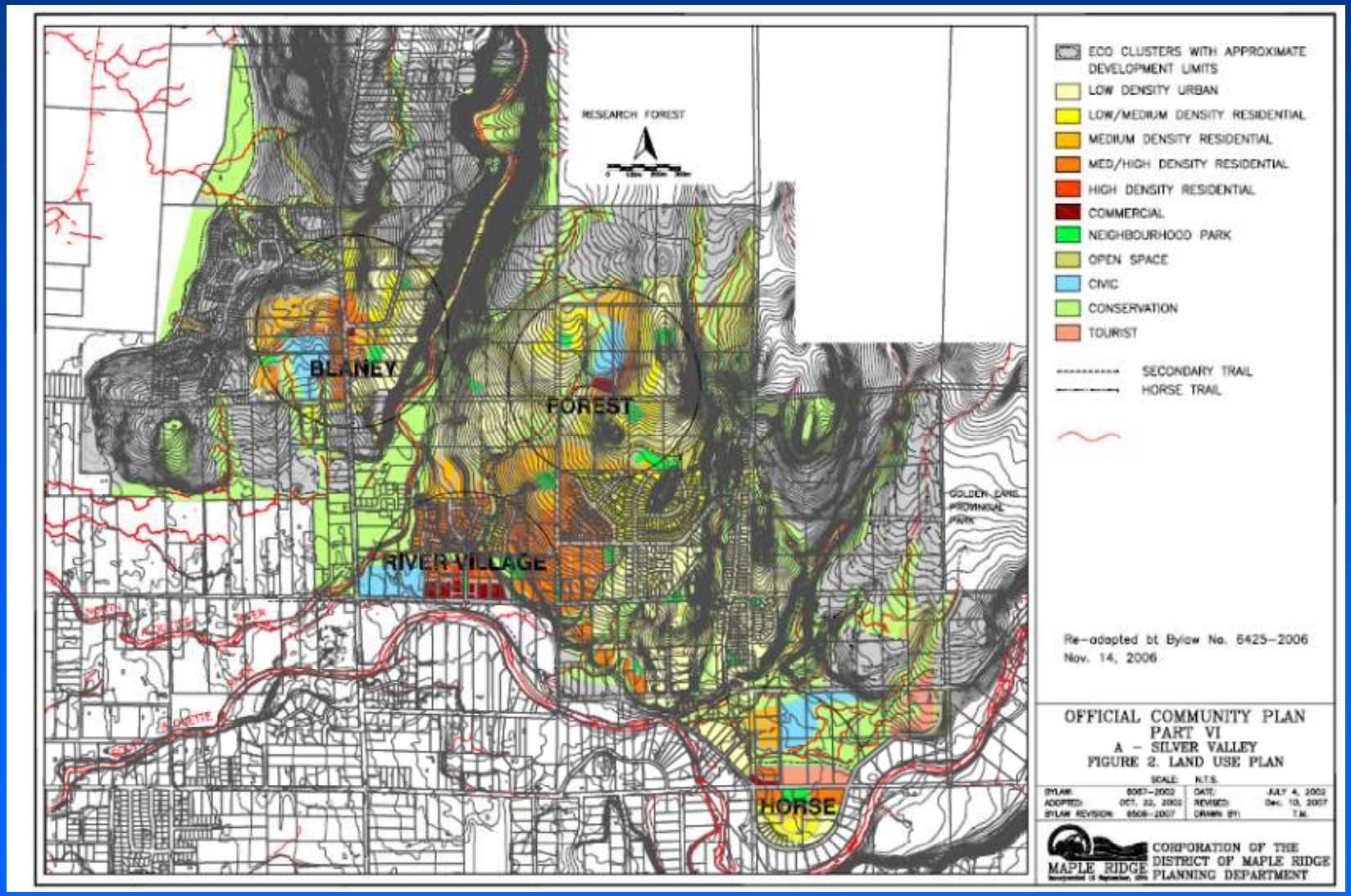


Enhancement and Restoration Opportunities

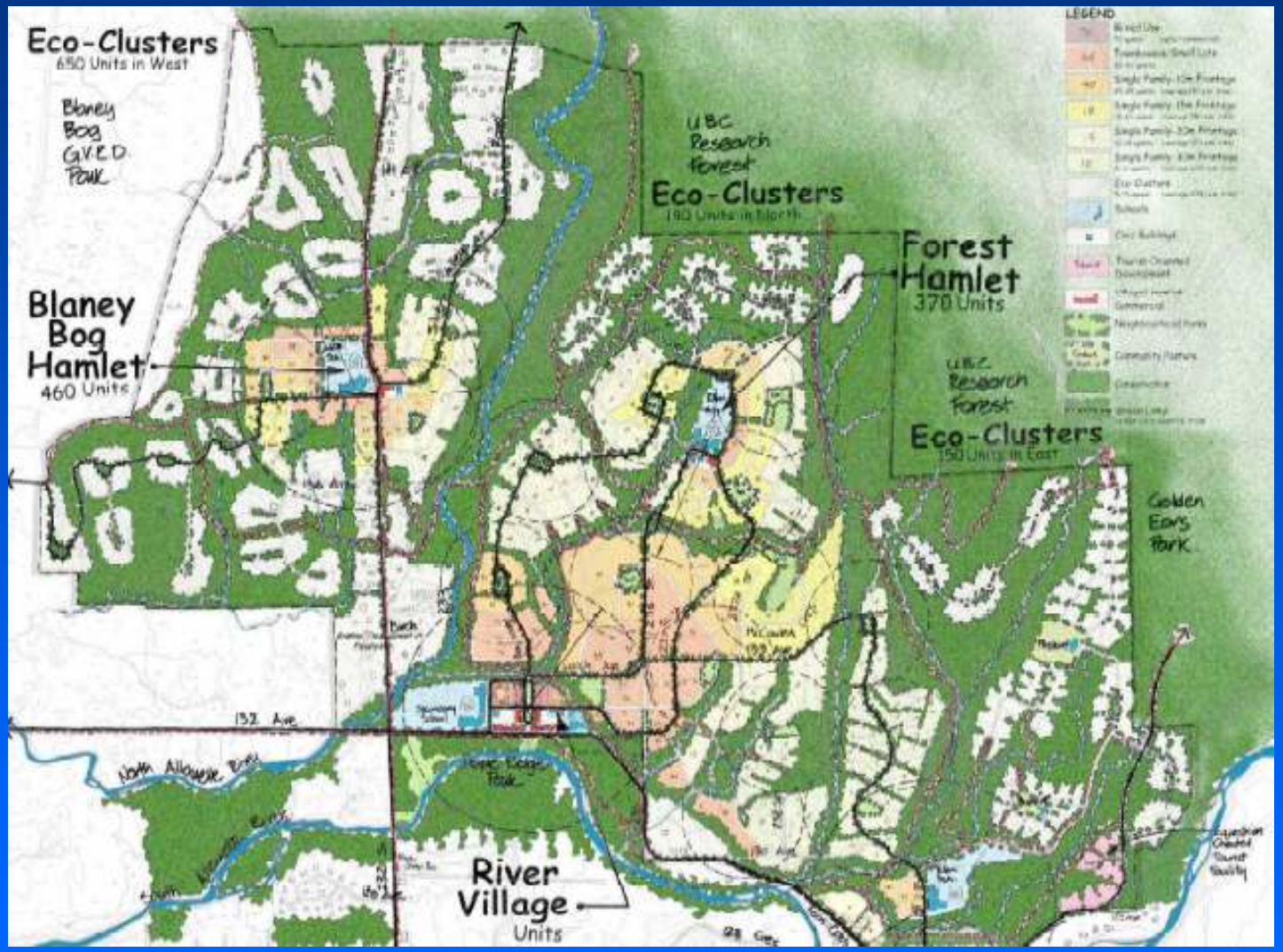
Enhancement Potential

- Community Stewardship enhancement & education programs
- Invasive vegetative species management strategy
- Regional and Municipal conservation management strategy partnerships
- Regulatory requirements and BMP's for developers around enhancement opportunities
- Re-forestation program and Carbon sequestration credits

