

A CENTRAL OKANAGAN REGIONAL PARKS LEGACY PROGRAM

Ten Year Park Land
Acquisition Strategy
(2007 – 2017)



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1.0 Okanagan Valley Landscape Change

1.1 Historical Human Settlement



Rose Valley Reservoir early 1900's (Living Landscapes)



Lakeview Heights early 1900's (Living Landscapes)

Since 1900 the Central Okanagan has seen tremendous growth and change from early cattle ranching to Irrigated Orchards to today's urbanization. In the early 1900's the City of Kelowna was merely a small town that serviced the rural population of the area. That rural area would have been where urbanization through the Central Okanagan exists today. It wasn't until such developments as the Okanagan Lake floating bridge and Coquihalla highway that provided the access to draw such strong development interest to the area. In retrospect the late 1800's and early 1900's the area relied on CPR Steamboats and the Trans Continental Railway for the growth and supply of goods to the area. Through the mid point of the 1900's and the age of the automobile the majority of access to the area was from the South Okanagan and the Crowsnest highway and the use of ferries to cross Okanagan Lake.

The majority of urbanization in the area in the early 1900's occurred mainly in what is now the downtown core of Kelowna. The areas of Peachland, Westbank, and Lake Country would have seen small town centre's created to service the immediate population, Kelowna would remain as the major centre. The last half of the century significant expansion of these town center's lead the way to what exists today. An example of population growth in the City of Kelowna since 1905 is as follows; there were 600 people in 1905, 4500 in 1930, 10,000 by 1959, 50,000 by 1975, and 99,000 by 2000.



Bernard Avenue 1910 (Living Landscapes)



Irrigated Fields early 1900's (Living Landscapes)

1.2 Environmental Change

The Central Okanagan has had tremendous amounts of environmental change since the first settlers located themselves here many years ago when Father Pandosy came to the area in 1860. Today the people of the Central Okanagan are faced with many environmental issues that did not exist at that time. There are concerns about air quality, water quality and quantity, noise pollution, global warming, the extinction of plants and animals, and loss of environmentally sensitive areas.

The rate of growth in the Central Okanagan is contributing to the environmental change that we are experiencing. Urban sprawl is putting more and more pressure on the natural environment, as well as our water and natural resources. To put how growth is affecting the area, Michael Pidwirny in writing for Living Landscapes identified that between 1987 and 1992 land in the City of Kelowna was being consumed at a rate 2-3 times faster than the population growth (Pidwirny et al, Living Landscapes). One could quickly rationalize that if this rate were to continue through to 2031 (population estimated at 254,294) that there would not be much green space left.

1.3 Future Human Settlement

The Central Okanagan is one of the fast growing areas in the province of BC if not the entire country. In the period from 2001 – 2031 BC Stats is reporting that the Thompson – Okanagan could experience more than 40% growth. It is also estimated that the population over the age of 65 in the Central Okanagan will almost double. The majority of this population increase will come in the form of migration from other parts of the province and country.

The areas within the Central Okanagan that will be most heavily influenced by the increase in population will be the City of Kelowna, and the Westside. The District of Lake Country and District Municipality of Peachland will also see significant growth.

The majority of residential growth (future land use) in the City of Kelowna will likely occur in the South Mission area between Southridge and Crawford Estates, Black Mountain / Kirschner Mountain area, and North Glenmore area. The City of Kelowna will also handle growth through in-filling and densification of urban centers.

The Westside OCP area (future land use) residential growth will occur in the Shannon Lake West area, Shannon Lake Highland area, Smith Creek area, Upper Glenrosa area, Westbank Towne Centre, South Mount Boucherie area, Westlake road area, and North McDougall area.

In the District of Lake Country there is currently residential developments in progress occurring on the highlands between Wood Lake and Lake Okanagan as well the upper bench lands on the west side of Wood Lake. In the District Municipality of Peachland the area around Pincushion Mountain has been identified as Multiple Family / Low Density and an area for potential residential growth.

As population increases over the next 20 years it can quickly be discerned that residential growth will push further up the valley sides creating demands on utilities, transportation, and the environment.

2.0 Recreation Interests / Trends

As our population in the Central Okanagan ages walking and hiking tends to be the recreation of choice. Either hiking or walking provides a vigorous fitness work out that has a low impact to the body. The type of trail or walking path will be dramatically different for each person and their level of fitness and may include sidewalks beside roads, relatively flat trails following the sides of creeks and streams, or more demanding trails in steeper terrain leading to viewpoints.

3.0 Preferred Environmental Strategy

3.1 Nodes and Corridors

Nodes and corridors are critical for the environment and for wildlife. These types of features support and provide habitat for a wide diversity of plants and animals. Nodes are larger tracts of land that provide the essentials of life to plants and animals including the provision of food, shelter, and water. These node areas can be the critical element for the survival of species both endangered and not. These areas should reflect the natural diversity of habitats native to an area.

Corridors are the vital links that link node areas together enhancing the effectiveness of the size of each node. The wider the corridor the better they are able to support more diverse wildlife movements. Corridors are not only for wildlife, they are also for virtually any living species on earth, providing a linear linkage from one area to another to locate food, water, and shelter.

Both nodes and corridors benefit not only animals, they also benefit the human population by providing many vital elements to the health and enjoyment of life. These features provide a level of protection to our watersheds that provide drinking water, they provide a filter to convert carbon dioxide emissions to oxygen, and they also provide a place to recreate and be in nature.

3.2 Ecological Diversity and Landscape Connectivity

Greenways serve as “corridors” containing the highest ecological capability in the region and provide a complete range of habitat diversity from lake edges to upper watershed ecosystems. Greenways also serve the community through the contribution of alternative modes of transportation opportunities, achieving storm-water and floodplain management objectives where parks and greenways function as recharge, filtration and natural drainage areas. Biomass productivity (vegetation growth) has been identified as most prominent in riparian area corridors and protection of greenways will support multiple sustainability initiatives as well as support ecological “corridors” which will maximize ecosystem health via riparian area protection.

4.0 Sustainability

4.1 Consultation on Sustainability Results

In the summer of 2006 a Citizens Forum on Sustainability and a Central Okanagan Sustainability Poll was done to determine what the residents of the Central Okanagan think of sustainability issues. The results of the poll indicate that a large portion of Central Okanagan residents believe that local and regional governments need to do more to create a more sustainable Central Okanagan. The following poll results indicate that providing linear trail networks, conserving / preserving the environment, and providing recreational / spiritual cultural opportunities are important to the Central Okanagan residents:

- 1326 of 1622 or 81.75% of respondents strongly agree or agree that green areas and the natural environment are stressed due to encroaching development and increased public use.
- 1374 of 1616 or 85.03% of respondents strongly agree or agree to support further land acquisition by local and/or regional government to better protect environmentally valuable areas and agriculture.
- 1340 of 1577 or 84.97% of respondents strongly agree or agree that local government should do more to develop and implement policies and programs to support non-vehicular transportation.
- 1178 of 1582 or 74.46% of respondents strongly agree or agree that recreational, spiritual, and cultural opportunities in the Central Okanagan support physical, spiritual, and emotional health.
- 1222 of 1584 or 77.15% of respondents strongly agree or agree they use recreational, spiritual, and cultural facilities to enrich their life.
- 1128 of 1574 or 71.67% of respondents strongly agree or agree that local and regional governments should do more to ensure

residents have access to recreational, spiritual, and cultural opportunities.

- 1421 of 1516 or 93.74% of respondents strongly agree or agree that sustainability should be a high priority for local and regional government.
- The top 2 aspects or things the residents of the Central Okanagan would like to sustain over the long term were Green Space at 23% and Water/Water Quality/Water Quantity at 14%. The environment was close behind at 11%.
- The top 2 things that have a negative affect on sustainability were Transportation at 18% and Development at 10%. These were followed closely by Infrastructure at 7%, urban sprawl and growth both at 6%.

