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TYNEHEAD REGIONAL PARK MANAGEMENT PLAN

1.0	INTRODUCTION	1
1.1	REGIONAL POLICY CONTEXT	1
1.1.1	<i>Livable Region Strategic Plan</i>	2
1.1.2	<i>Sustainable Region Initiative</i>	2
1.2	PURPOSE OF THE TYNEHEAD PARK MANAGEMENT PLAN.....	4
1.3	TYNEHEAD PARK PLANNING PROCESS	4
2.0	TYNEHEAD REGIONAL PARK	5
2.1	LOCATION IN THE GVRD / SURREY AREA.....	5
2.2	ROLE IN THE REGIONAL PARKS' SYSTEM	5
2.3	MUNICIPAL ZONING.....	6
2.4	NEARBY RECREATIONAL FACILITIES.....	6
2.5	GREENWAYS AND LINKAGES	8
2.6	ADJACENT LAND USE AND DEVELOPMENT PRESSURES.....	9
2.6.1	<i>Park Boundary Encroachment</i>	9
2.7	TRANSPORTATION, UTILITIES AND PUBLIC TRANSIT	10
2.7.1	<i>Fraser River Crossing and the South Fraser Perimeter Road</i>	10
2.7.2	<i>96th Avenue Widening and Re-profiling</i>	10
2.7.3	<i>Transit and Park Access</i>	11
2.7.4	<i>Potential Road Closures</i>	11
3.0	NATURAL AND CULTURAL FEATURES	11
3.1	SOILS	11
3.2	SERPENTINE RIVER.....	12
3.3	FISH AND STORMWATER MANAGEMENT	12
3.4	WETLANDS	13
3.5	MEADOWS AND FIELDS.....	13
3.6	VEGETATION.....	14
3.6.1	<i>Landmark Trees</i>	14
3.6.2	<i>Invasive Species</i>	15
3.7	WILDLIFE	15
3.8	CULTURAL RESOURCES.....	15
3.8.1	<i>First Nations</i>	15
3.8.2	<i>Pioneer Era</i>	16
3.9	PARTNERSHIPS	17
3.9.1	<i>The Serpentine Enhancement Society</i>	17
3.9.2	<i>Catching the Spirit</i>	18
4.0	EXISTING PARK USES AND FACILITIES	18
4.1	SERPENTINE RIVER VALLEY	18
4.1.1	<i>Staging Areas</i>	19
4.1.2	<i>Trails</i>	20
4.1.4	<i>Festival Field</i>	21
4.1.5	<i>Serpentine Hollow</i>	21
4.2	TYNEHEAD EAST	21

4.3	PERIMETER ZONE	22
4.4	LAND BANKED PARKLAND AND RENTAL PROPERTIES	22
5.0	PLAN PROCESS OUTCOMES AND GUIDELINES	22
5.1	PARK GOAL	23
5.2	PLANNING PROCESS OUTCOMES	23
	5.2.1 <i>Working Principles</i>	23
	5.2.3 <i>Putting it in Perspective: Past Ideas and Concepts for Tynehead East</i>	25
	5.2.4 <i>The Need for Non-Tax Revenue</i>	25
	5.2.5 <i>Enhanced Services at Tynehead</i>	26
	5.2.6 <i>Tynehead East Development Context</i>	26
	5.2.7 <i>Range of Ideas for the Future of Tynehead East</i>	27
5.3	PARK MANAGEMENT GUIDELINES	27
	5.3.1 <i>Visitor Services</i>	28
	5.3.2 <i>Resource Management and Stewardship</i>	28
	5.3.3 <i>Community Development and Partnerships</i>	29
	5.3.4 <i>Planning and Operations and Maintenance</i>	29
	5.3.5 <i>Park Boundary and Land Management</i>	30
6.0	MANAGEMENT PLAN PROGRAM	30
6.1	PROGRAM DESCRIPTION BY PLANNING ZONE	31
	6.1.1 <i>Serpentine River Valley</i>	31
	6.1.2 <i>Tynehead East</i>	33
	6.1.3 <i>Perimeter Zone</i>	34
6.2	PRIORITIES AND DEPENDENCIES	35
	6.2.1 <i>High Priority Projects</i>	35
	6.2.2 <i>Medium to High Priority Projects</i>	35
	6.2.3 <i>Dependencies and Implications on Prioritization</i>	35
6.3	NEXT STEPS	36
6.4	OPERATING IMPLICATIONS OF THE MANAGEMENT PLAN	36
APPENDIX 1:	REGIONAL PARKS DEPARTMENT ACTIVITY STREAMS AND OBJECTIVES..	38
	<i>Visitor Services – Recreation and Education and Interpretation</i>	38
	<i>Resource Management and Stewardship</i>	39
	<i>Community Development and Partnerships</i>	39
	<i>Planning and Research</i>	40
	<i>Operations and Maintenance</i>	40
	<i>Enhanced Park Services and Revenue Generation</i>	41
APPENDIX 2:	PROJECT PRIORITIZATION, DEPENDENCIES, AND RELATIVE IMPLEMENTATION SCHEDULE	42
APPENDIX 3:	PLAN IMPLEMENTATION – OPERATING COST , STAFFING, AND CAPITAL COST PROJECTIONS	45

LIST OF FIGURES

Figure 1: Regional Parks' System	3
Figure 2: Tynehead Regional Park	7
Figure 3: Surrey Parks and Connections Plan	8
Figure 4: South Port Kells Neighbourhood Plan Area	9
Figure 5: Vegetation Types / Land Cover	13
Figure 6: Historical Land Use In and Adjacent to the Park.....	16
Figure 7: Existing Park Uses and Planning Zones.....	19
Figure 8: Management Planning Zones.....	25
Figure 9: Regional Parks Department Activity Streams.....	38

1.0 INTRODUCTION

In 1966, the Vancouver Fraser Park District proposed “Tynehead Hollow” in the City of Surrey as a regional park, with an aim to accommodate specialized outdoor recreation facilities. Land acquisition began in 1969, and by 1975, Tynehead Regional Park’s 261 hectares (644 acres) was acquired. Regional Parks assumed management of recreational use in the mid 1980’s. Visitor use at Tynehead has increased by over 50% in the past decade, and currently the park receives approximately 300,000 visitors annually.



The park is divided by topography into two distinct parts. The westerly component (Serpentine River Valley) is predominantly a nature conservation area of about 123 ha, focused on the floodplain of the Serpentine River and its tributaries. This portion of the park has been operated under the terms of the Interim Management Plan approved in 1992. It contains excellent fish habitat, a hatchery, trails, picnic areas, and the park’s most important heritage features. Greater Vancouver Regional District (GVRD) Parks presents interpretive programs in this part of the park to increase public awareness of the importance of maintaining and protecting wildlife habitats.

The easterly component (Tynehead East), approximately 138 hectares, has been held in reserve for future development since its acquisition. Its gently rolling meadows, hedgerows, old orchards and deciduous forests have evolved out of a history of pioneering and agricultural activities. The nature of the terrain, limited environmentally sensitive areas within it, and its accessible location in the fastest growing segment of the region, imply that this section of the park can accommodate more intensive recreational, cultural, educational, entertainment, commercial and tourism facilities / services / activities.

1.1 Regional Policy Context

The Greater Vancouver Regional District (GVRD) is a working partnership of twenty-one (21) municipalities and one electoral area. The GVRD is dedicated to maintaining the quality of life in the Greater Vancouver area by managing and planning growth and development and protecting air quality and green spaces. The GVRD’s role is also to deliver essential utility services such as drinking water, sewage treatment, recycling and garbage disposal that are more economical to provide on a regional basis.

Tynehead is one of twenty-five (25) regional parks and greenways serving residents of, and visitors to, the GVRD (Figure 1). They encompass approximately 11,400 hectares (ha). Regional parks protect and sustain vibrant examples of the region’s natural and cultural heritage. They serve a wide range of functions including recreation, education, interpretation, conservation, and the provision of habitat for a vast array of fish and wildlife. The parks feature sensitive habitats, significant landscapes and views, landmark trees, heritage buildings and sites, and park facilities. Over the past twenty-five years, the GVRD has wisely invested in the expansion of the regional park system to meet the recreation and education needs of

a growing population; to attract visitors from other regions and countries; to ensure the conservation of critical natural features and processes; and to retain important cultural sites in the public domain.

1.1.1 Livable Region Strategic Plan

The Livable Region Strategic Plan (LRSP) is Greater Vancouver's regional growth strategy. Since its adoption by the GVRD Board of Directors in 1996, the LRSP has provided the framework for making regional land use and transportation decisions in partnership with GVRD's member municipalities, the provincial government, and other agencies. The GVRD is presently undertaking a comprehensive review of the LRSP. That review is taking place within the framework of the *Sustainable Region Initiative (SRI)*. For more information, refer to the GVRD website and links to the LRSP and SRI at www.gvrd.bc.ca.

There are four key strategies in the implementation of the LRSP: “Protect the Green Zone, Build Complete Communities, Achieve a Compact Metropolitan area, and Increase Transportation Choice”. The Green Zone is intended to protect Greater Vancouver’s natural assets, and by doing so establish a long-term boundary for urban growth. Municipalities nominated lands within their jurisdiction to be included. There are four land use designations within the “Green Zone”. These are:

1. Community Health Lands (unstable slopes, watersheds, floodplains, etc.);
2. Ecologically Important lands (wetlands, rare habitat, important wildlife areas, etc.);
3. Renewable Resource Lands (farming); and
4. Outdoor Recreation and Scenic Lands (variety of year round activities, major parks, beaches, etc.).

Within the LRSP, Tynehead Regional Park is classified as “Outdoor Recreation and Scenic Lands”, supporting the dual objectives of conservation and recreation intended for the park.

1.1.2 Sustainable Region Initiative

GVRD’s Sustainable Region Initiative (SRI) is an evolving and overarching approach to managing regional services that guides the GVRD’s overall corporate policies. SRI provides a framework, vision, and action plan for Greater Vancouver based on the concept of sustainability that embraces economic prosperity, community well being, and environmental integrity. The intention is for the GVRD to act as the catalyst for a process that will engage many owners and many actors in the task of developing a better region for present and future generations.

Figure 1: Regional Parks System Map



1.1.3 Regional Parks' Mandate

Regional Parks' mission statement is to *“protect and care for a legacy of diverse landscapes and features which represent our region and which provide outstanding opportunities for outdoor recreation, education, and community participation”* (GVRD, 1999).