Goal Two
Help Guide Smarter Development and Design For Sustainable Communities

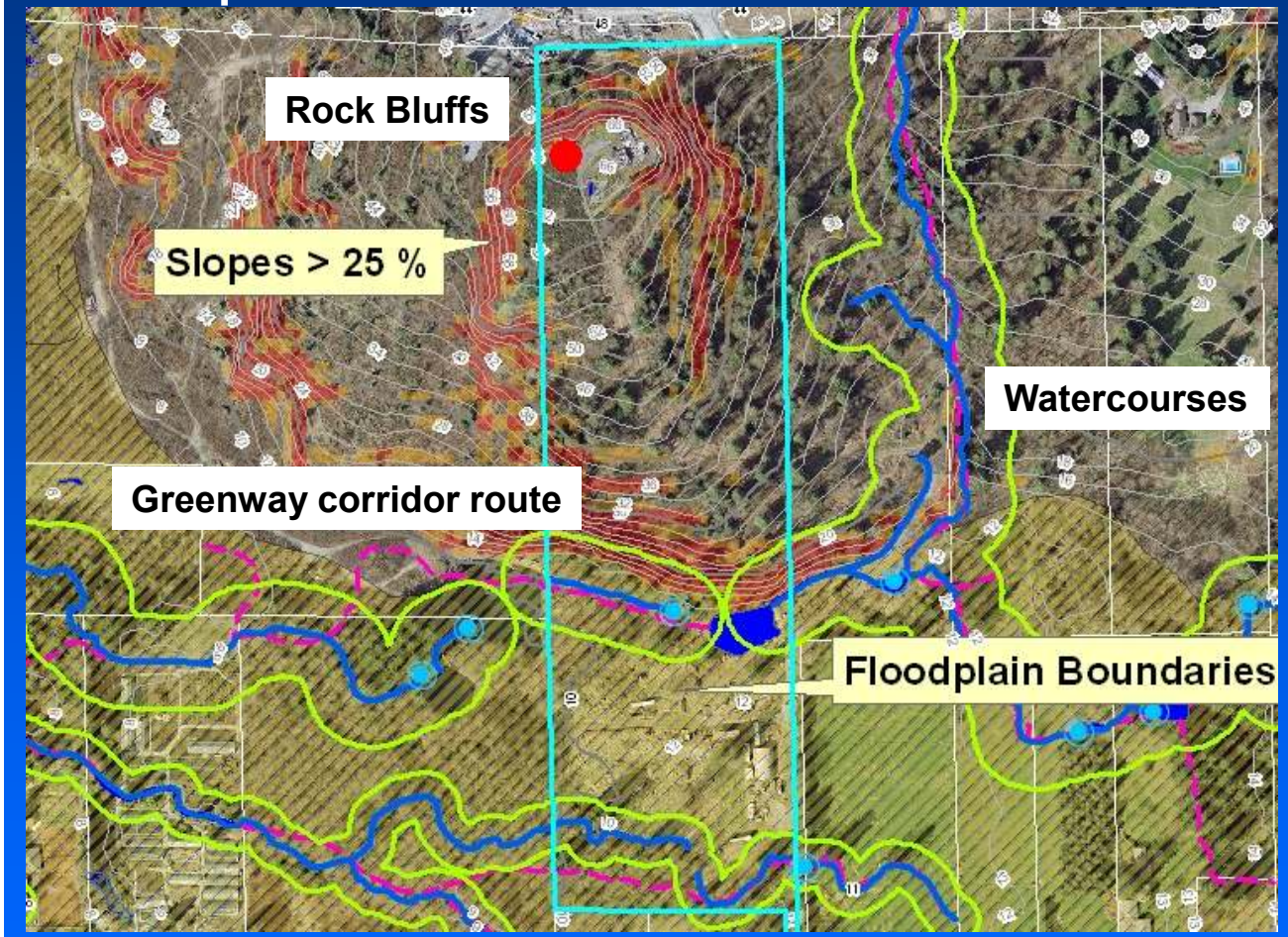


Neighbourhood Plans and Eco-Clusters



Ecological Planning For Site Design: Fit The Development To The Landscape

Comprehensive Assessments



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"

Holistic Solutions & Smarter Site Design

Case Study: Nelson Peaks

Ecosystem Planning - Encourage integrated thinking and work with natural environment

Innovative site design, roads, servicing, & building form.

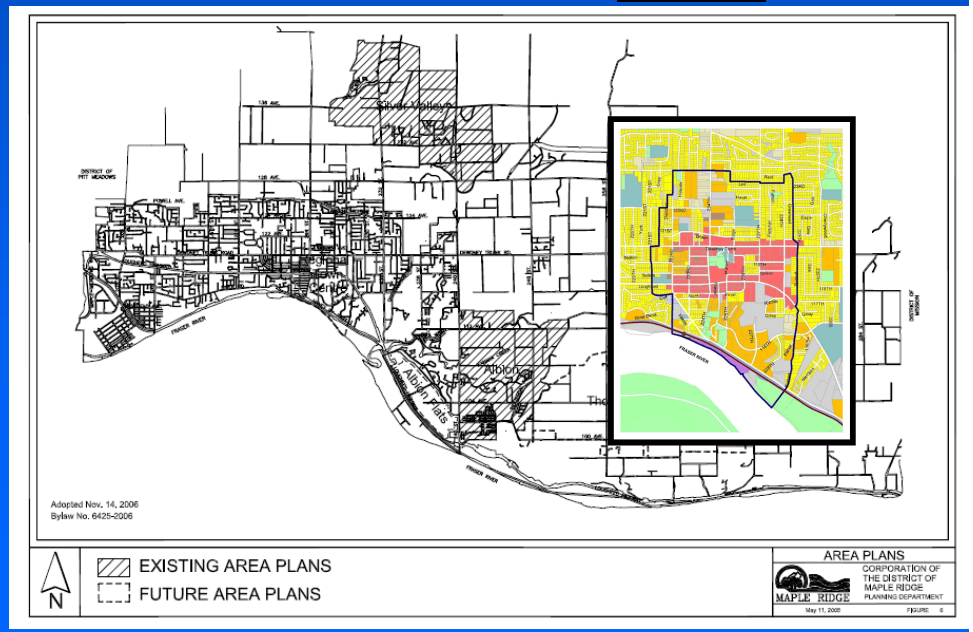
Facilitate movement corridor linkages for fish, wildlife and humans

Enhancement and Restoration improvements for fish and wildlife habitat

Sustainable Smart Growth Plans For Town Centre

- Vehicle to pursue innovative design in town centre and focus on containment boundaries to reduce sprawl.

- Promote and encourage green infrastructure as well as foster urban ecology opportunities in town centre.