Up to 200 residents of the Central Okanagan came together to speak, listen, and learn about sustainability at the one day forum on sustainability. The results / thoughts from participants of this forum that relate to this plan were:

- Where we live, work and play – Public access to more lake, being able to walk to Peachland along the lake, linear throughways through development, and preserve public spaces.
- How we ensure lasting economic prosperity – Promote green industry, protect ALR, tourism, etc.
- How we care for the environment – (To sustain) Greenspace, Quality of life for animals / people, protect and respect natural habitat and conserve natural areas, respect other species and biodiversity, wildlife / pedestrian corridors, and respect waterbodies and source.
- How we get around – more bike paths away from roadways.

4.2 The Core Network for Sustainability

A sustainable community should, Reduce Urban Sprawl, Conserve Natural Habitats, Develop Areas with Respect to Environmental Protection, Provide Ample Green Space for Urban Citizens, Encourage Water and Energy Conservation, Discourage the Use of Motor Vehicles, and Initiate Recycling Programs to Reduce Waste (Pidwirny et al, Living Landscapes).

The regional park system has the ability to address some or part of these issues that relate to being a sustainable community. Through the sustainability poll and forum, as well as through workshop sessions with the parks advisory committee linear trail networks and environmental conservation were identified as highly important.

A network of linear trails will provide the Central Okanagan a core network assisting sustainability by providing alternative forms of transportation, a

place for the population to recreate and exercise, and the provision of linkages to nodes and corridors as discussed in section 3.1. These trail networks have other benefits to our society by helping to provide cleaner air, having a healthier and happier population, and the preservation of areas around creeks which provide clean drinking water. Trails also provide an opportunity for people to interact with nature helping to promote a higher level of environmental consciousness.

5.0 Official Regional Parks Plan

5.1 Current System

The Regional Parks system currently has 28 parks covering approximately 1041 hectares. Of these parks 5 (18%) are classified Conservation, 2 (7%) are classified Trails (Greenways), 7 (25%) are classified Natural, and 14 (50%) are classified Recreation / Cultural / Waterfront.

The current system has 1041 hectares for a population of 171,278 (BC Stats) which equates to approximately 6 hectares for every 1000 residents in the Regional District. The Official Regional Park Plan proposes to achieve 12 hectares for every 1000 residents in the Regional District. In order to achieve this goal the acquisition of 1015 hectares at the current population would need to occur.

The Regional Park system has representation from 4 biogeoclimatic units, 45% is in the IDFxh1, 52% is in the PPxh1, 2% is in the MSdm1 and 1% is in the PPxh1a. In the entire Regional District area there are 17 biogeoclimatic units, of which the MSdm1, MSdm2, IDFxh1, IDFdm1, and PPxh1 make up the largest portion of the area.

5.2 Parkland Acquisition Requirements

In order to acquire land for Regional Park purposes the Official Regional Park Plan (ORPP) identifies criteria that define the type of property that may be suitable for a Regional Park. When selecting the properties listed in this plan the following criteria from the ORPP were considered:

- Presence of cultural heritage resources
- Must be representative of Central Okanagan geography and vegetation
- That the Regional Parks system will contain sufficient park lands so that there is a ratio in excess of 12ha per 100 residents.

At the time of Land Acquisition further evaluation criteria as identified in the ORPP needs to be assessed and are as follows:

- Must be acquired by Purchase, Gift, or Transfer

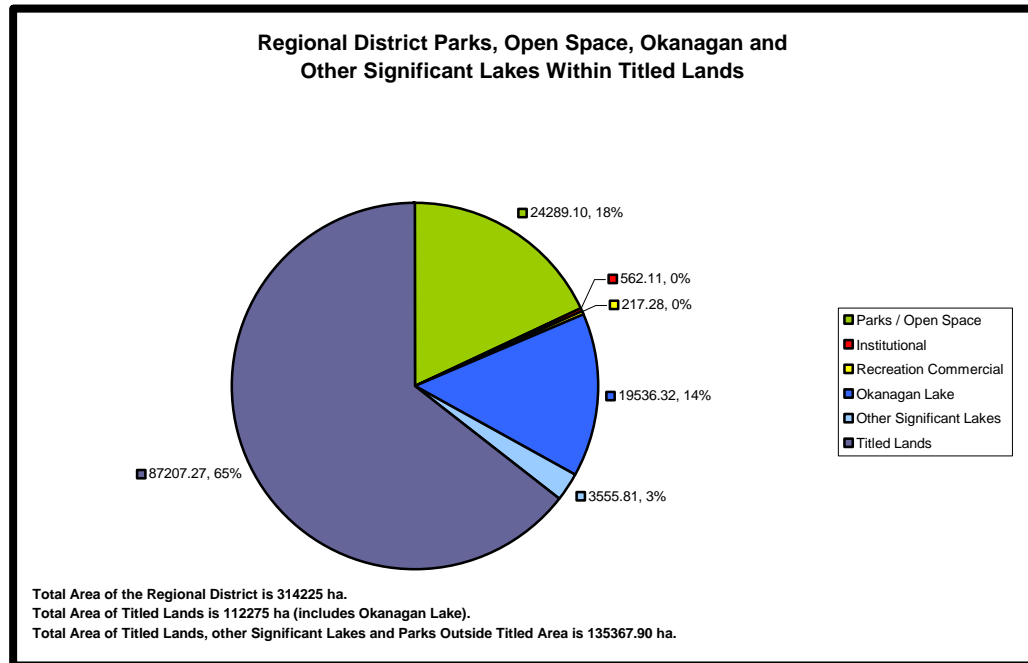
- Consideration given to size, configuration, proximity to residents, access, recreation / interpretive interests, adjacent land use, gaps in the current system, and cost of the acquisition
- Priority given to potential natural landscape parks threatened by development that have been identified in this plan

5.3 Park and Open Space Analysis

Within the Regional District 35% of all titled lands is currently available for park, open space, and recreational opportunities. The 35% is comprised of Provincial, Municipal, and Regional parks as well as the major lakes which include Okanagan, Wood, and Kalamalka. The titled lands, provincial parks, and significant lakes cover approximately 45% of the regional district land base leaving the remainder as unsurveyed crown lands.

Currently 15% of the regional district land base is available for park land, open space, and recreational opportunities both aquatic and terrestrial based. This can be further broken down as approximately 7.7% of the regional district land base is terrestrial based parks and recreation while the remaining 7.3% is aquatic recreation.

An argument could be made stating that there are significant recreational opportunities that occur within the unsurveyed crown lands. These recreational opportunities do exist and are not easily quantifiable nor are they managed to any degree by a governmental jurisdiction. The parks and recreation facilities identified in the stated figures are those that are maintained by a governmental jurisdiction, have a defined boundary, and are maintained to a justifiable level.



5.3.1 Biogeoclimatic Gap Analysis

The Biogeoclimatic Ecosystem Classification (BEC) program is a program from the Ministry of Forests Research Branch covering the Province of British Columbia. BEC is a multi-scaled, ecosystem-based classification system that groups ecologically similar sites based on climate, soils and vegetation. This classification is widely used throughout British Columbia as a framework for resource management and scientific research.

The BEC system groups ecosystems at three levels of integration: regional, local, and chronological. At the regional level, vegetation, soils, and topography are used to infer the regional climate and to identify geographic areas that have relatively uniform climate. These geographic areas are termed biogeoclimatic units.