1.2 Purpose of the Tynehead Park Management Plan

The purpose of the 2003 Management Plan is twofold: to update the 1992 Interim Plan and to provide a 10-15 year perspective on the park's management and operation. It establishes policies and land use guidelines for park facility development and provides a record of the 2002 planning process, public and stakeholder consultation, and a basis for monitoring.

The management plan and the planning process, including public involvement, set up a framework that helps: express a common understanding of the park's future, identify opportunities and constraints for various park uses, and make management intentions transparent and the decisions of staff and management accountable.

1.3 Tynehead Park Planning Process

Tynehead Regional Park's initial 'concept' plan was completed in 1983. The Interim Plan was completed in 1992. Early in 2002, the Tynehead Regional Park planning program was initiated with the dual objectives of updating the 1992 Interim Park Management Plan, and deciding future use of key areas including, but not limited to, Tynehead East.

Public involvement was significant, with approximately three hundred people participating and contributing their ideas at community group meetings, “planner in the park” sessions and three public workshops held March 16th, June 1st and October 5th 2002. Public input focused on the establishment of “planning zones” to provide guidance for the future of the park, discussions about types and form of acceptable development for Tynehead East, and the development of “Working Principles” to help guide any development at Tynehead East and throughout the park. These outcomes will be elaborated upon in the following section.

Key components in the planning process were:

- Inventory and analysis of existing background reports and park facilities, supplemented by field visits;
- Planner in the park sessions;
- Stakeholder and community group meetings (26 groups contacted and offered a meeting – 9 meetings held in 2002, 3 in 2003);
- Public workshops (over 200 people participated in a series of 3 workshops held in March, June and October 2002) to develop “Working Principles”, explore

possibilities for future development for Tynehead East, and confirm park planning zones;

- Public Open House (65 people attended) held in November 2003 to present the draft plan for review
- Mapping of existing facilities, resources, planning zones, and biophysical attributes (GIS);
- Biophysical survey completed in 2001 with specific focus on Tynehead East to complement and update a 1991 biophysical study.
- Geotechnical and Floodplain Overview Study in November 2000 for Tynehead East;
- Utilities and Servicing study;
- Preliminary heritage and archaeological assessment;
- Comparative bird counts; and
- A Newsletter Update.

2.0 TYNEHEAD REGIONAL PARK

2.1 Location in the GVRD / Surrey Area

Tynehead Regional Park is located near the centre of the Greater Vancouver Regional District in the northeast part of Surrey. It can be accessed directly off of Highway One via the 160th Street or 176th Street exits. The majority of Lower Mainland residents can reach Tynehead within thirty minutes by car from their homes (GVRD Parks, 1992).

The community of Guildford lies on the park's western edge, semi-rural development on its eastern and south-eastern borders, and there is subdivision development on the park's south-western edge. Growing populations in the eastern part of the GVRD continue to place increasing demands on Tynehead's services and facilities.

2.2 Role in the Regional Parks' System

The overall direction for Tynehead is rooted in the principles and development guidelines for all GVRD parks. GVRD Parks' mission statement is "to protect and care for a legacy of diverse landscapes and features, which represent the region and provide outstanding opportunities for outdoor recreation, education and community participation".

'Tynehead Hollow' was selected and approved by the predecessor to the GVRD, the Vancouver Fraser Park District, in 1966. Tynehead's gentle rolling slopes, mixed forest and pasture, the opportunity to protect a significant part of the Serpentine River, and the park's ability to accommodate specialized outdoor recreation facilities on the east side,

Development Guidelines: Multi-Purpose Parks

- ❖ *provide a variety of active and passive recreational pursuits in park landscapes that preserve diverse natural and recreational features;*
- ❖ *provide developed activity areas complemented by sizable natural areas for dispersed but significant levels of public use ;*
- ❖ *provide activities and facilities which take full advantage of specific recreation resources of the park; and*
- ❖ *ensure that large areas set aside for recreational use and development be integrated with preservation of significant natural features and areas.*

GVRD Parks, 1985

all provided strong impetus to its inclusion in the regional parks plan. Land acquisition began in 1969, and by 1975, Tynehead Regional Park's 261 hectares (644 acres) was acquired.

Within the regional parks' system, Tynehead is a "multi-purpose park" with unique capabilities and policies (see inset). It differs from other regional parks in the reasons for its acquisition and the type of development it is intended to accommodate. While many others were chosen specifically for their regionally significant natural landscape features, Tynehead was acquired for its location, accessibility, microclimate, gentle terrain and altered landscape. It has the potential to accommodate heavy use without causing significant adverse impact on the natural environment.

As of 2003, park operations and maintenance at Tynehead are performed by one full-time staff (Park Operator) and two seasonal staff (Park Workers). The park service building and service yard are located on 96th Avenue. Tynehead staff are also responsible for operating and maintaining Surrey Bend Regional Park and Robert Point Rest Area.

2.3 Municipal Zoning

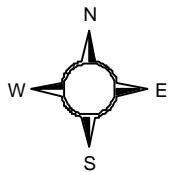
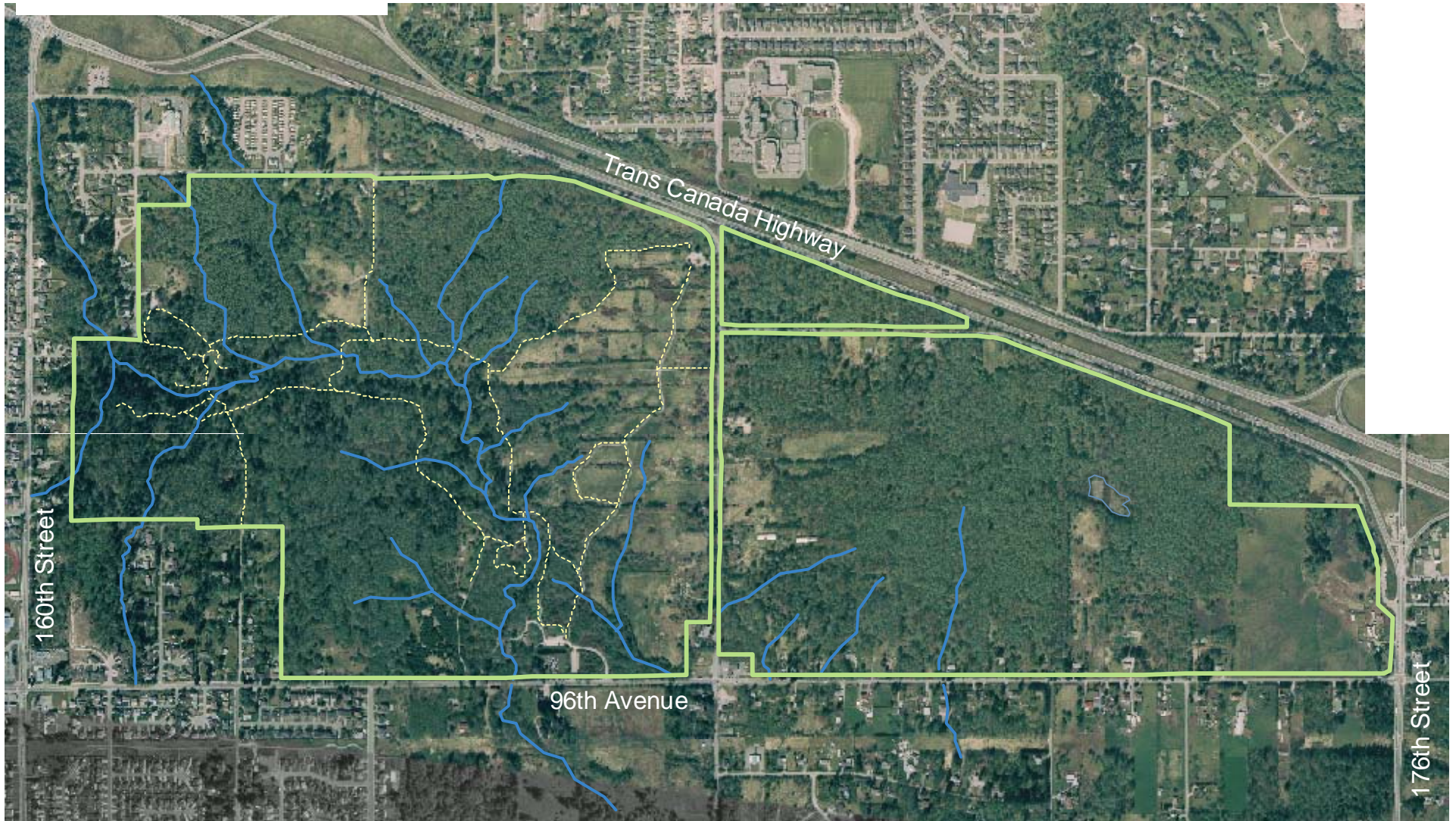
The majority of Tynehead is zoned A-1 Agricultural (Small Holdings) with some RA (One-Acre Residential) zoning. The park is not a part of the Agricultural Land Reserve. The City of Surrey's Official Community Plan (OCP) designates Tynehead as "Conservation" under its land-use policies. Approved land uses under this designation are major parks, indoor and outdoor recreation activities, and open space for environmentally sensitive areas in their natural state. A Comprehensive Development Permit is allowable under the "conservation" land use designation. The "Surrey Environmentally Sensitive Areas Update" (1997) described Tynehead East as having low and medium environmental sensitivity, while the Serpentine River Valley has a high to medium rating.

Any potential changes in land use for Tynehead East will likely require rezoning and, potentially, OCP amendments. These will require public hearings and the approval of Surrey City Council.

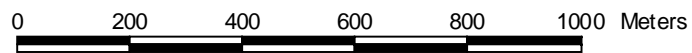
2.4 Nearby Recreational Facilities

There are five other regional parks and greenways are located within a ten kilometre radius of Tynehead. There are two park reserves, Surrey Bend (Barnston Island) and the Fraser River Islands Reserve (Douglas Island); one river / stream corridor park, Derby Reach; one multiple purpose park, Colony Farm; and one regional greenway, Brunette-Fraser with Sapperton Landing Park. Each regional park

Figure 2: Tynehead Regional Park



Tynehead Regional Park



Scale 1:13,000
Orthophotography 2002
0.25 m resolution
Mapping: HW
Oct. 2003



offers a unique activity or attraction, however, all regional parks open to the public provide passive recreation, such as picnicking, nature study and trail walks in a natural setting.

Surrey's large municipal parks and recreation sites nearby include: Bothwell Park (on south side of 96th Avenue at 168th Street), Green Timbers Urban Forest, and Bear Creek Park. Several smaller recreation sites also exist nearby. As with other regional parks, plans for Tynehead will strive to complement rather than duplicate services and facilities offered at these municipal sites.