Smart Growth on the Ground for Maple Ridge

Smart Growth Guiding Principles

1. Each neighbourhood is complete
2. Options to cars exist
3. Work in harmony with natural systems
4. Buildings and infrastructure are greener
5. Housing serves many needs
6. Jobs are close to home
7. Neighbourhoods are distinctive and vibrant
8. Everyone has a voice.

Goal Three.
Integrate And Value The Services That Nature Provide Us With

Assess, Plan, & Design For Multiple Social, Economic, and Environmental Benefits At The Various Levels

Risk Management

Rainwater and Storm Water Management

Community Greenways

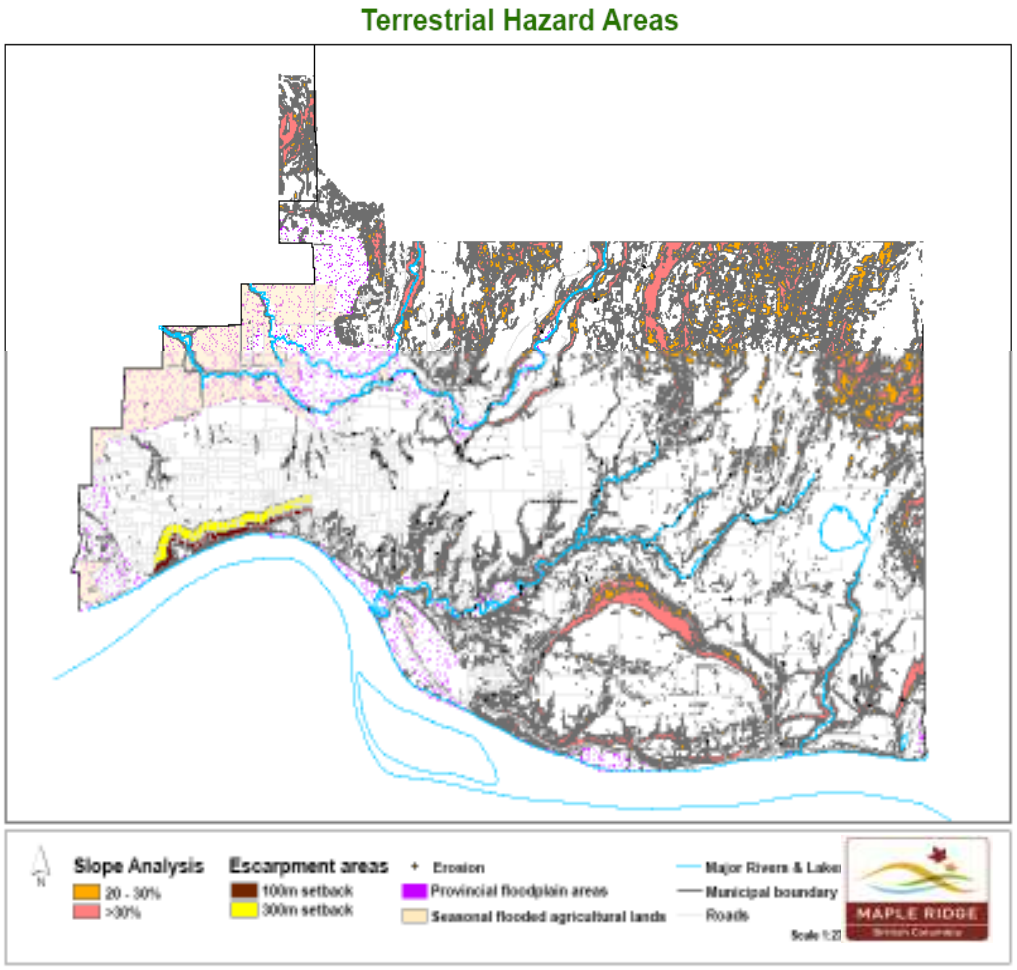
Carbon sequestration

Energy and Water Conservation

Eco Tourism and Recreation

Health and Connectivity to Natural Places

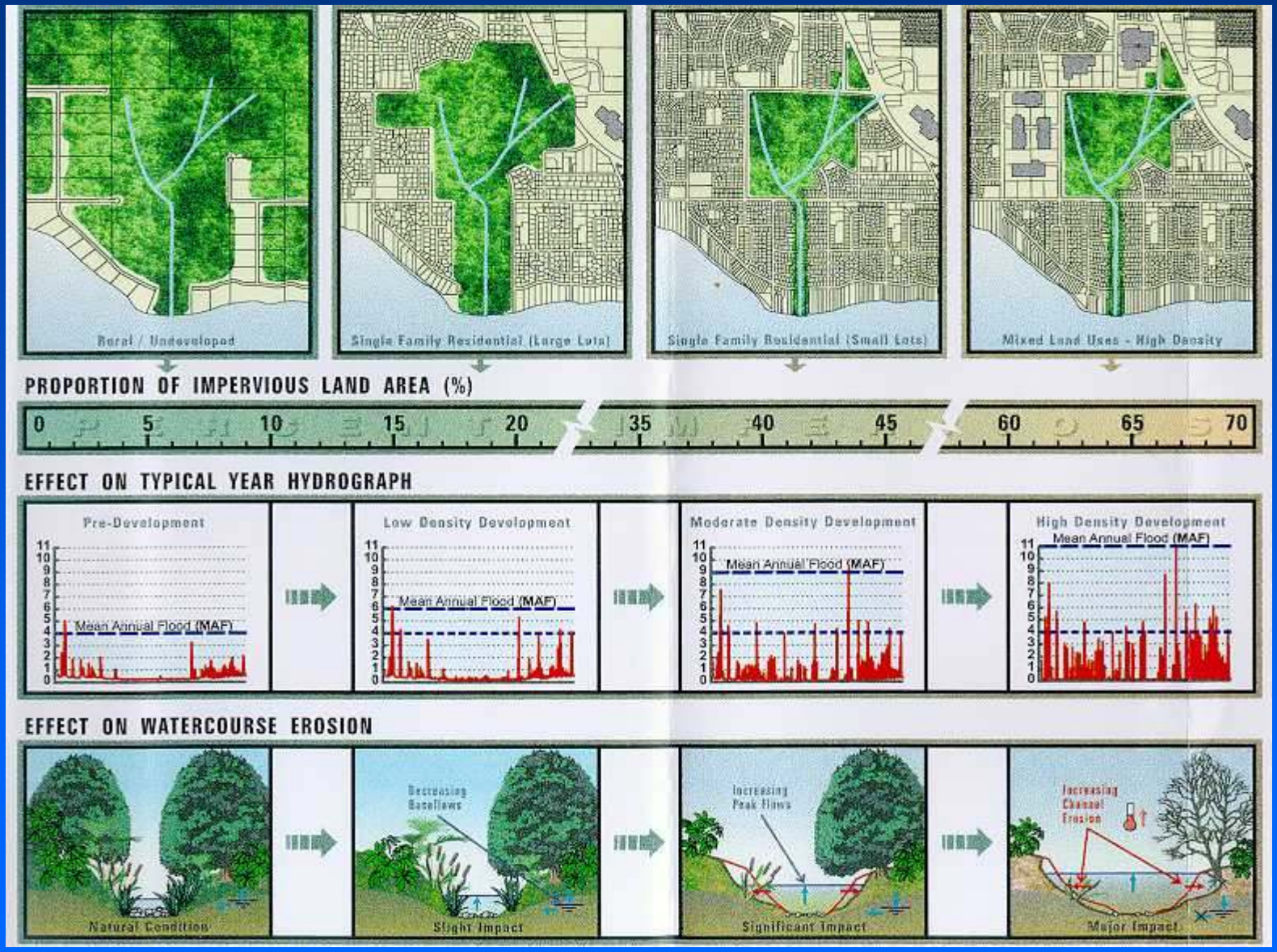
Potential Hazard Management Areas



Potential Hazards

- Steep Slopes
- Floodplain Mgmt
- Major Erosion
- Wildfire Interface
- Geotechnical Issues
- Wildlife Interface
- Windfall/Blowdown