At the local level, segments of the landscape are classified into site units that have relatively uniform vegetation, soils, and topography. Several site units are distributed within each biogeoclimatic unit, according to differences in topography, soils, and vegetation. At the chronological level of integration, ecosystems are classified and organized according to site-specific chronosequences. To do this, the vegetation units recognized for a particular site unit are arranged according to site history and successional status.

In order to arrange ecosystems at the three levels of integration, the BEC system combines four classifications: vegetation, climatic

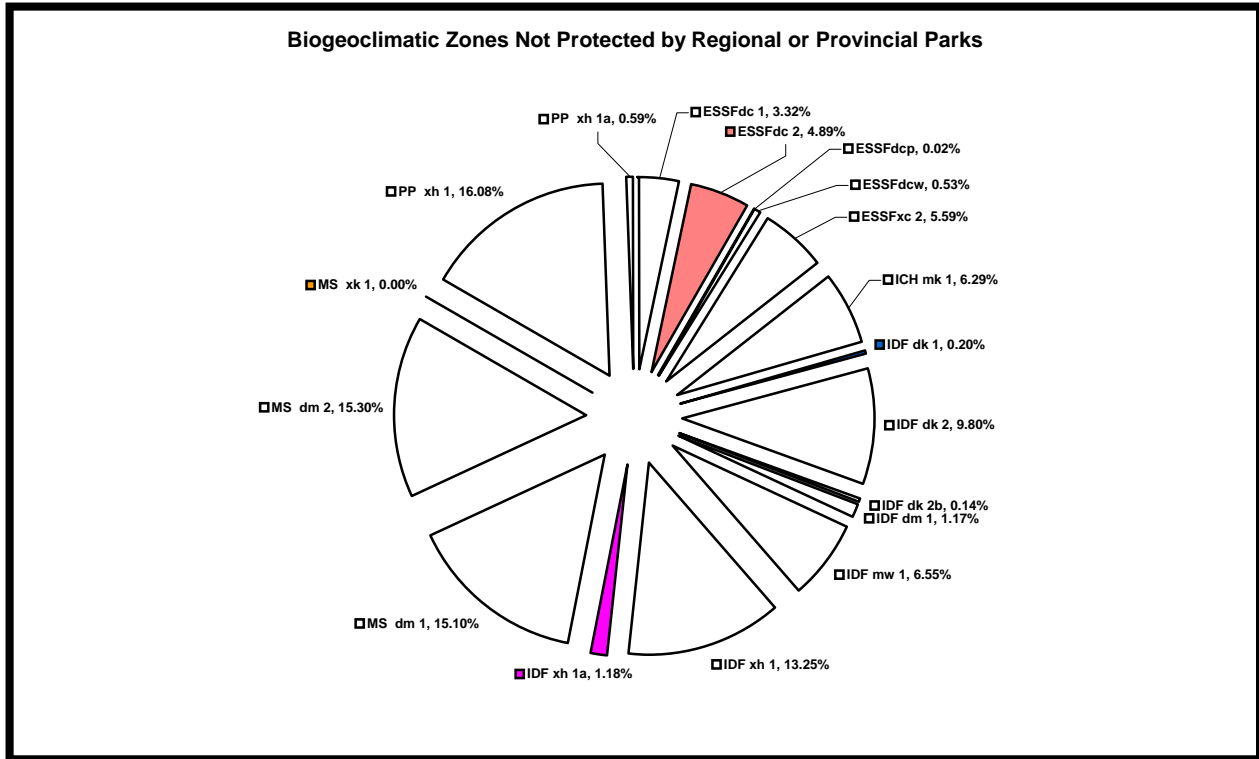
(zonal), site, and seral. Vegetation classification is most important to developing the ecosystem classification. However, the climatic and site classifications are the principal classifications used in the application of the BEC system. At this time the seral classification has not been adequately developed (BECWeb).

There are 18 Biogeoclimatic zones within the Regional District boundary, of these Provincial and Regional parks have represented 14. This leaves a gap of 4 Biogeoclimatic zones that area not protected by a Regional or Provincial park, IDFxh1a, IDFdK2, MSxk1, and ESSFdC2. Three of the four zones are in unsurveyed crown lands outside the titled land area, the fourth (IDFxh1a) is located within the titled land area.

- IDFxh1a – Interior Douglas-Fir Okanagan Very Dry Hot – Grassland Phase zone occurs between 400-1250m with a warm and dry climatic regime and a relatively long growing season in which moisture deficits are common. Types of vegetation found in the zone may be;
 - Moist Sites – Idaho Fescue, Bluebunch Wheatgrass, Silky Lupine, Arrow-Leaved Balsamroot, Parsnip-flowered Buckwheat, Junegrass, lichens, and mosses.
 - Dry Sites – Pasture Sage, Bluebunch Wheatgrass, Arrow-Leaved Balsamroot, and Silky Lupine.
 - Wet Sites – Idaho Fescue, Kentucky Bluegrass, Stiff Needlegrass, and Prairie Grass. On wetter sites Trembling Aspen and Yellow Pine are common.

- IDFdK1 – Interior Douglas-Fir Thompson Dry Cool zone occurs between 1130-1460m in elevation with a warm dry climatic regime and relatively long growing season in which moisture deficits are common. Types of vegetation found in the zone may be;
 - Zonal Sites – Lodgepole Pine, Pinegrass, Birch-Leaved Spirea, Soopalallie, Twinflower, and Kinnickinnick.
 - Dry Sites – Common Snowberry, and Bluebunch Wheatgrass.
 - Wet Sites – Hybrid White Spruce, Black Gooseberry, Red-Osier Dogwood, and Horsetail.

- MSxk1 – Montane Spruce Similkameen Very Dry Cool zone occurs between 1450-1650m in elevation with cold winters and moderately short warm summers. Types of vegetation found in the zone may be;



5.3.2 SEI

The Central Okanagan Sensitive Ecosystems Inventory was initiated in 1999 in response to an urgent need for inventory information on rare and fragile ecosystems to support sound land management decisions. The project area included portions of the lower elevation ecosystems in the central Okanagan. The SEI technical report documents the inventory, analyses the results, and provides summary descriptions of inventory findings.

The main objective of the SEI project was to provide scientific information on sensitive ecosystems to support sustainable land management decisions and encourage conservation and land stewardship. The project used Terrestrial Ecosystem Mapping (TEM) as a base to develop a Sensitive Ecosystems theme map. The inventory was compiled through survey work conducted in the years 2000 through 2001 (Iverson, Cadrin, 2003).

In the SEI study area in the Central Okanagan there are 17 categories for sensitive ecosystems, 3 categories for Other Important Ecosystems, and 1 category for Urban or Developed Areas (NA). The Regional Park system has sensitive ecosystem representation from all but 4 categories. The 4 categories not represented by Regional Parks are Broadleaf Woodland - aspen seepage (BW:as), Grassland – shrubland (GR:sh), Riparian – river

(RI:ri), and Wetland – swamp (WN:sp). It should also be noted that the SEI study area does not cover all Regional Parks.