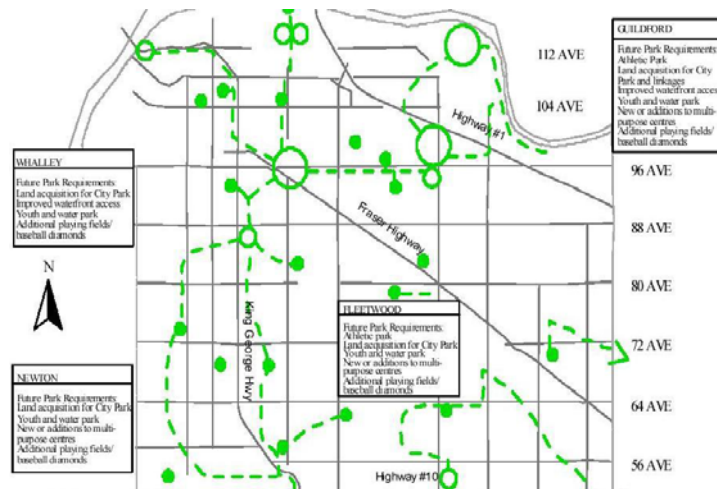
2.5 Greenways and Linkages

Greenways are linear open spaces connecting major parks, open spaces, and communities. They may include off-street pathways, trails, sidewalks, boardwalks, and/or utility corridors. The GVRD Board adopted the broad-brush Greenway Vision, in 1999, and has since been refining this work through the development of sub-regional greenway plans. Once complete, an overall Regional Recreation Greenway Plan will be incorporated into the LRSP.

Tynehead intersects and connects with a number of existing and planned greenways and trails. The *Surrey Greenway Network* was developed by the Surrey Parks, Recreation and Culture as part of the City's *Parks Master Plan* in 1996. The plan advocates developing a trail system along existing power line easements, ravines and watercourses, creating opportunities for linking Tynehead to Bothwell Park, Hawthorne Park and Green Timbers and other green spaces in Surrey (Figure 3).

The Official Spur of the Trans Canada Trail endeavours to link Derby Reach Regional Park (10km northeast of Tynehead) to Surrey Bend Regional Park, through Tynehead, and onto Surrey's existing greenway corridors (specifically the Serpentine Greenway running north / south along a BC Hydro right of way connecting to Boundary Bay). The proposed Perimeter Trail around Tynehead Regional Park will facilitate these connections as will a proposed pedestrian link / overpass over Highway One at 168th Street, links to the existing greenway in Bothwell Park, and trail development along the north side of 96th Avenue being considered in concert with the road's widening and re-profiling (City of Surrey project).

Figure 3: Surrey Parks and Connections Plan – linking Tynehead to the Serpentine Greenway, the Trans Canada Trail and to Surrey Bend (City of Surrey, 2001)



2.6 Adjacent Land Use and Development Pressures

Tynehead Regional Park is bounded on the north and east by major roads, the Trans Canada Highway and 176th Street (Highway 15). Residential development flanks the park on the west and rapidly intensifying residential development is rapidly growing on the southwest corner. 96th Avenue delineates the southern boundary of the park, and its south side consists of rural, residential development. Aside from residential use, the other adjacent uses along the perimeter of the park are an RV park, church, and gas station.

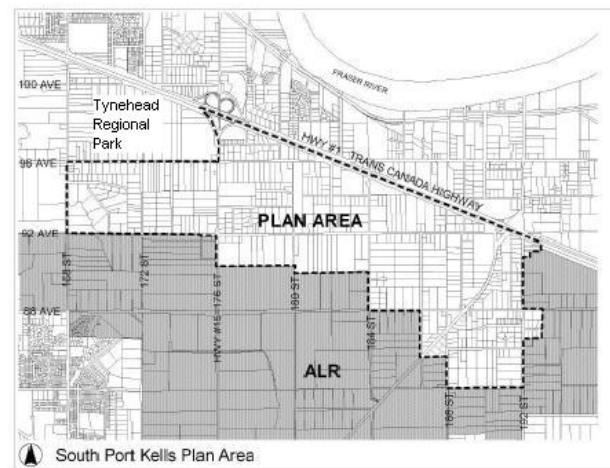
In 2003, Surrey approved the development of a mall on the north side of Highway One at the corner of 176th Street. Suburban residential development is present east of 176th Street on the north side of Highway One. In 2003, the city of Surrey initiated a Neighbourhood Community Plan for South Port Kells to explore the possibility of alternative land uses. The boundaries of this planning area about Tynehead Regional Park on the east side of 176th Street (Figure 4).

It is estimated that more than half of Tynehead visitors (as of 1999) reside in either north Surrey or north Langley, in other words are regular, local visitors. Therefore, it is expected that the growing residential population in this area will continue to put increasing use and access pressures on the park. This visitor profile is expected to change with any new development at Tynehead East.

Tynehead is not part of the Growth Concentration Area in the Livable Region Strategic Plan, nor is the area adjacent to the park slated for significant residential development in the City of Surrey's Official Community Plan.

However, as the population of the Lower Mainland increases by approximately 1.6% per year, regional park use continues to grow at nearly 5% per year. The result is increasing pressure on existing recreational facilities, and more crowding. Tynehead receives over 300,000 visitors annually as of 2003.

Figure 4: South Port Kells Neighbourhood Plan Area



2.6.1 *Park Boundary Encroachment*

Encroachment of the park boundary by adjacent private landowners is a growing management issue in the park. There are an increasing number of single family residential developments along the west and southwest perimeter of the park, where adjacent landowners extend yard treatments (e.g. mowing, dumping clippings and compost, ornamental planting and invasive species), or construct small structures. The situation is compounded by the fact that this portion of the park is the most remote and hard to access, making it difficult to monitor impacts

and patrol. GVRD intends to clarify the existing park boundary along this side of the park, and to work with neighbours to respect and maintain the park boundary through a program of trail development, controlled access and education.

2.7 Transportation, Utilities and Public Transit

To ensure that use of the park will continue to mesh with other regional objectives and developments, management planning for the park must consider issues such as long-term projections for transportation and utilities (GVRD, 2003). Management of such issues is shared between the GVRD, Translink, the province and the City of Surrey. These issues are driven by the development pressures experienced by the municipality, as reflected in its OCP, and balanced by the region's strategies for promoting sustainable living (e.g. Sustainable Region Initiative).

GVRD Parks would like to minimize the number of road and utility crossings in the park, encourage and facilitate the use of public transportation to access the park, and promote safe multi-use routes along designated pedestrian and cyclist roadways connecting to, and through, the park. The development of such a trail network depends on cooperation among GVRD Parks, the City of Surrey, BC Ministry of Highways, BC Gas, BC Hydro, and other agencies.

2.7.1 Fraser River Crossing and the South Fraser Perimeter Road

Expected to open in 2007, the New Fraser River Crossing will speed the movement of commercial goods and services, promote residential and light industrial development, and improve transit connections across the river. Translink and the Province are jointly developing the program. The bridge will cross the Fraser River at approximately 200th Street, with connections on the south side to Langley via 200th Street, and to Surrey along a new connector road to 176th Street and 96th Avenue. On the north side, the crossing will connect to the Lougheed Highway and with 113B Avenue.

There will be some impacts at Tynehead, which have yet to be quantified. The intersection of 176th Street and 96 Avenue will be relocated and expanded. In addition, it is anticipated that there will be increased traffic along both 176th Street and 96th Avenue.

2.7.2 96th Avenue Widening and Re-profiling

The City of Surrey is planning to widen and re-profile 96th Avenue to four lanes. This road is defined as a "City Arterial", and is slated for "Interim Arterial Widening" in the City of Surrey's 2001-2010 Servicing Plan. Impacts will include more efficient park access, improved traffic flow, but increased volume, and potential increased noise. There is potential to integrate the development of part of the planned Perimeter Trail into this road expansion project.

2.7.3 *Transit and Park Access*

Currently, Tynehead is accessed via either the 160th or 176th Street exits off of Highway 1, connecting to 96th Avenue, 168th and 161 Streets. There is no transit access currently, and neither the City of Surrey nor Translink plan to add Tynehead Regional Park as a transit destination or route. In the long term, potential development at Tynehead East could provide the ridership to re-evaluate transit access to the park.

2.7.4 *Potential Road Closures*

The 2002 management planning process explored the closure of 168th Street north of 96th Avenue, and other associated roads within the park. The benefits of road closure include: a better integration and flow between the two biophysical parts of the park, a more attractive park experience, an enhancement of park entrance options, and an increase options for relocation and re-design of existing and new facilities. However, there are some negative impacts as well, including the creation of an unwanted traffic pattern change, and a reduction in options for resident and business access through the park. The City of Surrey is responsible for making any final decisions on road closures, and any decisions will be rooted in the 2001-2010 Servicing Plan, the OCP, and relevant Translink plans.

3.0 NATURAL AND CULTURAL FEATURES

3.1 Soils

The topography of the park is generally moderately sloping toward the Serpentine River. The predominant slope direction is south and southwest at 5% and 10%. The maximum elevation change is 55 metres. The western portion of the park is incised by 11 tributary creeks and well defined ravines occur on portions of the main channel of the Serpentine and the creeks.

Most of Tynehead's soils were deposited by glaciers and consist of silt and clay sediments mixed with a variety of stones, cobbles and gravel. In general, the soils are moderately well-drained and are suited to recreational development, especially in Tynehead East. The Serpentine floodplain and portions of Tynehead East, especially surrounding a wetland area, have soil conditions such as a high water table, low permeability, poor drainage, and susceptibility to flooding.

3.2 Serpentine River

Most of the Serpentine River's flow originates outside the park within commercial and residential areas of Guildford. Downstream of the park, the Serpentine River flows through Surrey, past Cloverdale to Mud Bay where it enters the ocean.

Within the park, the Serpentine River is a small clear stream, meandering over fine to coarse gravel for almost 1850 metres. Red alder and big-leaf maple shade the river and understory vegetation such as thimbleberry, elderberry, blackberry, and willow line its banks. To maintain fish habitat, this vegetation must be protected. The channel width of the main stem of the Serpentine averages eight metres and its wetted width averages 4.5 metres during low flow periods. The floodplain has an average width of one hundred (100) metres. As it passes through the park, the river receives inflows from eleven tributaries, five of which contribute year round surface flows and are fish accessible. Six are seasonal and usually contain water from November through April. Three other seasonal watercourses drain the area just east of 168th Street; these streams join the Serpentine River south of 96th Avenue, outside the park.