Ecological Planning Approach
Value and Integrate Natural Services



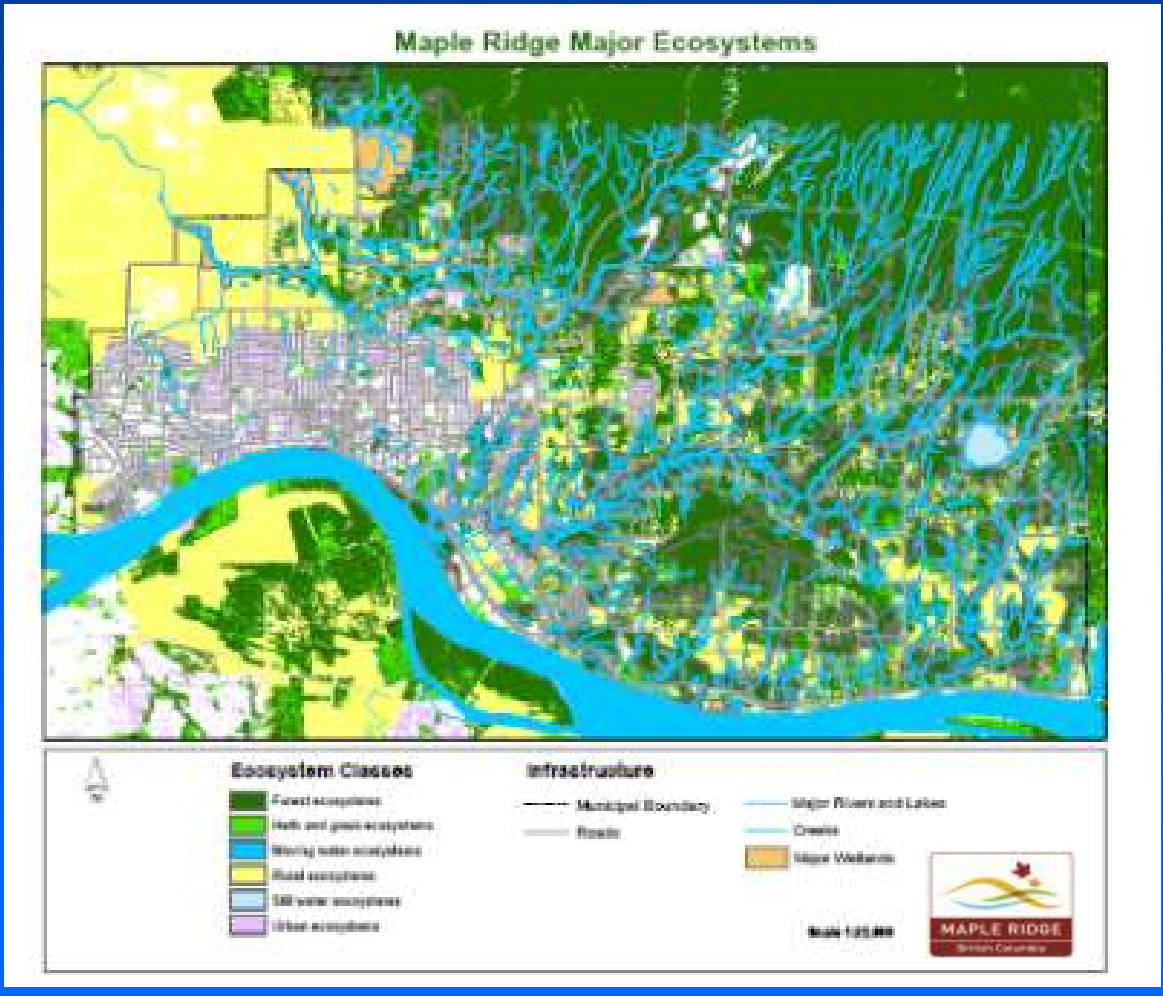
Innovative Solutions And Requirements For Designing With Nature

Case Study: Silver Valley

- Integrated Stormwater Plans
- Rainwater Site Source Solutions
- Green Building Standards
- Eco Cluster Concepts
- Hillside Protection DPA
- Greenway corridor networks
- Street Tree Program
- Riparian Protection Zones (SPR)
- Open Space

Goal Four.
Understanding And Planning For A Healthy Relationship With The Environment