BW:as - Broadleaf woodland ecosystems occurred on sites where succession resulted in a broadleaf overstory in the climax stage of succession. Aspen seepage ecosystems occurred on slopes with subsurface seepage in a matrix of coniferous forests. These ecosystems were moist and rich as a result of nutrient inputs from seepage and the annual input of leaf litter. They had trembling aspen overstories and diverse, shrubby understories. Soils were typically medium-textured. This type of ecosystem is important because (Iverson, Cadrin, 2003):

- **Rarity** – All broadleaf woodland native plant communities are listed as rare by the B.C. conservation Data Centre (Iverson, Cadrin, 2003).
- **High biodiversity** – Broadleaf woodland ecosystems have diverse plant communities that support a rich assemblage of species. Deciduous litter fall results in organically enriched in the upper layer of soil (Iverson, Cadrin, 2003).
- **Specialised habitats** – Aspen copse and aspen seepage ecosystems are structurally diverse, and provide cover, food and nesting habitat for many species. Aspen trees are very important for cavity nesters (Iverson, Cadrin, 2003).
- **Social values** – Broadleaf woodland ecosystems provide opportunities for education, wildlife viewing, landscape viewpoints, walking and hiking, and aesthetic enjoyment. The green space that woodlands provide can add real estate values in adjacent areas and can draw tourists into the area (Iverson, Cadrin, 2003).
- **Fragility** – These ecosystems sensitive to soil disturbances because of the seepage associated with them (Iverson, Cadrin, 2003).

GR:sh – Grasslands in the study area were dominated by bunchgrasses, but scattered forbs occurred throughout these sites. The grasslands of the Central Okanagan represent a portion of the Pacific Northwest bunchgrass grasslands that are centred in south-east Washington, north-east Oregon and Idaho.

The Grassland : shrubland ecosystems contain shrubs, most commonly snowberry and roses , dominated shrubland ecosystems in the study area. Shrublands occurred in grassland areas, but were moister than the surrounding grasslands as they occurred in depressions and moist pockets that tended to collect snow and some run-off. Soils were dark (organic rich), typically medium-textured, and very rich. This type of ecosystem is important because (Iverson, Cadrin, 2003):

- **Highly threatened** – Grasslands most commonly occurred on sites that were very amenable to development – both for agriculture and housing. Overuse by domestic livestock and invasion of noxious weeds also threatens remaining grasslands. Only 0.69% of the world's temperate grasslands are currently protected. Grasslands are recognized as one of British Columbia's most threatened ecosystems. Only 8% of provincial grasslands are protected (Iverson, Cadrin, 2003).
- **Rarity** – All grassland native plant communities are listed by the B.C. Conservation Data Centre as to whether they are rare, red listed, or blue listed or what types of rare vertebrates live in this ecosystem (Iverson, Cadrin, 2003).
- **High biodiversity** – Grasslands and shrublands support a unique assemblage of species that includes a high proportioned endangered species. Grasslands, in combination with other ecosystems, are used by many species (Iverson, Cadrin, 2003).
- **Sensitivity to disturbance** – Grasslands are very sensitive to disturbances from such things as off-road vehicle use and mountain biking, and recovery can take decades. Disturbances to grassland soils can damage the fragile microbial crust, and can allow noxious weed invasions, which can slow or limit recovery (Iverson, Cadrin, 2003).
- **Social values** – Grasslands provide opportunities for education, walking and hiking, wildlife viewing, and aesthetic enjoyment. The green space that grasslands provide can add to real estate values in adjacent areas, and can draw tourists into the area (Iverson, Cadrin, 2003).

RI:ri – 'Riparian' simply refers to areas adjacent to water bodies such as lakes, rivers, streams, and ponds. In the SEI riparian ecosystems were defined as ecosystems that area adjacent to, and significantly influenced by a water body. That is, these sites are moister than, and have a plant community that is distinct from the surrounding upland. Riparian ecosystems are typically linear in nature. This type of ecosystem is important because (Iverson, Cadrin, 2003):

- **Rarity** – Their conservation status lists most riparian natural plants as rare (Iverson, Cadrin, 2003). (see B.C. Conservation Data Centre)
- **High biodiversity** – Riparian ecosystems support disproportionately high numbers of species relative to the area they occupy on the land base. They provide wildlife with water, cover, breeding habitat, and food. The wide diversity of plants, invertebrate organisms, and structural complexity of these ecosystems provide many habitat niches. Riparian vegetation provides food for many aquatic organisms. Many gullies, particularly in the western side of the study area, generally lack

surface water flow but often have lush, productive vegetation that provides significant cover and food for wildlife (Iverson, Cadrin, 2003).

- **Fragility** – Riparian ecosystems are strongly influenced by adjacent water bodies and, thus, they are sensitive to disturbance and changes in hydrology (Iverson, Cadrin, 2003).
- **Aquatic habitat protection and water quality** – Riparian vegetation supplies most of the organic matter in small and medium sized streams, and plays a large role in determining the composition of the aquatic invertebrate community. Riparian vegetation also provides a source of large organic debris. This debris reduces stream velocity, and is important in creating and maintaining stream channels, and aquatic habitat, and in controlling sediment deposition. Riparian areas are important for trapping sediments and maintaining water quality. The root systems of riparian vegetation stabilize stream banks, thus reducing erosion and sediment inputs to the water.
Riparian vegetation plays a key role in controlling water temperatures of small and medium sized streams. Canopies can reduce incoming radiation by up to 85% in smaller streams. This function is extremely important because the amount of dissolved oxygen and metabolic processes of many stream organisms are dependant on temperature. With increased water temperatures, many native trout species become more susceptible to disease and are out-competed by warmer-watered species (Iverson, Cadrin, 2003).
- **Wildlife corridors** – Within the study area, larger streams with steep-sided canyons form natural wildlife corridors connecting grasslands with rim rock areas and the areas above the Okanagan valley. Additionally, many gullies, either with or without streams, also form natural east-west corridors that connect forested areas with other habitats (Iverson, Cadrin, 2003).
- **Flood protection and erosion reduction** – Like wetlands, riparian ecosystems can peak flows by slowing or storing runoff. Installation of diking and rip-rapping to prevent flooding reduces water storage capacity and increases water velocity and scouring. Dense root growth of vegetation in riparian ecosystems helps slow water and provides bank stability. Unvegetated banks are prone to erosion, undercutting, and slumping. However, even within these ecosystems, dynamic channel changes can lead to tree fall and bank slumping, threatening properties. Riparian areas can buffer these effects if development is not allowed too close (Iverson, Cadrin, 2003).
- **Social values** – Riparian areas provide green space, and opportunities for education, bird watching, wildlife viewing, walking and hiking, and aesthetic enjoyment. Retention of riparian corridors can enhance and maintain property values and attract tourists by

retaining the natural beauty that many people seek out (Iverson, Cadrin, 2003).

WN:sp – Wetlands occur on sites where the water table is at, near, or above the soil surface for a sufficient period of time to influence soil and vegetation development.

Swamp wetland ecosystems occur at the edges of ponds and wetlands, forming a shrubby fringe around them. Willows dominated these sites, and sometimes sedges were present where the swamp occurred at the edge of a wetland. Although many swamps have subsurface water flow associated with them (subirrigation), those observed in the study area only had sub-surface water with minimal flow. This type of ecosystem is important because (Iverson, Cadrin, 2003):

- **Rarity** – Most wetland plant communities have been recommended for rare status (Iverson, Cadrin, 2003).
- **High biodiversity** – Within the dry climates of the IDFxh1 and PPxh1, small ponds, marshes, and even man-made wetlands are focal points for wildlife because of their infrequent occurrence in this landscape.

Wetlands provide wildlife and biodiversity values that are disproportionate to the area they occupy on the land base. Wetland vegetation provides food, shelter, breeding habitat, and cover for many species of amphibians, reptiles, mammals, birds, and insects. Wetland vegetation provides food for many aquatic organisms. Ponds and shallow open water bodies are important watering sites for many species and provide painted turtle habitat, especially if floating logs are present. Wetlands are also sources of insects that provide food to birds and bats (Iverson, Cadrin, 2003).