3.3 Fish and Stormwater Management

The river's shallow gradient and cold, stable water flow provide pool and riffle habitats in the absence of rainfall making this portion of the Serpentine one of the best spawning and rearing habitats for Coho salmon and trout along the entire system. After storms, there is a large and almost instantaneous increase in water flow, with resultant water levels rising almost 30 centimetres per hour. Because Guildford's extensive storm sewer system eventually drains into the Serpentine River, run-off continues to increase. Run-off also affects water quality because the normally low sediment level increases and causes siltation problems such as clogged fish gills and smothered eggs. Winter treatments of roads, parking lots and human carelessness have allowed sand and harmful chemicals to enter the river. Downstream of the park, the Serpentine River experiences significant water quality problems such as low oxygen levels that occur as a result of the decomposition of agricultural fertilizers.

The City of Surrey requires that all new developments near or adjacent to the park construct detention ponds to deal with on-site run-off. The city is also planning a second large community detention pond to control existing flows. If the water quality remains acceptable the portion of the Serpentine River inside the park could remain one of the best spawning and rearing habitats for Coho and chum salmon and trout along the entire system. Surrey plans to do some substantial upper Serpentine erosion protection work just south of 96th Avenue as defined in the *Existing System Upgrades* section of the 2001-2010 Servicing Plan.

Coho salmon, rainbow trout and cutthroat trout are abundant in the Serpentine River. Salmonids have different habitat requirements at different times of the year are able to use the Serpentine for spawning, summer rearing and feeding, and overwintering. Cutthroat trout are found in slightly higher numbers than rainbow trout and both trout populations contain resident and sea-run individuals. The river also contains other fish species including western brook lamprey, reidside shiner, threespine stickleback and sculpins.

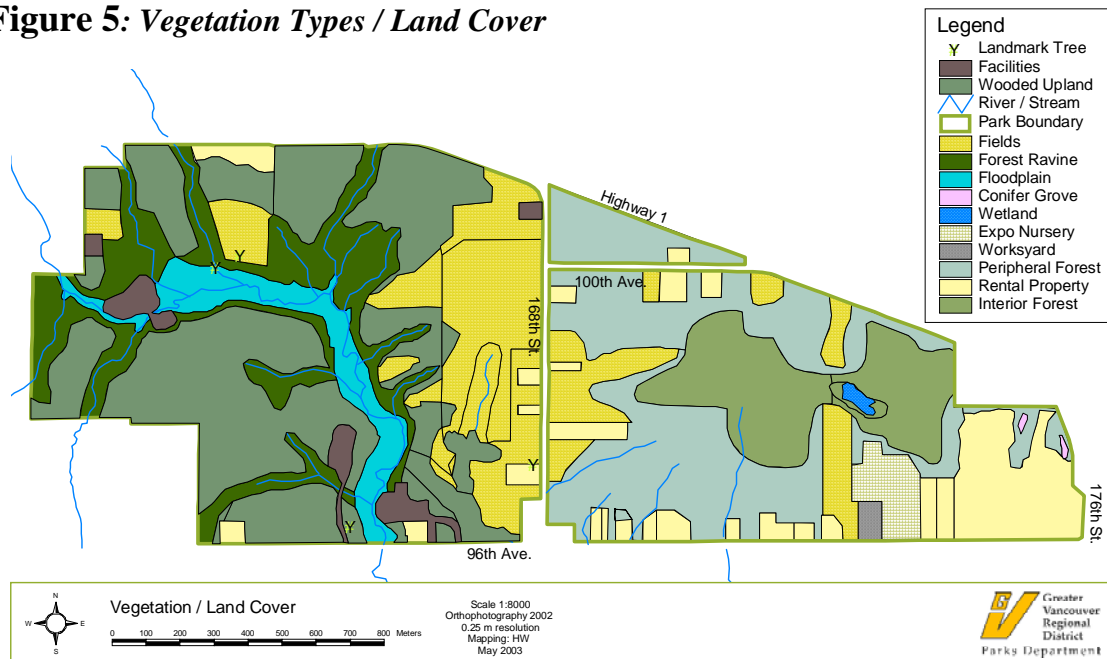
3.4 Wetlands

There are two wetland areas in the park. The largest is in Tynehead East approximately 375 metres north of 96th Avenue (see Figure 5). The wetland may originally have been an old stock pond dug by a farmer to water his livestock. The wetland occupies approximately 0.7 ha, but may expand or contract depending on precipitation. Standing water is present year round. The open wetland is dominated by emergent vegetation including common rush, reed canary grass, some small-flowered bulrush, and small 'islands' of hardhack. Based on type of vegetation, this wetland is best described as a 'marsh'.

The second wetland area is a very small, spring-fed boggy area near 96th Avenue along the southernmost tributary on the west side of the Serpentine River. It is densely covered with wetland plants such as yellow marigold, horsetail, sedge, reed canary grass, and 'swordgrass'.

Although neither wetland area currently contains any significant wetland habitat, both could be enhanced to provide waterfowl habitat or attractive visual features.

Figure 5: Vegetation Types / Land Cover



3.5 Meadows and Fields

Farmland and rural residential pastures once occurred along the street fronts, particularly along 96th Avenue and 168th Street. The largest field area lies just west of 168th Street and contains the dog off-leash area. Currently, agricultural fields make up about forty (40) hectares of Tynehead Regional Park.

Homesteading and farming created most meadows and fields in the park (Figure 5); however the fields are no longer hayed, and are therefore undergoing natural succession. Grasses cover most meadows and fields, which are interspersed with overgrown orchards, hedgerows and encroaching thickets of shrubs such as ocean spray, gooseberry, hardhack and blackberry. The main hedgerow species are Pacific crabapple, hawthorn, alder, birch, hardhack, and dense blackberry vines. The variety of plants and the progression from grasses to shrubs and forest edge provide excellent habitat for birds and small mammals. However, if left unchecked, ongoing succession will reduce habitat diversity and edge habitat and increase the quantity of invasive species. Open fields provide essential habitat for voles and their predators (GVRD Parks, 2002). A program to manage this important habitat type will be important to develop and implement.

3.6 **Vegetation**

Coastal rain forests once covered most of the Fraser Valley, including the Tynehead area. The original forests of western red cedar, Douglas fir and probably western hemlock and Sitka spruce were harvested between the late 1880's and the mid 1930's. The forests have re-grown naturally and succession has progressed to a red alder, big-leaf maple seral stage. There are small numbers of other tree species, particularly black cottonwood, western red cedar, western hemlock, grand fir, Sitka spruce, and Douglas fir. Figure 5 depicts the different forest and vegetation types in the park including forest ravine along the floodplain of the Serpentine River, wooded upland in the Serpentine Valley, and peripheral and interior forests in Tynehead East. Forest and understory vegetation densities vary throughout the park, and coniferous trees are only found in isolated pockets among the deciduous forests. Old stumps and dead trees in the western portion of the park provide nesting sties, abundant cover and food sources for birds and small mammals.



Giant Sequoia

3.6.1 *Landmark Trees*

Tynehead Regional Park contains four unique landmark trees - two Garry oaks, a giant sequoia, and a large Sitka spruce (Figure 5). There are conflicting reports about the natural range of Garry oak, so it is not possible to determine if they are wild or were planted by a former resident. The giant sequoia was introduced from California and has grown well despite the difference between Tynehead's climate and its native one. Any future development in the park will ensure the protection of these trees.



Garry Oak

3.6.2 *Invasive Species*

Invasive non-native plants, such as Himalayan blackberry, evergreen blackberry, Policeman's helmet and Purple Loosestrife are propagating substantially within the riparian and old field areas. The greatest concentrations of these plants are situated along disturbed edges. Field encroachment by blackberry is a serious management issue. Other species such as English ivy and Lamium are also present in the park.



*Himalayan
blackberry*

The massive and negative impact of invasive species on biological diversity has reached such an extent that most scientists now think it is second only to direct habitat destruction. A program whereby these invasive plants are eliminated and replaced with native vegetation will be implemented. Also, reducing disturbance within natural areas will hinder the ability of the non-native plants to out-compete the native vegetation.

3.7 **Wildlife**

Tynehead's most important habitat occurs along the Serpentine River, its tributaries and adjacent riparian areas. Large forested areas, open fields and hedgerows, and riparian forest provide habitat diversity for a variety of wildlife. The most commonly observed animals include: raccoons, Eastern cottontail rabbits, Douglas and grey squirrels, voles, Red-legged frogs, and garter snakes. Local residents have occasionally sighted coyotes. Several rarer species are also known to be present in the western portion of the park, including American Bittern, Green Heron, Bald Eagle, Rough-legged Hawk, Townsend's Vole and Snowshoe Hare.

Over 50 species of birds have been counted in the park, the most common including: the American robin, varied thrush, spotted towhee, black-capped chickadee, dark-eyed junco, common raven, ruffed grouse, Steller's jay, song sparrow, Northwestern crow, European starling, and Great Blue Heron.

A biophysical inventory of the park was completed in 1991. A second study focussing primarily on Tynehead East was completed in 2001. In addition, GVRD staff have been monitoring the impacts of the dog off-leash area on birds through an ongoing comparison of numbers within the dog area and those in adjacent fields.

3.8 **Cultural Resources**

3.8.1 *First Nations*

Archaeological evidence suggests that there was human activity along the lower Fraser River as early as 9,000 years ago. The Sto:lo, or 'river people', part of the Coast Salish, consisted of numerous tribes, including the Katzie, Coquitlam, Whonnock, Nicomen, Pilarlt, and Tait; the largest tribes, however, were the

MusQueam, Kwantlen, and Chilliwack. At the time of first contact with Europeans, it is estimated that there were 30,000 people living within Sto:lo territory.