ECOLOGICAL PLANNING AND MANAGEMENT

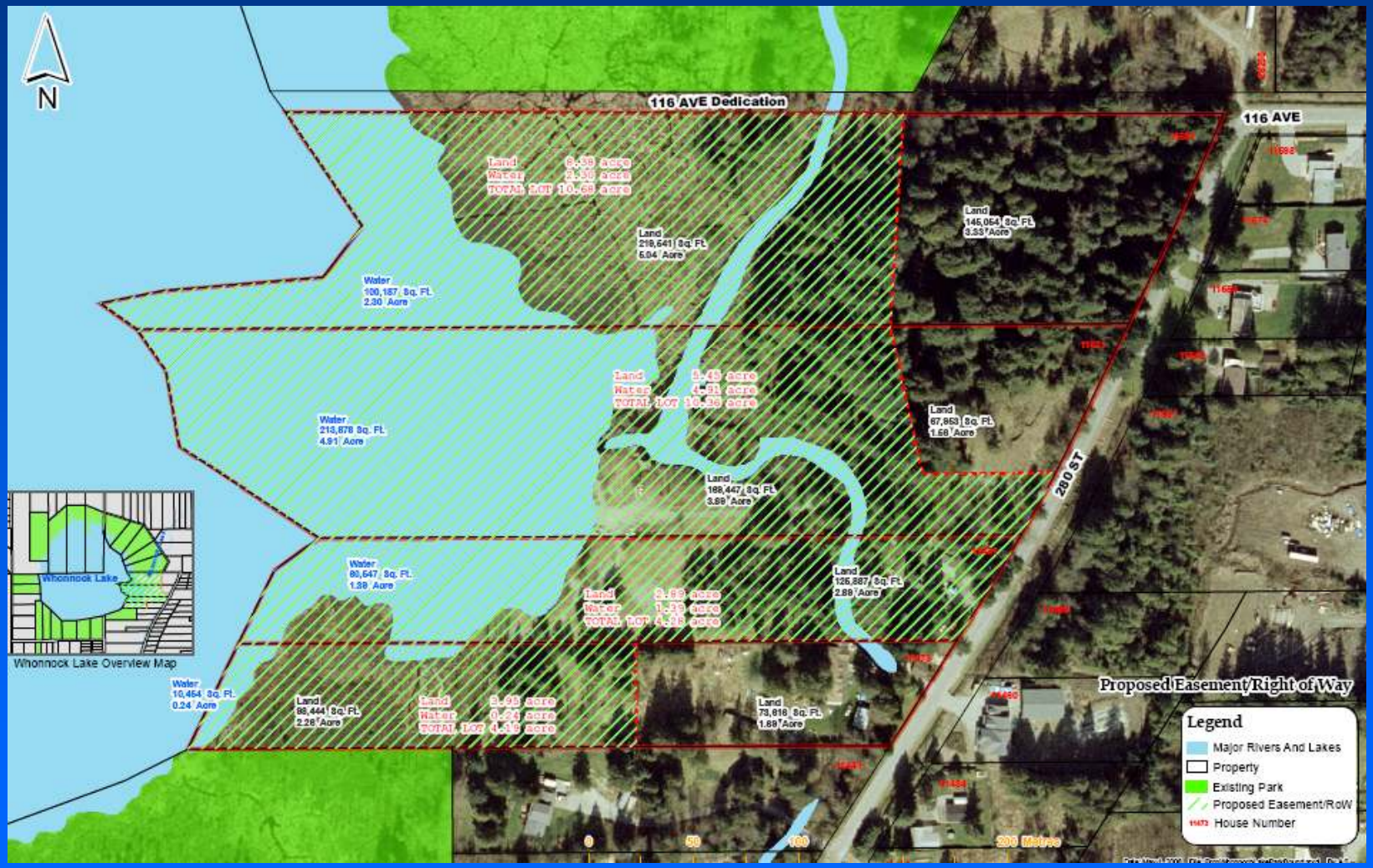


Additional Info Layers

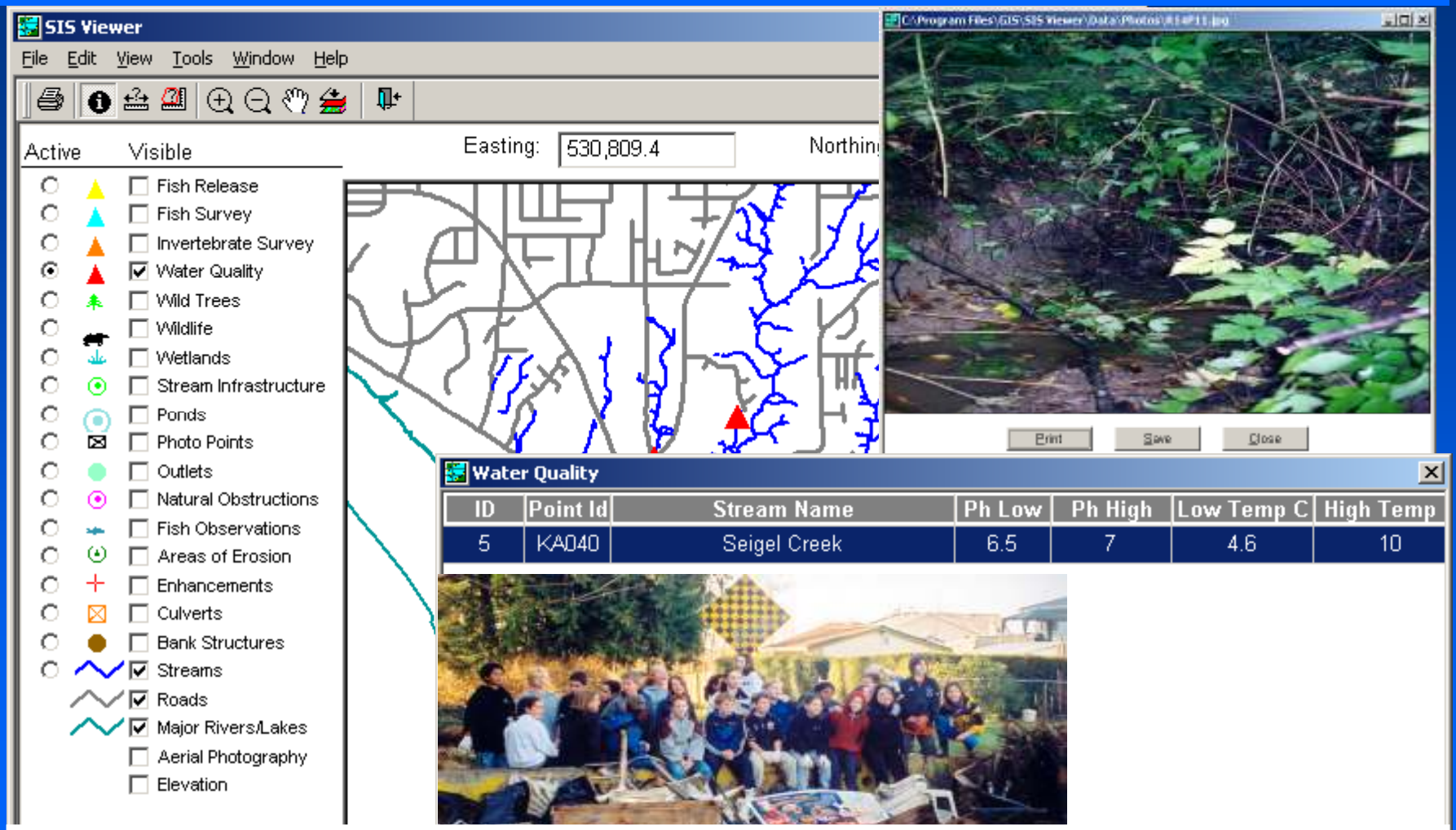
1. Protected Areas
2. Unique Habitat
3. Movement Corridors
4. Natural Features
5. Ecological Functional Systems
6. Potential Hazard or Risk Areas