- **Fragility** – Wetlands are vulnerable to a range of human disturbances such as vegetation removal, dredging, diking, or filling. Small changes in hydrology such as reduced flows or lowered water tables, and urban run-off and other sources of nutrients including fertilizers and livestock manure can change and reduce the diversity of wetland communities. Intensive recreational activities in wetland edges can reduce plant cover, compact soil, and disturb nesting birds. Additionally, wetlands are vulnerable to overuse by livestock. Wetlands that have been overused by livestock are still extremely valuable and many of these sites recover vegetation quickly with improved livestock management (Iverson, Cadrin, 2003).
- **Maintenance of water quality** – Properly functioning wetlands store and filter water, and maintain water quality. They reduce the levels of sediment, nutrients, and toxic chemicals in outflow water (Iverson, Cadrin, 2003).
- **Social values** – Wetlands provide opportunities for education, bird watching, and aesthetic enjoyment. The green space that wetlands

provide can add real estate values in adjacent areas and draw tourists into the area (Iverson, Cadrin, 2003).

5.3.3 Slope

Slopes utilized within this project were determined using GIS software where a digital elevation model was used to determine slope angle in percent. The Digital Elevation Model (DEM) for the Regional District was determined by utilizing ground to lens distance based on a datum from ortho photography. DEM's are used typically to represent terrain relief. The DEM for the Regional District has a sampling level of 2m, meaning a value for elevation was sampled every 2m.

The DEM was put through a GIS slope analysis tool to determine the slope of the terrain in a 2m by 2m square grid. Once this was complete the terrain was reclassified showing all areas with slopes less than 30% ("developable") and slopes greater than 30% ("undevelopable"). In some cases there was not a 2m DEM available for the area, a 5m DEM from the provincial trim dataset was used. The same processes were applied to the 5m DEM as the 2m.

6.0 Regional Park Acquisition Types

In conjunction with the development of this plan, the Regional District of Central Okanagan has investigated and completed an assessment of specific parkland acquisition interests and reviewed (In Camera) a listing of properties of interest that will provide a framework for future consideration of acquisition capacity. The document is structured as follows and will provide the RDCO Board with a tool to ensure that future parkland acquisition is implemented in a strategic manner.

6.1 Private Land Purchase (Immediate)

The acquisition of private lands targets specific properties that meet the needs and requirements of future Regional Parks. These properties have been identified as to their priority and immediacy in acquiring. The properties would have a fair market evaluation performed and considered for purchase within the first two years of this program by utilizing the funding options as outlined in section 8.0.

6.2 Private Land Purchase (5 – 10 years)

The acquisition of private lands targets specific properties that meet the needs and requirements of future Regional Parks. The properties are to be considered for acquisition in the 5-10 year timeframe and will utilize the funding sources as identified in section 8.0 to fund the properties by a priority ranking.

6.3 Crown Lands

6.3.1 Free Crown Grants / Nominal Rent Tenures

Free Crown Grant – free transfers of Crown land from the province to public sector organizations such as regional governments and school boards.

Nominal Rent Tenure – leases and licenses of occupation of Crown land that are provided to charities, on-profit organizations and public sector organizations for a nominal amount of rent (ILMB).

Currently under the Free Crown Grant program the fair market value will be budgeted for and recorded as an expense against the crown land special account. In order for the Regional District to acquire property from the crown, the district would have to seek out sponsorship from The Ministry of Community Services. The Ministry of Community Services would determine if the Regional District's proposal meets the government's strategic priorities.

The NRT provides access to crown lands to eligible organizations such as local governments, charities, first nations, and non profit organizations for a token or nominal amount of rent. The NRT is budgeted for in the provincial budget for crown land special accounts. In the case of a License of Occupation NRT, the applicant will not have title on the proposed property and does not have sole rights to the proposed property. There can be multiple overlapping License of Occupation licenses on any portion of crown land. In a Lease NRT agreement, the applicant would have title to the proposed property and no other overlapping leases can occur. The Lease bears greater costs than the License of Occupation, for such things as legal surveys, registering the title, and yearly rent. The License of Occupation cost is generally \$1 for each year of the term plus administration fees.

6.3.2 Lease

A lease should be issued where long term tenure is required, where substantial improvements are proposed, and/or where definite

boundaries are required in order to avoid land use and property conflicts. A legal survey will be required at the applicants expense to define the tenured area.

The tenure holder has the right to modify the land and/or construct improvements as specified in the tenure document. The tenure holder is granted the right to exclusive use and enjoyment of the area. The tenure holder also has the right to exclude or charge the public for use of the land and/or improvements, when this is consistent with the terms of the lease. The lessee may, in accordance with section 65 of the Land Act, take legal action against trespassers to the lease area.

The standard term for a lease is 30 years. A maximum term of 60 years is available in some land use programs. Leases over 520ha must be approved by the Minister of the authorizing agency (ILMB).

6.3.3 Crown Grant

Fee simple dispositions, or sale of Crown land, are made either under the Land Act or the Ministry of Lands, Parks and Housing Act. Crown grants to any individual or corporation for more than 520ha, except for commercial, industrial, railway, or airport purposes, must be approved the Minister of the authorizing agency.

Fee simple disposition of Crown land conveys surface rights only. A disposition of Crown land will also require payment to the government for the value of the timber on that land (ILMB).

6.3.4 Crown Land Purchase

The acquisition of crown lands at fair market value similar to purchasing private lands, where the buyer becomes the titled in fee simple owner.

6.4 Donation / NGO Partnerships

Acquiring park and open space through donation can come either by; an individual or family coming to the Regional District and offering to donate property; or from an NGO that has received donated land and wants to partner with the Regional District. By acquiring park lands through donation, the donator would receive a tax receipt for the assessed value of the property donated.

The acquisition of property through NGO Partnerships brings together an opportunity to pool funding resources to acquire property that satisfies the

interest of the partners involved. There are a number of NGO organizations that could be potential partners within the southern Interior and the province. To name a few:

- Central Okanagan Parks and Wildlife Trust
- South Okanagan-Similkameen Conservation Program
- The Land Conservancy of BC
- Nature Conservancy of Canada
- The Nature Trust of BC
- Ducks Unlimited

7.0 Acquisition Interests

7.1 Biogeoclimatic Zone Gaps

The Biogeoclimatic Ecosystem Classification (BEC) program is a program from the Ministry of Forests Research Branch covering the Province of British Columbia. BEC is a multi-scaled, ecosystem-based classification system that groups ecologically similar sites based on climate, soils and vegetation (BECWeb).

In the Central Okanagan there are 18 Biogeoclimatic zones within the Regional District. As identified in section 5.3.1 the current regional park system has gaps in its biogeoclimatic zone coverage. The 4 zones that are not covered by the regional parks systems are the IDFxh1a, IDFdK2, MSxk1, and the ESSFdc2 (see section 5.3.1 for more detailed information).

In this Legacy Project there has been approximately 300 hectares of land that has been identified to fill this biogeoclimatic zone gap in the existing park system. In addition to this 300 hectares another 500 hectares has been identified as increasing the existing coverage within the MSdm1 biogeoclimatic zone. Currently the MSdm1 zone accounts for 23.5% of the regional district land base and only 0.01% of all regional parks (Appendix 'A').

7.2 Regional Trails / Greenways

Within the Central Okanagan there are a number of major creeks and streams that flow to Okanagan Lake. Many of these creeks and streams flow through many different neighbourhoods and communities providing a natural corridor and link. These natural corridors provide a migration route for wildlife to habitat areas, provide the potential for off street commuter trails and alternative transportation, as well as the protection of streamside riparian areas.

This Legacy Program has identified approximately 55 kilometers of creek / stream corridors as potential trail / greenway interests. Some of these corridor projects would be a regional initiative, others would be part of a collaborative effort involving partnerships with other municipalities and interest groups. There are 5 creeks totaling 6 projects that have been identified under this program, some will be an entirely new initiative and others will be in-filling to complete sections of an existing trail / greenway system.