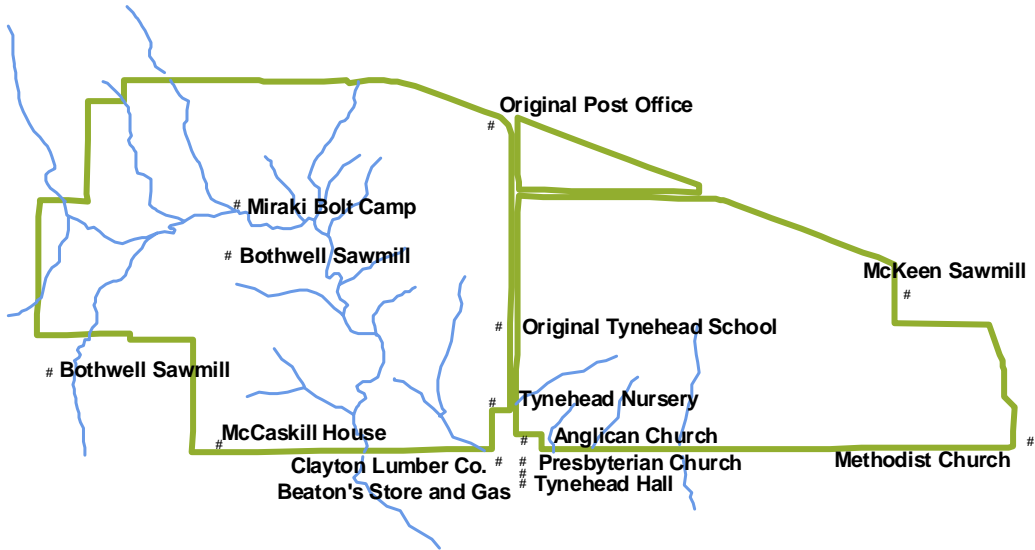
The Serpentine River and Tynehead area are part of Kwantlen territory, which extends from Marpole on the north arm and Ladner on the south arm of the Fraser, all the way east to present day Langley. The extensive network of rivers, lakes and mountain ridges throughout the Lower Mainland provided a portion of an extensive communications, travel and economic route system.

The Serpentine River was part of the route connecting Boundary Bay to the Fraser River via the Nicomekl and Salmon Rivers. The lower reaches of the Serpentine are identified in the Sto:lo Atlas as part of a “tribal watershed” for the Kwantlen and Snokomish peoples, and as an extrapolated travel route. A 2000 archaeological search through the B.C. Heritage Registry found that the nearest archaeologically significant sites to Tynehead Regional Park are located on Barnston Island and at Surrey Bend.

3.8.2 Pioneer Era

The Tynehead area was surveyed and some roads completed by 1860, however, it contained only a few settlers. Most pioneers homesteaded the Tynehead area during the 1880’s. They cleared land for subsistence farming that included raising dairy cattle, pigs and chickens, and growing a variety of grains, fruits and vegetables. From the late 1890’s to the late 1930’s, settlers supplemented their living by logging. Rail and skid roads were constructed to haul logs to local mills and to the Fraser River. By 1940, most of the coniferous forest had been removed.

Figure 6: Historical Land Use In and Adjacent to the Park



The McCaskills were an important family in the history of the Tynehead area, farming much of the land west of 168th Street. The McCaskill House, located on 96th Avenue, was built in 1905 and remains in use today as a GVRD rental. Although it does not have an official heritage designation, it is a minor heritage focal point for the park. Figure 6 depicts other historical land uses in and adjacent to Tynehead Regional Park.

Tynehead's Post Office was established in 1893 at Coast Meridian Road (168th Street) and ½ a block north of Townline Road (96th Avenue). The original one room Tynehead School was also located on this corner, built in 1891. It was soon outgrown, given its small dimensions of 18'x26'. The second Tynehead School was built in 1908 one mile south. The Community Hall located on the southeast corner of this intersection, was built in 1907. Other past uses in or adjacent to the park include the Miraki Shingle-bolt Camp, the Bothwell Sawmill, and the McKeen Sawmill.

The closest designated heritage buildings to the park are the Old Anniedale School at 97th Avenue and 176th Street, dating from 1899, and St. Oswald's Anglican Church at 96th Avenue and 190th Street, dating from 1911. These and other designated heritage buildings contribute significantly to the preservation of the area's history. Two barns within the park boundary, located on two of the rental housing properties are under review by the City of Surrey for inclusion on the municipal heritage inventory. One is located on 168th Street; the other is located at the corner of 96th Avenue and 176th Street.



McCaskill House

Few tangible cultural features of the pioneering era exist in the park as little remains of the homesteads built by Tynehead settlers. Cultural evidence of the pioneer era is now primarily found in the landscape and vegetation. Hedgerows outline old fence lines and delineate among old farm sites. Old orchards, large stumps with springboard notches and second growth forests also reveal human modification over the last hundred years.

3.9 Partnerships

3.9.1 The Serpentine Enhancement Society

The Serpentine Enhancement Society (SES), an officially registered non-profit organization, has been an integral and committed GVRD partner at Tynehead Regional Park since 1988. The SES operates the Tynehead Hatchery under the guidance of the Department of Fisheries and Oceans (DFO) and in partnership with GVRD Parks. The Tynehead Hatchery site is 0.6 ha in size, and is located just west of the 96th Avenue parking lot at Tynehead Regional Park.

The SES is committed to maintaining an ongoing program of salmonid enhancement for the Serpentine River and associated tributaries, educate the community about stream habitat and water quality issues, and cooperate with other groups and agencies sharing similar aims and interests. The hatchery raises Coho, Chum, and Chinook salmon, as well as Rainbow Trout. In the spring, the SES releases up to 250,000 fry into the various tributaries and main stem of the Serpentine. SES also conducts numerous school and group tours with a focus on raising public awareness and fostering participation in programs such as storm drain marking and stream maintenance.

In 2003, SES had over 130 members, with a core group of 25 active volunteers. They hold an annual Open House that draws over 1,000 people each May, and offer over 40 group and school programs annually (over 800 individuals). In total, more than 3,500 park visitors enjoy and learn from a Tynehead Hatchery visit annually as the doors are always open for drop-ins and impromptu tours as long as volunteers are on site.

3.9.2 *Catching the Spirit*

Catching the Spirit is a stewardship project in Pacific Spirit Regional Park designed and run by young people (from 12 to 19) under adult supervision. It had been running in Pacific Spirit Regional Park since 2000. The benefits have been increased education of park users and the restoration of some areas such as Camosun Bog. The program may be expanding to other regional parks, including Tynehead. Starting in the summer of 2004, a pilot project may be run out of the Raven's Nest Group Camp in partnership with the Tynehead Hatchery, GVRD staff, and the City of Surrey.

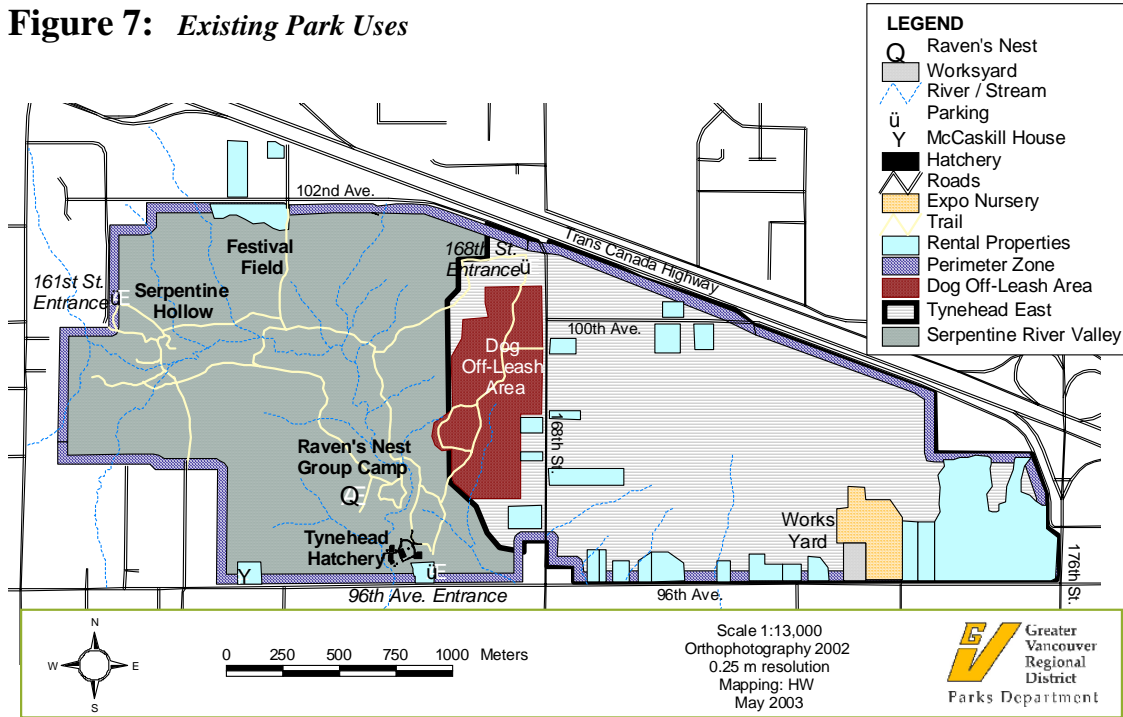
4.0 EXISTING PARK USES AND FACILITIES

As mentioned in section 1.4, biophysical analysis and the 2002 planning process confirmed three planning zones for the park, based on topography and features. The zones are: the Serpentine River Valley (123ha), Tynehead East (138 ha), and the Perimeter Zone (part of both zones with a width of 30-50 m). These zones form the framework for both the existing park uses and the plan (Figure 7).

4.1 Serpentine River Valley

The Serpentine River Valley encompasses the western 123 hectares of the park and is managed primarily for conservation, with some passive recreation opportunities (Figure 7). The Serpentine River and its 11 tributaries are the most striking and key features of this part of the park. Recreational uses include walking, hiking, wildlife observation, nature interpretation, group camping, and hatchery visitation. The Tynehead Hatchery is located just west of the 96th Avenue staging area.

Figure 7: Existing Park Uses



4.1.1 Staging Areas

Staging areas are located at 96th Avenue near the Tynehead Hatchery, at the north end of 168th Street, and on 161st Street servicing the Serpentine Hollow picnic area (Figure 7). Increasing impacts of growth in visitor use can regularly be witnessed at existing staging areas. Monthly car counts at the 168th Street staging area indicate that use of this area frequently exceeds capacity (over 4000 cars per month). Staff observations at the Serpentine Hollow staging area confirm a similar situation, with cars often parked along residential streets when the small parking lot is full. Given that both of these areas can sustain existing and greater use, there is a clear need to expand staging facilities in the near future. Both these staging areas will be upgraded in the long term, however priority will be given to the 168th Street parking lot if possible.



161st Street at Serpentine Hollow parking most weekends



Serpentine River Loop

Where appropriate and feasible, GVRD Parks strives to pave parking lots in regional park staging areas. It is a long term intention to upgrade the 96th Avenue staging area to incorporate a paved lot, with the ancillary benefit of increasing capacity without increasing the area's footprint, and to service the staging area with water and flush toilets. Alternative

surfacing to asphalt (e.g. porous paving) will be investigated to: minimize impervious surface area, reduce run-off into the Serpentine River, and meet Sustainable Region Initiative objectives.