Monitoring and Ecosystem Health

Case Study: Whonnock Lake Wetlands

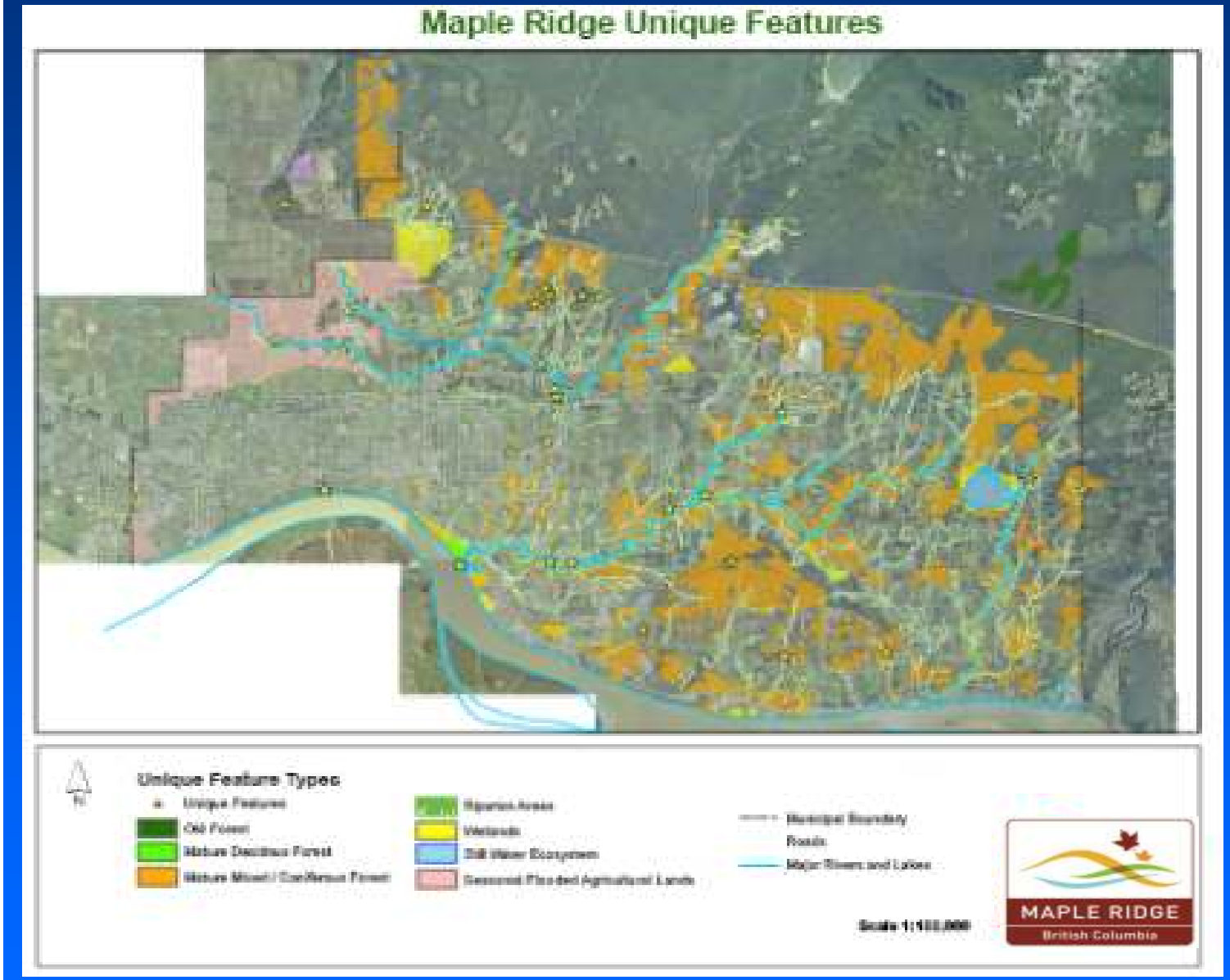


Community Awareness - Education and Outreach



Community Partnerships for education including funding, data sharing, & enhancement programs

Ecological Health and Diversity



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

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

Wetlands (WN)

Riparian (RI)

Old Forest (OF)

Deciduous Woodlands (WD)

Inland Bluffs and Cliffs

Old Field
Terrestrial Herbaceous

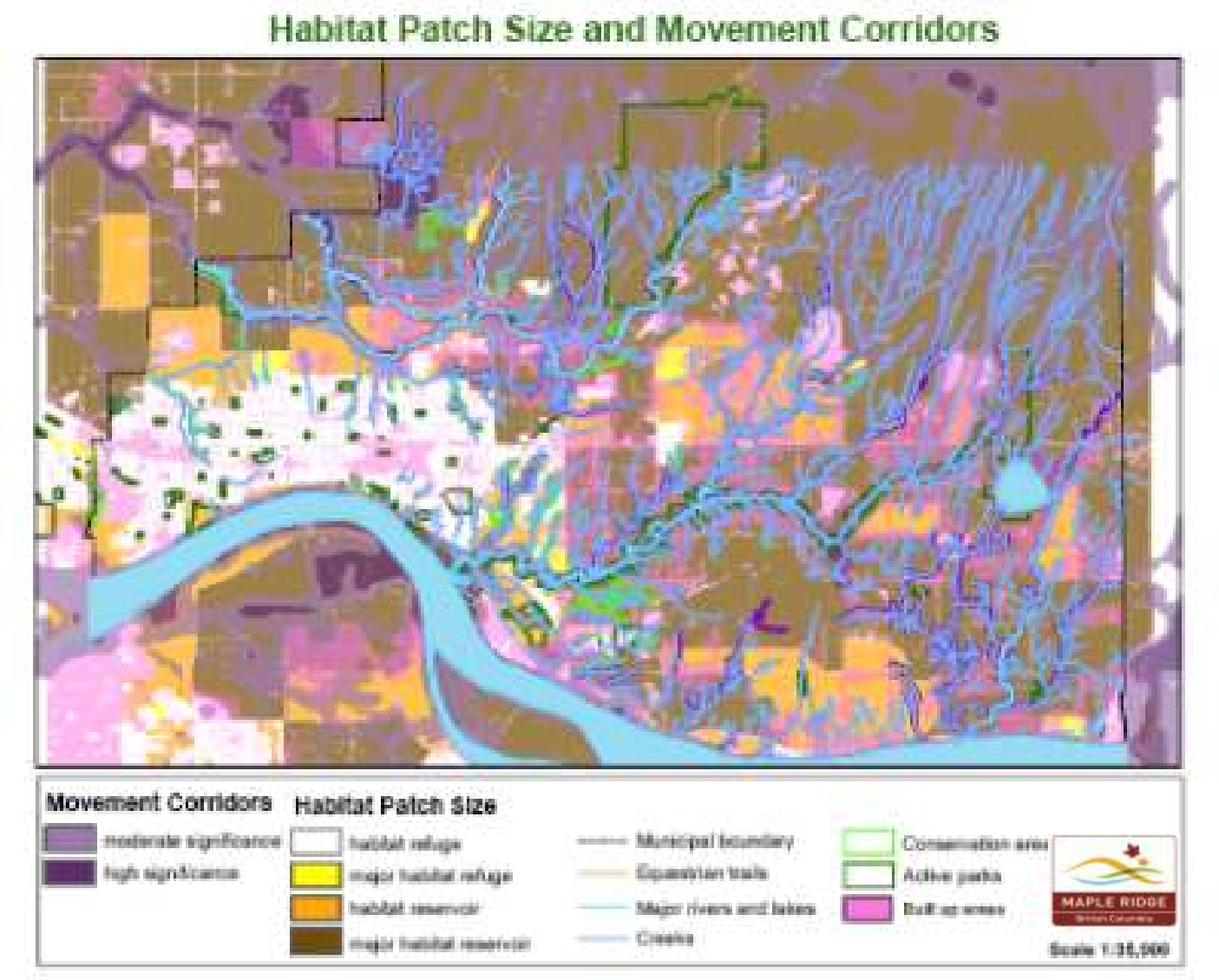
Tidal Foreshore Areas

Stillwater Ecosystems

Mature Mixed Forest (MF)