The 5 creeks and 6 projects can be identified as the following (Appendix 'B'):

- Trepanier Creek Greenway
- Lebanon Creek Linear Trail Corridor
- Powers Creek Linear Trail Corridor (Glen Canyon Regional Park)
- Mill Creek Greenway (Downtown Kelowna to Mill Creek Regional Park)
- Mill Creek / Vernon Creek / Railway Line Linear Corridor (Kelowna Airport to Wood Lake)
- Bellevue Creek Linear Park

7.3 Regionally Significant Interests

The Central Okanagan is currently in a state of tremendous growth and development with people migrating to this area from other Canadian cities as well as from abroad. As stated earlier in section 1.3 the Central Okanagan is one of the fastest growing areas in British Columbia if not the entire country. It is expected that by the year 2031 there will be more than a 40% increase in population which translates into a population of approximately 254,294 (BC Stats).

With the anticipated growth in the Central Okanagan all natural areas and parks will be under an increasing amount of stress from usage and development. The expansion of the Regional Park system is needed over the next 10 years to alleviate the strain on the current system, prepare for the anticipated growth, and protect areas of Regional Significance under

threat of development. The purpose of the Regional Park System as stated in the Official Regional Park Plan (RDCO Bylaw No. 884) is:

“To establish and conserve a network of regional parks and trails in perpetuity which represent the complete range of regionally significant natural environments that are within the Okanagan Valley.

Regional Parks will provide opportunities for outdoor experiences and activities that encourage public understanding, appreciation and enjoyment of the region’s natural and cultural landscapes while ensuring the long ecological and commemorative integrity of each park and trail.”

The Legacy Program has identified 1,200 hectares of land area within the Central Okanagan that meet one or more of the following criteria:

- regionally significant presence of cultural heritage
- regionally significant representation of Central Okanagan geography and / or vegetation
- regionally significant recreational features
- an ability to protect regionally significant natural landscapes
- an ability to assist in the conservation of the regionally significant cultural landscape of the Central Okanagan

The areas of interest within the Central Okanagan that fall under the Legacy Program are (Appendix ‘C’):

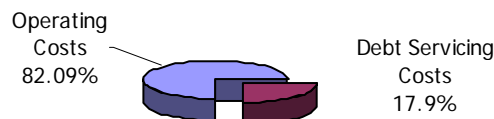
- Waterfront Areas
- Prominent Geologic Features
- Expansion of Existing Regional Parks
- Protection of Threatened Areas
- Watershed Protection

8.0 Funding Options Summary

8.1 Legacy Fund and Immediate (2007) Debt Servicing Option

Within the current requisition limit, approximately eighteen percent (18%) of the annual Regional Parks budget is projected for allocation to service debt in 2007 (\$758,406 / annually). Commitments related to the current debt servicing requirements will remain a component of the existing Regional Parks budget until 2016 (Municipal Finance Authority Debenture Issue #70 – Fintry Provincial Park partnership).

Regional Parks Expenditure Budget



Over five years of public consultation and technical staff discussions with partner municipal and provincial Parks Departments throughout the Regional District of Central Okanagan have identified a desired revision to the current parkland acquisition program to establish the use of a reserve fund model to facilitate park land acquisition interests.

The assembly of priority private and crown park land interests has illustrated that the RDCO would require approximately \$57 Million to secure all properties identified within the strategy. Considered review of funding options include the establishment of a land acquisition reserve fund, the implementation of a region wide development cost charge for regional park land acquisition purposes, as well as short and long term debt servicing options (< 5 year short term loans, 5+ year loan authorization terms and associated bylaws) for immediate park land interests, Crown land acquisitions, and Non Government (NGO) / Private Donation options have all been explored. The recommended financial strategy for future regional park land illustrates the use of a combination of short term (< 5 year) financing to serve immediate and threatened park land interests, and a reserve fund (pay as you go) establishment which will accrue funds to potentially finance intermediate term (5-10 year) park land interests as well encourage NGO contributions (Central Okanagan Parks & Wildlife Trust, Nature Trust of BC, Nature Conservancy of Canada, etc.).

The key principles behind the establishment of a “Regional Parkland Legacy Fund” with capacity to utilize the fund for short term (< 5 year) loan

debt servicing as well the associated residual investment into a regional park land acquisition reserve fund for intermediate term acquisitions are:

1. Long term debt servicing costs to the Regional Parks System budget are better managed.
2. The Regional parkland acquisition program can utilize reserves in a strategic “pay-as-you-go” approach for key regional park interests.
3. Implementation of short term (< 5 year) debt servicing program for “immediate” park land acquisition interests will secure protection of a critical sensitive grassland ecosystem and provide for establishing a key “greenway” linkage in the Central Okanagan.
4. Establishment of a reserve fund for regional parks acquisition assuming a proposed \$0.02 per thousand of assessed value (2007) will secure reserve funds which will grow at approximately \$535,000 annually. Net effect on an average home in the Central Okanagan will be \$8.40 annually (2007).
5. Long term debt servicing costs to the Regional Parks System budget are better managed.
6. The Regional parkland acquisition program can utilize reserves in a strategic “pay-as-you-go” approach for key regional park interests.
7. Utilizing a debt servicing term of only 5 years will enable the RDCO to capitalize on reduced loan interest rates (estimated to be 5.5% - 5 year term) and reduce the effect of rising real estate market to secure key park land interest properties.

NGO Partnership Funding Sources

To assist potential NGO partnerships the provincial government in 2004 setup an \$8 million dollar fund called “BC Trust for Public Lands”. The Trust has been established to operate for a 5 year time period with a potential for future extension. This fund provides an opportunity for a 3:1 ratio in acquiring property where 2 sources of funding must be from non provincial sources and the third coming from the trust. In order for a local government to access these funds they must partner with one of the 13 NGO agencies that comprise the Trust Board.

8.2 Regional Development Cost Charge (DCC)

Review of projected growth throughout the Central Okanagan has identified that an addition total of 18,989 units are projected for the development in the district between 2007 - 2017. If a development cost charge bylaw for future regional park land acquisition purposes was to be implemented at a rate of \$100 per unit, an additional \$1.8M in park land acquisition funding capacity could be addressed over the ten year period.

REGIONAL DISTRICT OF CENTRAL OKANAGAN						
2007 - 2011 Five Year Program Budget Projections						
Program:	142 -- Regional Parks					
Department:	Parks and Recreation					
General Revenue Fund Budgets						
	2007 Budget	2008 Projected Budget	2009 Projected Budget	2010 Projected Budget	2011 Projected Budget	
Revenue:						
WFN, Services, Rev. & Donations	-124,434 a	-126,923	-129,461	-132,050	-134,691	
Tax Requisition - Electoral	-837,997	-913,403	-945,166	-965,446	-986,984	
Tax Requisition - Kelowna	-2,914,013	-3,176,224	-3,286,679	-3,357,198	-3,432,092	
Tax Requisition - Peachland	-121,157	-132,059	-136,652	-139,584	-142,697	
Tax Requisition - Lake Country	-257,892	-281,098	-290,873	-297,114	-303,743	
Fed Govt Grant (HRDC) & Services - Fish Spawning	-10,600	-10,600	-10,600	-10,600	-10,600	
Previous Year's Surplus/Deficit	-153,887 b	0	-0	0	0	
Administration OH	364,148	395,981	409,787	420,232	430,963	
Total Revenue	-4,055,832	-4,244,325	-4,389,645	-4,481,760	-4,579,845	
Expenses:						
Operations	2,564,426 c	2,733,919 e	2,829,239	2,901,354	2,975,439	
Debt Payments	758,406	524,826 f	248,382 g	248,382	248,382	
Transfer to Equip. Reserves	0	70,000	100,000	100,000	100,000	
Trsfr Min. \$.02 to Park Land Reser	650,000 d	670,000	690,000	710,000	734,000	
Trsfr Excess Debt Capacity to Land Reserve	0	233,580 f	510,024 g	510,024	510,024	
Transfer to Capital	71,000	0	0	0	0	
Transfer to Dist of Peachland	12,000	12,000	12,000	12,000	12,000	
Total Expenses	4,055,832	4,244,325	4,389,645	4,481,760	4,579,845	
(Surplus) / Deficit	0	-0	0	0	0	
Tax Levy:						
Tax Requisition	-4,131,059	-4,502,784	-4,659,370	-4,759,342	-4,865,516	
Residential Tax Rate	0.1269	0.1343	0.1349	0.1338	0.1328	
(per \$1000 of assessment)						
Maximum Residential Tax Rate	0					