4.1.2 Trails

There are 4.7 kilometres of trails including the Serpentine Loop Trail, Hawthorne Trail, and Salmon Habitat Interpretive Trail (Figure 7). The trails contain several bridges over the Serpentine River and a viewing tower. As of 2002, departmental policy stipulates that park trails require upgrade from hog fuel to gravel or aggregate due to new information about the negative impacts of hog fuel. The Department of Fisheries and Oceans does not allow use of hog fuel within 30 metres of creeks, ditches or wetlands because of potential problems with runoff. There are also health concerns for workers. Gravel only needs to be 'topped up' each year and lasts 1.5 to 2 times longer. This program will be implemented at Tynehead starting in 2004. In addition, bridges along these trails require upgrade to accommodate park service vehicles, both for reasons of access and safety.



Bridge over Serpentine River

The 2002 planning process confirmed strong public support for the concept of a Perimeter Trail at Tynehead. The long term goal is to design and build an 8.5 km multi-use trail to be located primarily within the Perimeter Zone or 30–50 metre buffer around the park. Alternative trail and bridge design and materials will be considered during the project planning process to minimize impacts on the natural environment, provide opportunity for community building and partnerships, and address safety and crime concerns (possibly using CPTED where appropriate¹).

4.1.3 Raven's Nest

The Raven's Nest Group Camp, located off of 96th Avenue, has 12 tent pads that can accommodate up to 40 people, pit toilets, running water, a fire ring surrounded by benches and a picnic shelter (Figure 7). A site plan was completed in the early 1990's, and original plans for this rustic group camp have nearly been met. A fireplace will be added, and other modifications may be necessary to integrate with the development of the Perimeter Trail and other programming opportunities.



Raven's Nest Picnic Shelter

¹ Crime Prevention through Environmental Design (pronounced 'septed') – contends that architects, planners, landscape designers, and law enforcement can create a climate of safety in a community, right from the start, by designing a physical environment that positively influences human behaviour. <http://www.ncpc.org/ncpc/ncpc> - look for link to CPTED.

4.1.4 Festival Field

Festival Field, located in the north part of the park off 164th Street, is currently used for filming and special events (Figure 6). A site and use plan for this area is necessary, with recognition of the area's ecological sensitivity due to its proximity to the Serpentine River. Any uses considered will be low impact, require minimal parking, and be suitable for small to medium groups. Guidelines for filming and other activities will be developed as part of the use plan.

4.1.5 Serpentine Hollow

Serpentine Hollow, located off of 161st Street, offers a small parking lot and picnicking (Figure 7). The area is heavily used by families and groups during summer, the shoulder season and on weekends. GVRD plans to upgrade and expand parking and picnic facilities and trail connections in the mid to long term. In addition, the development of the Perimeter Trail will provide public access to the westernmost part of the park from this staging area.

It is important to state, that neither the recreational uses and facilities, nor the conservation management focus, in this part of the park will change significantly with the potential development of Tynehead East.



Heritage Notched Cedar Stump

4.2 Tynehead East

Tynehead East consists of the eastern 138 hectares of the park, extending from the western border of the dog off-leash area to 176th Street (Figure 7). As of 2003, the portion of Tynehead East east of 168th Street is not open to the public, and has been held since its' acquisition as 'inactive parkland' pending agreement on its future development.

The dog off-leash area (~15 ha) is located west of 168th Street. It is accessible from both the 96th Avenue staging area and the 168th Street staging area. The dog off-leash area will be maintained, but may be relocated and / or resized with the redevelopment of this part of the park. Also located in Tynehead East are the park's works yard, the Expo nursery, and 21 rental housing units.



Dog off-leash area

Tynehead Regional Park Goal

‘to successfully balance conservation, stewardship, and passive recreation in the Serpentine River Valley with unique recreational, educational, cultural tourism and/or entertainment services and facilities in Tynehead East’.

Regional Parks Mission Statement

‘to protect and care for a legacy of diverse landscapes and features which represent our region and which provide outstanding opportunities for outdoor recreation, education, and community participation’.

GVRD, 1999

4.3 Perimeter Zone

The Perimeter Zone consists of a 30-50 metre buffer zone around the perimeter of the park (Figure 7). As of 2003, the Perimeter Zone is intersected by numerous roads, access points, staging areas, and portions of rental properties. Although recreational facilities are planned for this zone, there are no recreational amenities as of 2003. The key features explored and confirmed during the 2002 planning process are: an 8.5 km multi-use trail, associated creek crossings (bridges), and identification of opportunities for special activities, viewpoints, interpretation and education, and adequate staging facilities.

4.4 Land Banked Parkland and Rental Properties

GVRD Parks acquires land that is within a designated “working park boundary.” Land is acquired from willing sellers as it becomes available. Sometimes the land is not immediately required for park purposes or funds are not immediately available to develop and maintain the land for public use. When this occurs, land is given the status of “land-banked parkland.” Land-banked parkland is leased whenever possible, and rental fees help fund further land acquisition or park development. These properties are essentially park reserve for future recreation and conservation demands, and are mostly leased for residential purposes. The working boundary will continue to be reviewed as required.

The majority of Tynehead East, except for the dog off-leash area, is designated as land-banked parkland either as rental housing or parkland not yet open to the public. As of 2003, there were twenty-one (21) rental houses in this part of the park. Houses are leased until such time as the house or land is required for park purposes. The Greater Vancouver Regional District Housing Department operates the rental properties and deals with any related management issues.

5.0 MANAGEMENT PLAN PROCESS OUTCOMES AND GUIDELINES

The plan presents the overall goal for the park, describes the tangible outcomes of the 2002 planning process, outlines a series of management guidelines specific to Tynehead based on the functional divisions of the Regional Parks Department, and describes the plan for specific areas of the park to be implemented

in the next 10-15 years. The plan incorporates the views and recommendations of the majority of participants involved in the 2002 public process and is consistent with GVRD, Regional Parks, and municipal regulations, policies and guidelines.

5.1 Park Goal

The park goal for Tynehead Regional Park is 'to successfully balance conservation, stewardship, and passive recreation in the Serpentine River Valley with unique recreational, educational, cultural tourism and/or entertainment services and facilities in Tynehead East'.

5.2 Planning Process Outcomes

5.2.1 Working Principles

Participants at the 2002 public workshops drafted a set of "Working Principles" which the GVRD Park Committee and Board adopted in July 2002. These principles helped guide the planning process and will be applied to any development of Tynehead East and the park as a whole. Although not all principles can be met in all parts of the park concurrently, they provide a laudable goal, direction, and framework for evaluating development proposals and future park planning.

5.2.2 Planning Zones

The planning process identified and confirmed three planning zones for Tynehead Regional Park. These planning zones were reviewed and discussed in detail and broadly supported at public workshops in June and October 2002. The Regional Parks Committee and Board also supported and approved these planning zones in November 2002 (Figure 8).

These zones form the framework for this management plan. Management and planning decisions for the park will be consistent with the overall objectives of each zone.

1. Serpentine River, Floodplain, Forest and Tributaries

The most environmentally important part of Tynehead Regional Park includes the main stem of the Serpentine River, its floodplain, forest and portions of eleven tributaries (approximately 123 hectares). This area, which was opened to passive public recreational use in 1991, will continue to be protected as a natural and conservation area with trails, the Tynehead Hatchery (operated by the Serpentine Enhancement Society) and low-key recreational uses.

2. Tynehead East

Analysis of biophysical information showed that 138 hectares east of the western boundary of the dog off-leash area were suitable for more intensive recreational development and special uses. As of 2003, the final use for this zone is

unknown. Any development will be guided by the principles and stipulations laid out in this plan.

WORKING PRINCIPLES

Environmental Principles

1. Facilities and activities should be low impact and environmentally friendly.
2. Protect special ecological features and enhance habitat with some lands managed for conservation.
3. Manage stormwater drainage and groundwater in an environmentally friendly way to protect the Serpentine River and other habitat.

Social Principles

4. Make Tynehead Regional Park accessible to as many recreational interests and people as possible. All ages and groups should be included.
5. Recognize and encourage the valuable contribution that can be made by volunteers and partners.
6. Long term needs should be considered. Some land should be saved for the future.
7. The Regional Park should incorporate opportunities for education, information, ecotourism and tourism.
8. Provide recreation to meet the needs of a growing population, both regionally and within the Surrey community.
9. Facilities and services should be unique and not duplicate that which is already available within the region.

Economic Principles

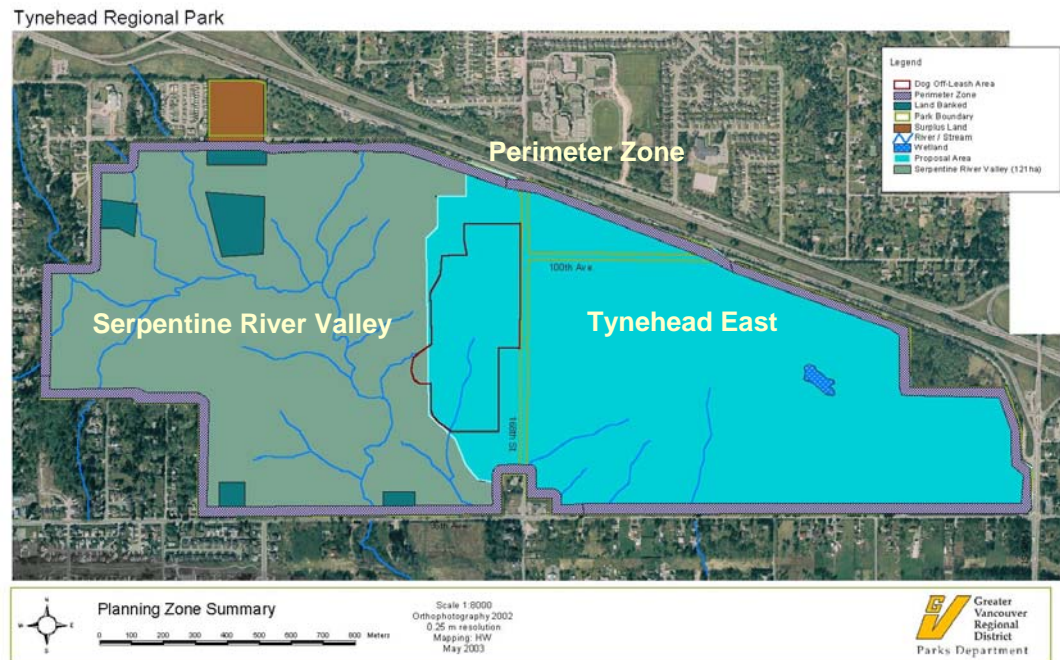
10. Incorporate commercial, recreational and natural land uses.
11. Public-private partnerships should be considered to support or provide facilities.
12. Revenue-generating facilities must respect the natural environment.