Seasonal Flooded Fields

Movement Corridors and Habitat Reservoirs



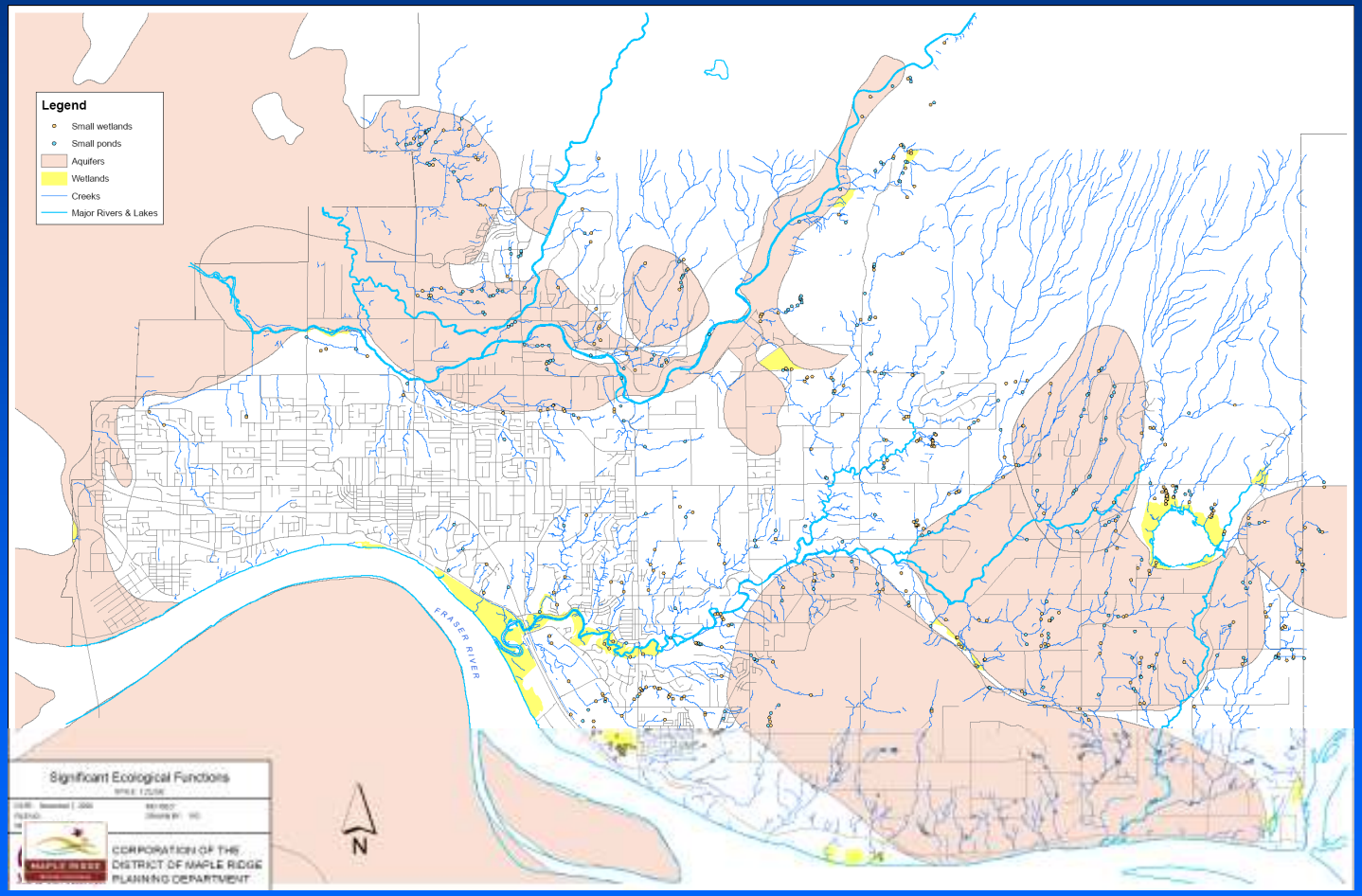
Habitat Patch Size ranges:

- 2 - 200 hectares

Movement Corridors:

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

Aquatic Features and Functions



- Wetlands
- Aquifers
- Creeks
- Foreshore Tidal Areas
- Lakes
- Ponds

Next Steps:
Ecological Strategy Deliverables

1. Explore municipal ecological network strategy to promote and encourage ecological health:

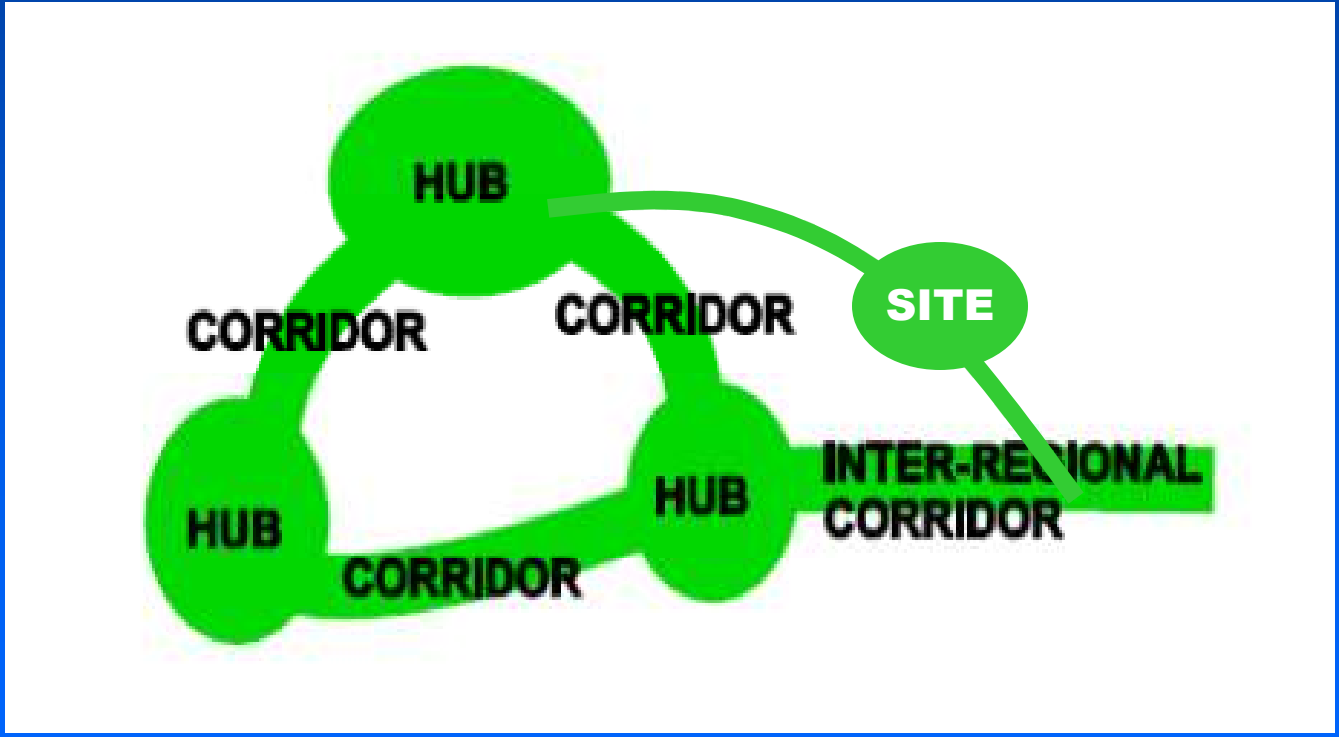
   - Explore protection, conservation management, and enhancement opportunities for greenway corridors, ecological hubs that promote healthy ecosystems for the future;

   - Identify planning tools and incentives necessary to help the District achieve a municipal wide ecological network management strategy