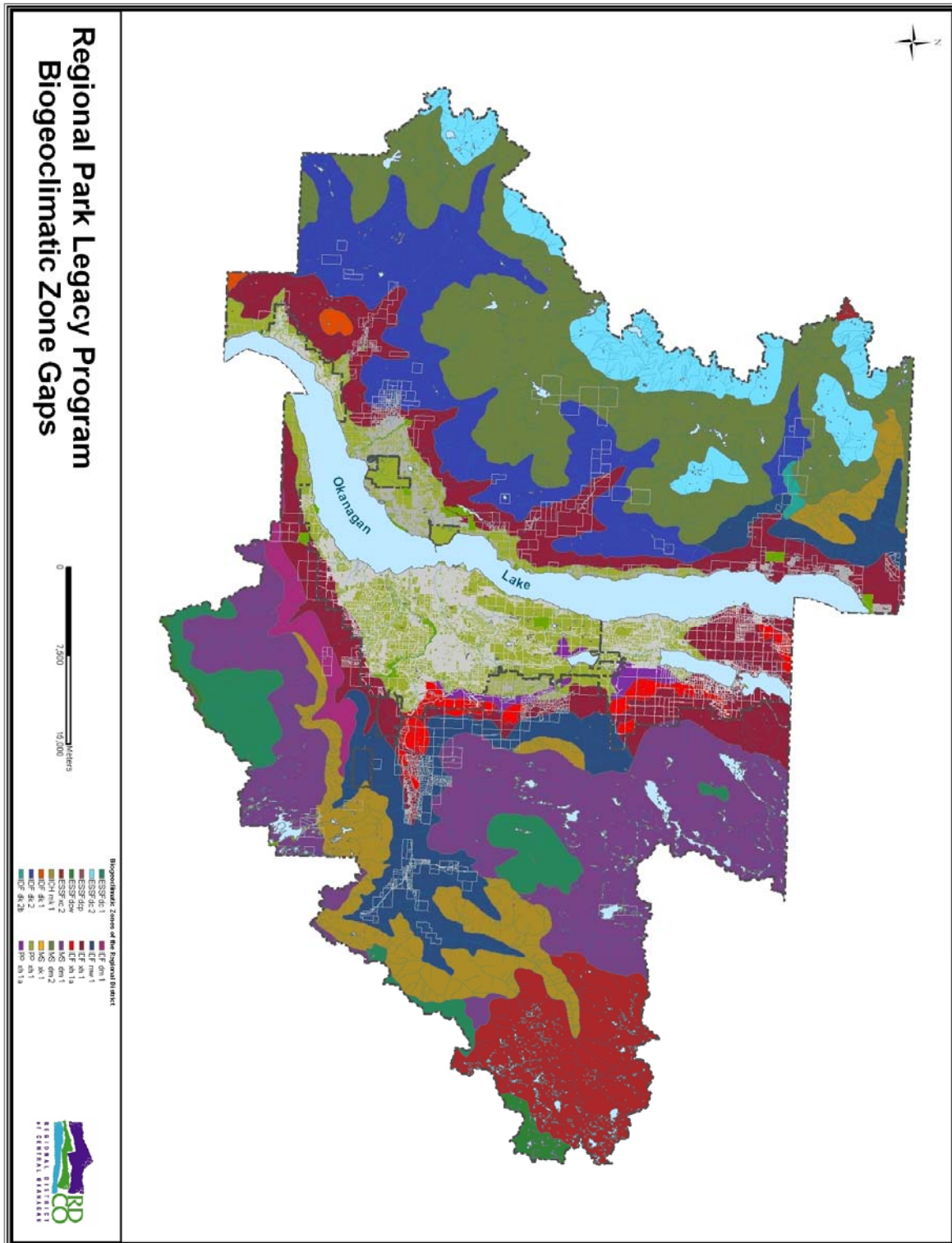
9.0 Priorities and Recommended Action Plan

Land interests identified in the Legacy Program acquisition list have been prioritized in a multi year term acquisition interest list to better outline the complete scope of regional park land interests which encompass private land, crown land and potential future land use park land dedication (development outcome). The properties have been described in five categories based on the tenure type and acquisition interest timeframe:

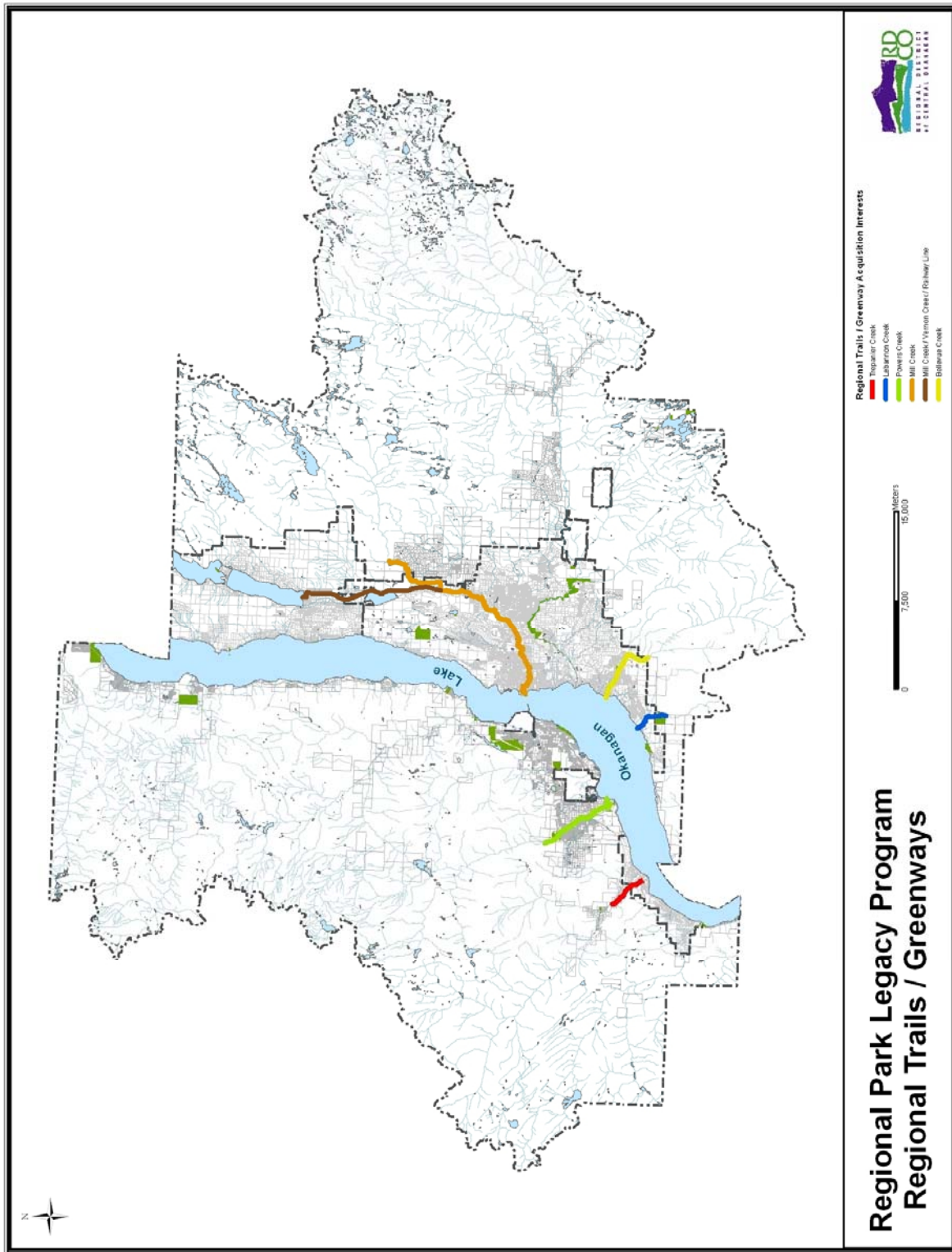
1. Private Land Sites (Immediate) – These are sites that have been proposed for the establishment of a new regional park or conservancy area for recreation or environmental benefits in the Legacy Program. They are prioritized according to ‘fit’ within the existing system, filling sensitive ecosystem “gaps”, our ability to acquire them, and our ability to partner with others.
2. Private Land Sites (5 - 10 Years) – These are sites that have been proposed for the establishment of a new regional park or conservancy area for recreation or environmental benefits in the Legacy Program. They are prioritized according to ‘fit’ within the existing system, filling sensitive ecosystem “gaps”, our ability to acquire them, and our ability to partner with others. These sites can also serve as a boundary consolidation (In-holdings). Purchase of these sites would protect biodiversity by filling in ‘gaps’ in a protected area; complete a connection or recreation opportunity; or are needed for safety related and operational reasons.
3. Crown Grant – These are properties that are to be added to a regional park or greenway. They are being sought to increase environmental protection of existing assets; create a recreational or environmental connection; include an area of high biodiversity or recreational value into an exiting park complex or to further the assemblage of a greenway connection.
4. Land Use Consideration / Collaboration – Significant future park land opportunities can be achieved through collaborative planning efforts via neighborhood or sector plan development. Projects will be determined in concert with priorities set by municipal councils and the RDCO Board.
5. Donation / NGO Partnerships – As opportunities arise, donations and NGO partnerships will be carefully assessed to ensure that properties under consideration meet the policy objectives set out in the Official Regional Park Plan Bylaw No. 884 and the Legacy Program 2007 – 2017 Acquisition Strategy.

10.0 Appendices

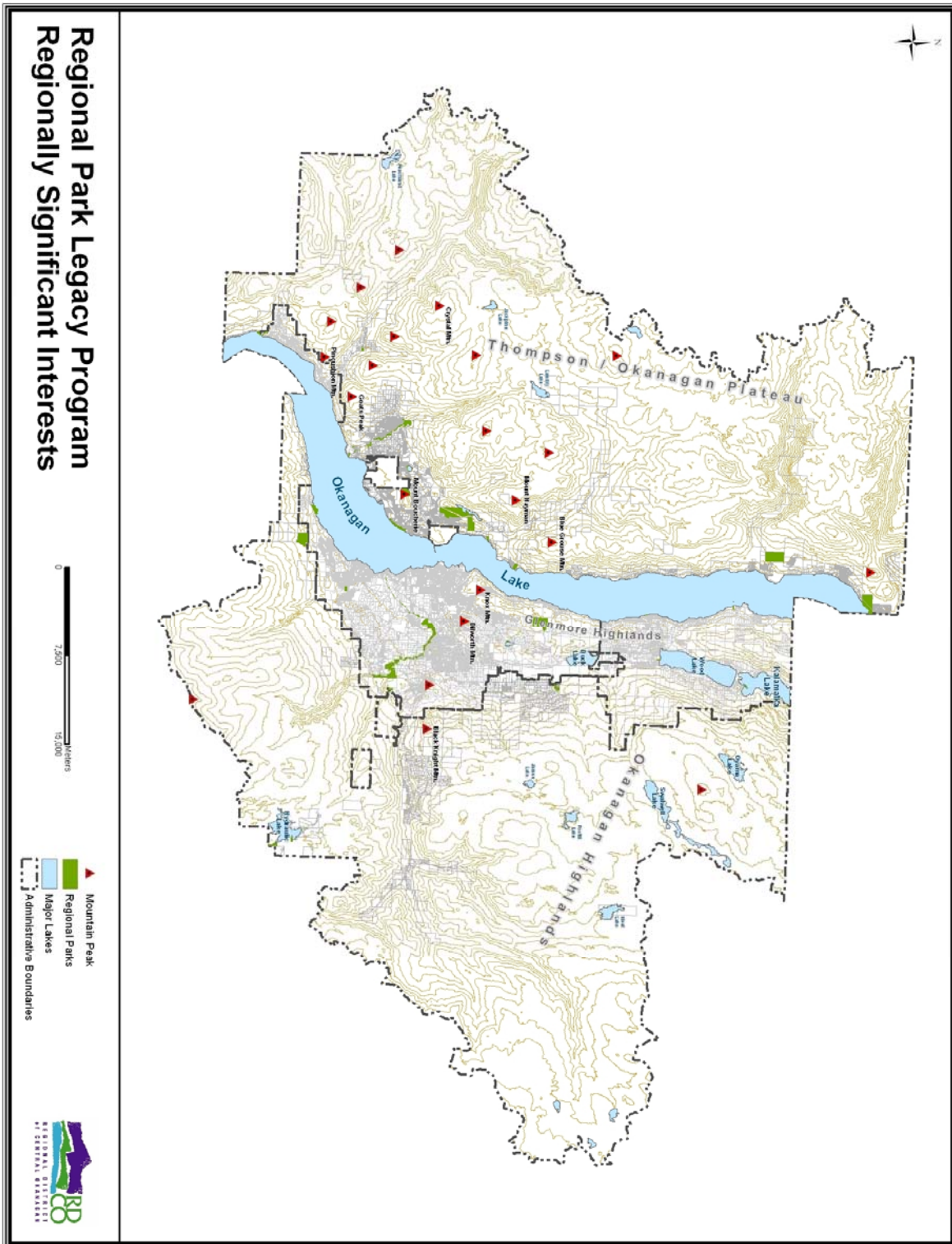
10.1 Appendix 'A'



10.2 Appendix 'B'



10.3 Appendix 'C'



11.0 Resources

Biogeoclimatic Ecosystem Classification Program, British Columbia Ministry of Forests, Research Branch, (www.for.gov.bc.ca/hre/becweb/program/staff/index.html)

Crown Land Use Operational Policy: Form of Crown Land Allocation, British Columbia Ministry Agriculture and Lands, Integrated Land Management Bureau, (www.ilmbwww.gov.bc.ca)

Iverson, K. and C. Cadrin. 2003. Sensitive Ecosystems Inventory: Central Okanagan, 2000-2001. Volume 1: Methodology, Ecological Descriptions, Results and Conservation Tools. Technical Report Series No. 399, Canadian Wildlife Service, Pacific and Yukon Region, British Columbia.

Pidwirny, M.J., et al, Living Landscapes, Land Use and Environmental Change in the Thompson – Okanagan (Royal BC Museum) (www.livinglandscapes.bc.ca/thomp-ok/env-changes/index.html)