3. Perimeter Zone and Special Features

A perimeter zone (30-50 metres wide) around the entire park will provide a buffer from adjacent roads, protect neighbouring views, and provide a significant regional recreational attraction. An eight and a half kilometre (8.5 km) trail for walking and cycling will encircle the park and connect to routes and greenways outside the park. Some areas may be identified for future viewpoints or rest stops along the trail. For example, the historic McCaskill House could become a

focal point for heritage education and conservation and the Festival Field will continue to serve as a popular site for special events and filming. Staging areas and parking will be part of existing and planned park entrances and will not be located in the perimeter zone.

Figure 8: Management Planning Zones



5.2.3 Putting it in Perspective: Past Ideas and Concepts for Tynehead East

One of the first significant proposals considered for Tynehead was a major zoological garden. Despite dedicated effort on the part of the Tynehead Zoological Society to raise necessary capital, by 1990, commitment to this proposal ended. Since then, numerous ideas have been generated for Tynehead East including: an outdoor amphitheatre, botanical gardens, golf course and associated facilities, cultural centre or museum, conference centre and hotel, BMX bike course, dog show area, spa and health centre, permanent expo, eco-tourism centre, and RV Park and campground.

5.2.4 The Need for Non-Tax Revenue

Revenue generation was a key topic of discussion during the park management planning process. There was concern expressed over the appropriateness of revenue generation activities both in general, and specifically in relation to Tynehead. The following information provides some context and rationale.

Over the last decade, the number of visitors to regional parks grew from 4.1 million to 6.3 million – a 54% increase. At the same time, the tax base (e.g.

regional parks levy) increased by only 20%. Public use and visitation is already outstripping available funding. Existing facilities (plus Greenways funded out of HPAF) have had to shoulder these increased demands, as only about 1% of the total parks budget has been available for new facilities and programs over the past few years. Non-tax forms of revenue generation compatible with Regional Parks' values are needed to fill the funding gap and meet growing public demands. The demand for park use is expected to intensify. If GVRD Parks does not increase its facility capacity, operations and maintenance costs will also intensify.

5.2.5 Enhanced Services at Tynehead

Since Tynehead was proposed as a regional park, the eastern portion has been reserved for large scale recreational development. The 1978 Regional Parkland Status Report provided the rationale for each park's selection as regionally significant. It noted, "it is significant to note that without a major facility, Tynehead rated only low-to-moderate on site-related criteria. Thus the value of this site is intrinsically related to the proposed high density recreation facilities (GVRD, 1978). The 2002 planning process and GVRD decisions have confirmed that the western part of the park will be preserved for its significant natural features, and the eastern part of the site will be open to more intensive recreation and facilities while retaining and enhancing the natural features that are there. Thus, the original goal for the park will be realized.

While generating non-tax revenue for the regional parks' system is important, it is not the only objective. Public service, community fit, uniqueness of facilities, and environmental compatibility are all key considerations.

5.2.6 Tynehead East Development Context

The GVRD Board approved a Request for Qualifications and Concepts (RFQC) process in November 2002 to seek qualified proponents with appropriate projects. The RFQC process was conducted during the early summer of 2003 but did not result in finding a proponent that met all the qualifications and requirements of the RFQC. Specific site development planning work is now required to fully define facilities and activities appropriate to Tynehead Regional Park East. The site planning process will include demand, financial feasibility, and site analysis for the recommended development options to determine which have business and revenue generation potential and fit with the management plan and site. The results of the site planning process will remove the ambiguity that was in the RFQC by providing clearly defined and approved development projects that can then be implemented through GVRD's procurement process.

Any unsolicited proposals must be consistent with the Regional Parks' mandate and fit with Sustainable Region Initiative framework of environmental, social, and economic benefits. Proposals also must integrate well with the rest of the park and the local community and fit with the 'Working Principles' drafted by participants in Regional Park's 2002 public consultation process. The City of Surrey, as the land use planning authority for the park, will be involved in any decision about Tynehead.

5.2.7 *Range of Ideas for the Future of Tynehead East*

With vision and creative planning, a broad spectrum of services and facilities can be developed to become an example of excellence within a regional park. Public consultation resulted in a wide variety of ideas and opinions as to what would be appropriate on the site. One common theme of public input is that any facilities and services should be of a 'green' character appropriate to the park. Facilities and services could include, but are not limited to:

- A golf course with club house and ancillary facilities;
- A broad combination of outdoor and indoor sports, leisure and recreation facilities to meet local and regional needs;
- Sports facilities of a quality suitable for training for and holding world class events;
- Sports medicine, equipment, spa, and other support facilities;
- A themed attraction with a wide range of facilities and services;
- A 'permanent expo' featuring the culture, cuisine, and products of many nations;
- Facilities for education, training, interpretation, culture, conferences, meetings, and events;
- Eco-tourism, eco-lodge with support facilities, and interpretive centres;
- Entertainment facilities attractive to a wide range of patrons, e.g.: outdoor amphitheatre;
- Commercial venues such as short-term stay accommodations, food and beverage, and related entertainment ancillary services, all of a "green" thematic nature appropriate to the park and compatible with the primary theme(s) of the park facilities, may be considered.

Uses that will not be considered include full-time residential, industrial, or stand-alone, exclusive commercial and retail development. GVRD will retain ownership of the land.

5.3 **Park Management Guidelines**

The highest level of policies specific to the management of regional parks is the "Rules and Regulations" of the Regional Park bylaw (GVRD Parks 1994, Bylaw No. 745). The policy statements in this management plan are subject to the laws, rules, regulations, development guidelines and corporate and departmental policies that apply to all regional parks. Many policy issues related to safety (e.g. working alone), regional services (e.g. stormwater management) and sustainability (e.g. fleet management, emissions reduction, purchasing, building deconstruction, etc.) are governed by GVRD corporate policy, and are not the jurisdiction of the Regional Parks Department. As new corporate (GVRD) or departmental (GVRD Parks) policies are established for system-wide issues, those policies may supersede park-specific policies included in this management plan.

Guidelines for the development and management of Tynehead Regional Park are presented based on the Regional Parks activity streams as described in Appendix 1.

5.3.1 Visitor Services

- Signage and kiosks will be upgraded as required and as new entrances and trailheads are developed. Information will focus on Tynehead's facilities, activities and programs. Information on other regional parks and programs will be displayed.
- Delivery of programs to schools and community groups, and programs to the general public that emphasize the importance of natural habitat, stewardship, and sustainability will be continued and expanded.
- Natural and cultural resources such as the Serpentine River, McCaskill House, and others, will be highlighted via interpretive signage and programming.
- Partnerships with the City of Surrey and the Serpentine Enhancement Society for the delivery of public and group programs will be continued and expanded.
- Visitor information and services to integrate the east and west parts of the park will be explored.
- Visitor information, signage and services will be developed in conjunction with the development of the Perimeter Trail.



Interpretation Signage

5.3.2 Resource Management and Stewardship

- Inventory, conserve, and monitor significant natural habitats, such as the Serpentine River and associated tributaries, wetlands, landmark trees, and old fields. Cultural and heritage resources, such as the McCaskill House, shall be protected and have only complementary facility development.
- Maintain riparian and upland forests in the Serpentine River Valley, and where possible, enhance by planting native trees and shrubs. Designated trails and small trailheads should be the only disruption to these natural habitats. Unofficial trails will be evaluated and either formalized or blocked off and re-vegetated.
- Continue partnership with the City of Surrey and Serpentine Enhancement Society in terms of stream inventory and enhancement



Biophysical Surveys

work on Serpentine River and associated tributaries (re: fish habitat, stormwater management and erosion protection)

- Dogs are to be leashed at all times except in designated off-leash areas. Dogs are prohibited in sensitive areas, such as the Serpentine River floodplain, except on designated routes.
- Only control wildlife in the park when they contribute directly to damage of park facilities, or adjacent private property or public roads.
- Discourage wildlife feeding.
- Foster a sense of stewardship for the land, natural and cultural resources, and diverse habitats through partnership initiatives, interpretation, education, and management programs.

5.3.3 Community Development and Partnerships

- Strengthen the partnership with SES for management and operations of the Tynehead Hatchery.
- As community interest and commitment is achieved, support the development of a Tynehead Park Association.
- Support the Catching the Spirit youth initiative at Tynehead as it expands.
- Encourage partnerships with Surrey's local community groups in support of a youth program at Tynehead modelled after the Catching the Spirit program.

5.3.4 Planning and Operations and Maintenance

- Cooperation and coordination between the City of Surrey and GVRD is required to realize many of the strategies in the management plan such as trail linkages, OCP amendments, development referrals, stormwater management, watershed protection, community development, planning of municipal roads and utility corridors and land transfers. A formal agreement is proposed to outline how the two agencies will commit to cooperate in these and other areas.
- Facilities and recreational opportunities will be developed to provide year-round, basic day-use and group camp services for park visitors and to provide safe outdoor recreation within the conservation limits of the significant natural and cultural features.
- Ensure good fit and transition between Tynehead East, Serpentine River Valley and surrounding community
- A reasonable attempt will be made to make facilities accessible to all visitors.
- GVRD Parks will continue to liaise with the City of Surrey, Tynehead Community Association, Serpentine Enhancement Society and other interested groups on recreation and conservation linkages and programs.

- Additional staff time to annualize the Park Assistant position and procure additional months of seasonal time will be explored.

5.3.5 Park Boundary and Land Management

- Private lands within the working park boundary will be acquired as they become available on a willing seller basis. The working boundary will continue to be re-evaluated for fit with the rest of the park and regional requirements
- Rental properties in Tynehead East may be removed from Rental Housing Pool to allow for redevelopment. Adequate notice will be given to tenants.
- Transfer of undeveloped road allowances within the park will be sought from the City of Surrey.
- Where feasible, consolidate existing legal parcels within the park boundary.
- Rezone to suitable City of Surrey park zones when necessary and appropriate.
- Continue to seek appropriate recreational, entertainment, and commercial development on up to 138 hectares acres in Tynehead East.

6.0 MANAGEMENT PLAN PROGRAM

GVRD Parks will work closely with the City of Surrey, proponent(s) of Tynehead East, local residents, and partner groups to implement the plan. Data will be collected regularly on how people use the park and how satisfied they are with facilities and programs. The management plan will be formally reviewed as the need arises to take into account changes in visitor use, environmental impacts, community needs and unforeseen impacts. Capital projects that are part of this plan will be approved and advanced as part of the long range and annual budget processes.