Ecological Strategy Deliverables

Network Designation

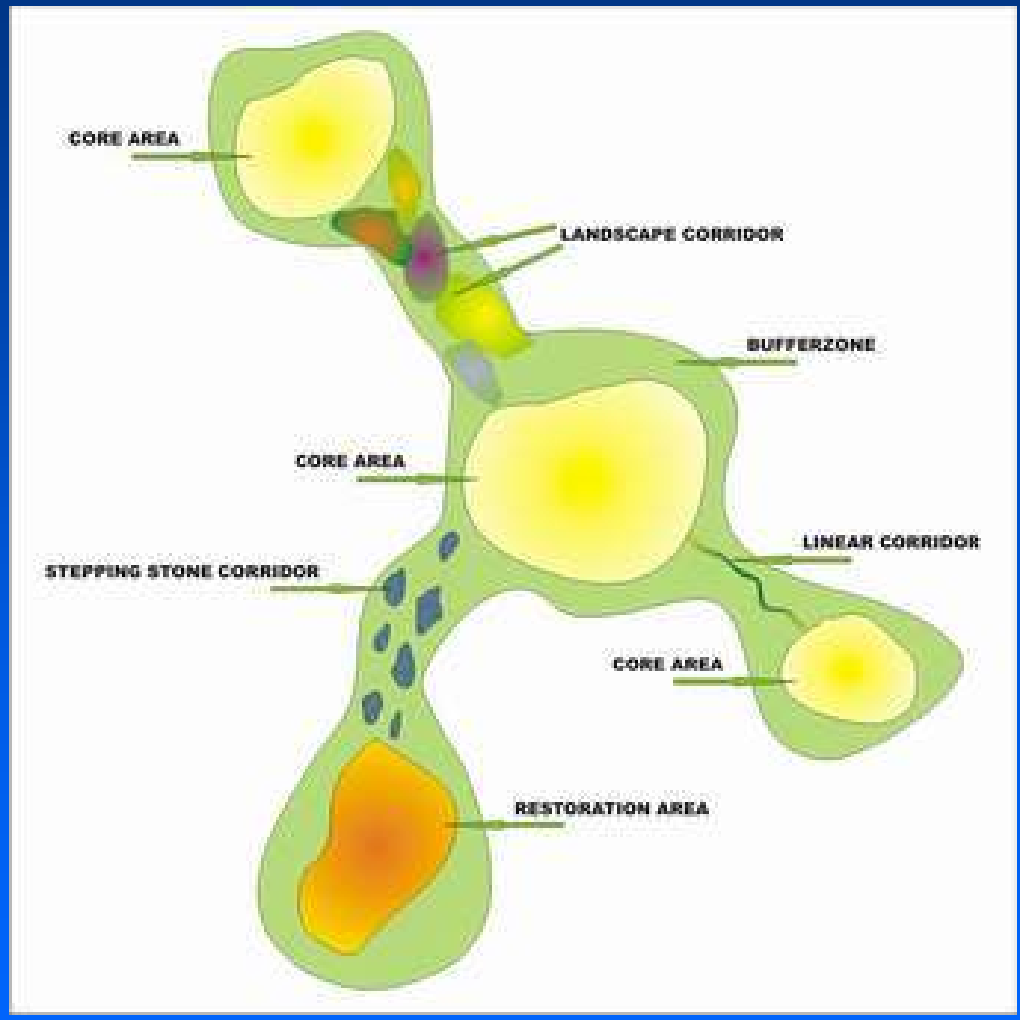
Larger and more natural areas form the hubs of the Network; sites are smaller but important natural areas; corridors connect hubs and sites.



Ecological Strategy Deliverables

Connections

- *landscape (ALR)*
- *linear (stream and ROW)*
- *stepping stone (can include semi-natural)*



Source: Croatian State Institute for National Ecological Network

Next Steps

2. Develop ecological resiliency within the community and improve overall ecological health of our ecosystems.

- Hazard management
- Food Production
- Self Sufficient Neighborhoods
- Healthy Ecosystems

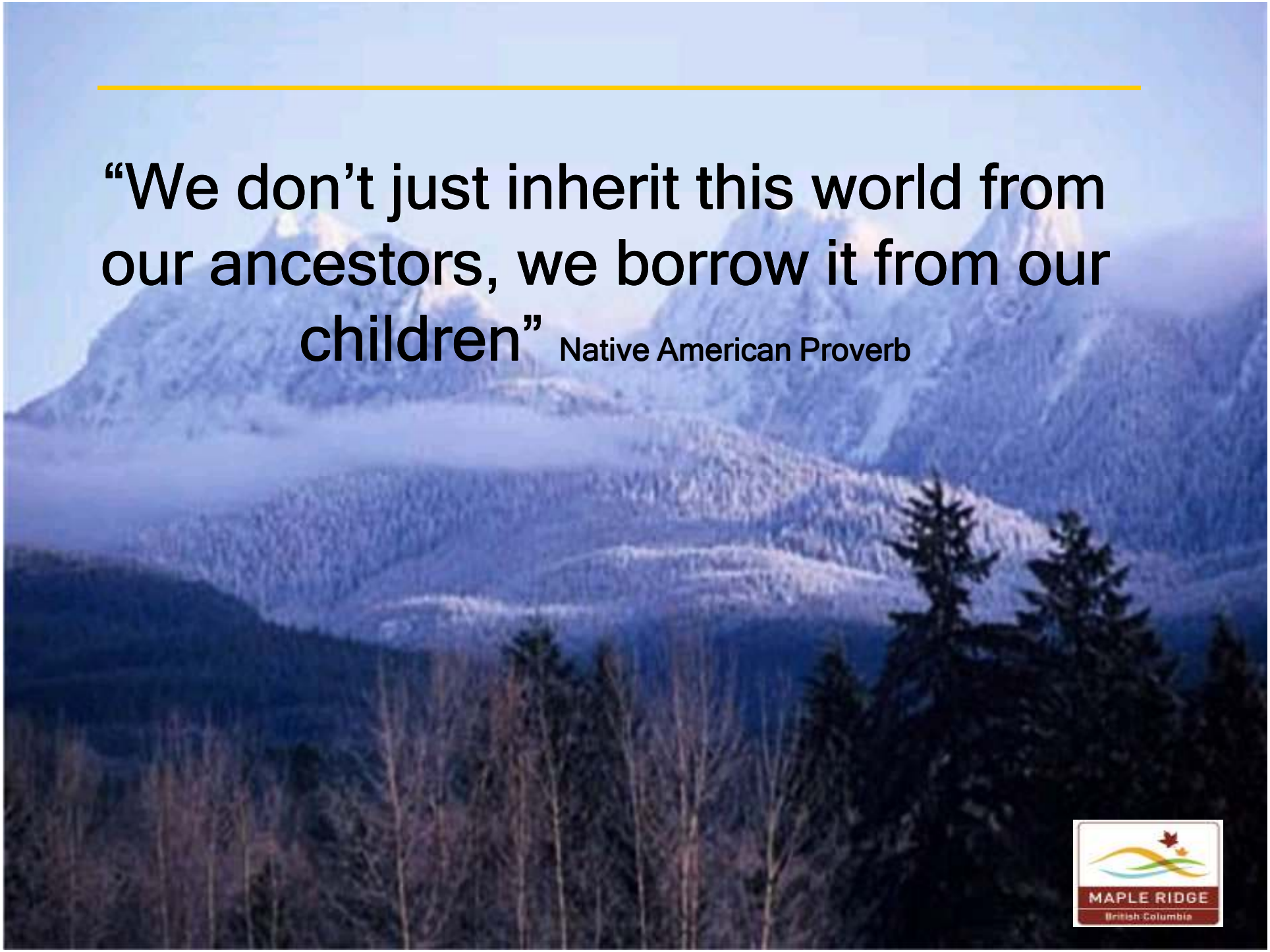
Next Steps

3. Incorporate the fiscal, social, and environmental benefits and value that ecological services provide us with into decision making practices related to land use development and business plans.

Next Steps

4. Encourage strong stewardship ethic, collaborative solutions, and connect people with Nature.

For Example - How do we encourage and promote urban forestry, urban agriculture, urban ecology, green building technology, and strong stewardship ethic in community?


"We don't just inherit this world from our ancestors, we borrow it from our children" Native American Proverb
MAPLE RIDGE
British Columbia