Implementation of the Tynehead Regional Park Plan requires a unique flexibility given the uncertainty associated with the future development of Tynehead East. The policy context and management guidelines are applicable to the whole park; however, given the complementary but differing goals and focus for the Serpentine River Valley and Tynehead East, they may unfold in different ways during implementation. The nature of the plan's implementation for Tynehead East will depend on the nature of the development at Tynehead East, and the negotiated operational relationship.

6.1 Program Description by Planning Zone

The following list of projects and plans for each planning zone are based on public and staff input, visitor use and biophysical data analysis, and the department's Capital Replacement Plan. The majority of the facility-based projects currently have no time line or budget associated with them, but will be brought forward for funding as budgets become available. Individual, small, and maintenance projects will be implemented without further public consultation. Large projects will be subject to further public consultation at the preliminary design stage.

6.1.1 *Serpentine River Valley*

Facilities

- Initiate and complete **Trail** Rebuilding/ Conversion Program.
- Upgrade Serpentine Loop Trail bridges to accommodate service vehicles (3 bridges in total – roll into Trail Rebuilding Program).
- Upgrade 2 other park bridges to accommodate service vehicles.
- Expand parking at **Serpentine Hollow** (add 30 car gravel lot in existing field parking - paved if possible).
- Expand picnic facilities at Serpentine Hollow across river (add 8-10 tables).
- Develop a trail link from Serpentine Hollow to 162A as early phase to Perimeter Trail.
- Review and upgrade Serpentine Hollow viewing tower for aesthetics and vandal proofing.
- Develop a trail link from 162A to existing trail system and staging areas (e.g. Ravens' Nest or 96th Avenue).
- Pave **96th Avenue** staging area parking lot.
- Install water hook-up at 96th Avenue staging area.
- Install flush washroom at 96th Avenue staging area.
- Upgrade and redesign trail from 168th staging area to Loop trail (requires better drainage).
- Install fireplace at Raven's Nest Group Camp.
- Replace picnic tables as required – immediate program for 5 tables.
- Complete caretaker residence requirements (including demolishing old residence, and repairs and upgrades to new location).

Land Management

- Begin erosion protection and stream enhancement along Serpentine River to protect park assets and fish habitat (Develop action plan).

- Declare land adjacent to the Tynehead RV Park, north of 102nd Ave. as 'Surplus Land'.
- Review four (4) properties at the corner of 168th Street and 96th Ave. for inclusion in the park's 'working boundary' (GVRD, 2003).
- Include property at the corner of 161st Street and 100th Avenue in the park's 'working boundary' (GVRD, 2003).
- Resolve the 168th Street (and associated roads) closure issue to facilitate management plan implementation in Serpentine River Valley.
- Survey park boundary on west side of park.
- Develop concept plan for reservable picnic area (e.g. Ravens' Nest, Serpentine Hollow, or Festival Field).
- Develop adaptive management plan for Festival Field.

Resource Management

- Design and establish a field management program to determine objectives and prescriptions for individual fields.
- Design and establish an invasive species inventory and management program.
- Participate with the City of Surrey, DFO, and the Serpentine Enhancement Society in the development of a Serpentine River Management Plan to guide activities for fish and habitat enhancement, flow and water quality.

Interpretation and Education

- Initiate interpretive signage project to address 'dogs in creeks' and wildlife feeding issues. Review existing signage.
- Update Tynehead Hatchery displays and create a 'new and improved' kiosk as focal point. Focus messaging on watershed sensitivities.
- Replace interpretive signage on Salmon Interpretive Loop trail. Review content and applicability at time of replacement.
- Partner with the Serpentine Enhancement Society and local schools to initiate a 'Stream of Dreams' fish art project for Hatchery fence.
- Redesign and relocate the butterfly garden if interested volunteer group is available. Design and install interpretive signage to complement the butterfly garden.
- Develop interpretive signage program for park heritage themes (including McCaskill House).

- Support Catching the Spirit Youth Initiative (CTS) with project development and implementation if CTS expands to Tynehead.

6.1.2 Tynehead East

Activities for this section of the park in terms of facilities, land management, resource management and stewardship and interpretation and education will depend on the nature or the development at Tynehead East and the operational relationship negotiated.

Facilities

- Redesign and upgrade the 168th Street staging area (may relocate with the potential Tynehead East development).
- Upgrade service / worksyard (may relocate with potential Tynehead East development)
- Work with successful proponent(s) to ensure any new Tynehead East facilities offer complementary activities and services and fit with park and community.
- Ensure that staging facilities in any Tynehead East development provide public access to the Perimeter Trail when built.
- Provide for a reservable facility including picnic shelter, washrooms, and field area with any Tynehead East development.
- Participate with Surrey in investigation of pedestrian overpass at head of 168th Street to connect with Surrey greenways and associated trail development.

Land Management

- Continue to seek one or more organizations, or consortia, to provide commercially viable facilities within Tynehead East that will generate revenues for both partners, and fit with GVRD's mandate as a regional parks agency.
- Integrate any new development at Tynehead East with existing passive park use in Serpentine River Valley and the local community.
- Some or all of the rental housing units in this zone may require closure and decommissioning depending on potential development. Respond as required.
- The Tynehead Works Yard may require relocation depending on potential development. Respond as required.
- The 168th Street staging area may require relocation depending on potential development. Respond as required.
- The dog off-leash area may require relocation depending on potential development. Respond as required.

- Investigate impacts of potential road closures (e.g. 168th Street, Tynehead Drive and 102nd Avenue) in collaboration with the City of Surrey and the local community. Incorporate final decision into management plan and affected projects.
- Cooperate with City of Surrey in the 96th Avenue expansion and re-profiling and neighbourhood planning processes.
- Cooperate with the Province in terms of Fraser River Crossing impacts (e.g. new cloverleaf on northeast corner of the park).

Interpretation and Education

- Work with potential development to ensure that the benefits to Tynehead Regional Park, the regional parks' system and visitors of the Tynehead East development are communicated, especially if they have 'sustainable' characteristics.
- Integrate interpretive programs into Tynehead East, as appropriate.
- Keep community informed and involved through workshops, newsletters, work bees, programs and events. For larger items, engage in formal public consultation process.

6.1.3 *Perimeter Zone*

Facilities

- Perimeter Trail - Design and built an 8.5 kilometre, multi-use trail (pedestrian, cyclist, in-line skating) around the perimeter of the park.
- Design and install eleven required bridges over tributaries /streams or ravines.
- Identify disturbed areas along the Perimeter Zone for special activities, viewpoints and interpretation opportunities.
- Ensure adequate staging facilities to support the Perimeter Trail.

Interpretation and Education

- Use the Perimeter Zone as an opportunity to reinforce 'Water Knows no Boundaries' themes conveyed in existing interpretative and informational signage.
- Develop boundary management educational program to address park boundary encroachment.

6.2 **Priorities and Dependencies**

Given that funding and development uncertainties make it difficult to develop clear timelines for project and plan implementation, it is important to provide a prioritization of the above listed projects and tasks to guide future work. Priorities are 'park priorities', and will be integrated into departmental budget requests and implemented accordingly. Appendix 2 presents the full project list prioritized. Projects are presented graphically along a temporal scale on the right side of the page. The coloured bars present the projects relative prioritization over time. In addition, flexibility is required to take advantage of any opportunities that arise outside the projects listed in this plan.

6.2.1 *High Priority Projects*

Highest priority projects are the execution of a Trail Rebuilding / Conversion Program (and accompanying bridge upgrades to accommodate service vehicles), erosion protection / stream improvements along the Serpentine River to both protect park assets and enhance fish habitat, the initiation of field management and invasive species control programs, and resolution of the question regarding the potential closure of 168th Street and associated roads.

Increasing visitor demand, and existing staging area crowding, also makes staging area expansion a prominent and high priority. The preference, based both on use and location, is to first upgrade the 168th Street staging area. However, given the uncertainties about the potential 168th Street closure and the timing and composition of the Tynehead East development, it may be necessary to reprioritize, and expand the Serpentine Hollow staging area first. If this reprioritization takes place, it will indirectly impact the order of several other desired projects. The Serpentine Hollow picnic area expansion, trail construction and viewing tower reconfiguration would then move to higher priority to provide more facilities at the newly expanded staging area. If the 168th Street staging area is upgraded first, then the trail from that staging area would also be upgraded to improve drainage.

6.2.2 *Medium to High Priority Projects*

Other projects rating high in the park project prioritization include: continuing and enhancing the ongoing partnership with the Serpentine Enhancement Society; reviewing the park 'working boundary'; completing the activities associated with the transition to the new Park Caretaker residence; replacing worn picnic tables on an as-needed basis – five immediately; surveying the park boundary on the west and southwest sides of the park; replacing interpretive signage on the Salmon Interpretive Loop trail; and expanding staging facilities in whichever of the two identified areas has not yet been expanded (Serpentine Hollow or 168th Street).

6.2.3 *Dependencies and Implications on Prioritization*

Several uncertainties at the time of writing and approval of this plan directly impact the order and priority of project implementation.

The largest of these uncertainties is the redevelopment of Tynehead East. Directly impacted projects include: prioritization of staging area expansion (168th Street versus Serpentine Hollow), relocation of the dog off-leash and/or the 168th Street staging area, drainage upgrades to the trail extending from the 168th Street staging area, upgrade and potential relocation of the park's worksyard, rental house consolidation, and perimeter trail development (including associated bridges). All other projects will be indirectly affected as funds and energy are reallocated to deal with any direct impacts stemming from development at Tynehead East.

Other issues / uncertainties that may cause a reprioritization of, or delay in, plan implementation include: the 96th Avenue widening and re-profiling, the Fraser River Crossing, fundraising success, and the closure of 168th Street and associated streets.

6.3 Next Steps

The planning process for Tynehead East continues as of this management plan's approval. Once decisions have been finalized for Tynehead East, two key addenda will be added to update this management plan. First, the Site Development Plan for Tynehead East will be added as an appendix to contextualize and rationalize the east side's development, relationship to the rest of the park, and impacts on project timelines and prioritization. A second addendum will be added to the plan to clarify current uncertainties (e.g. prioritization of projects).

6.4 Operating Implications of the Management Plan

Implementation of the management plan will increase operating costs for Tynehead Regional Park as capital projects for expansion of existing or construction of new recreational facilities are completed. As of 2004, there is no capital fund available for new facility development. However, even without new facilities, park use has continued to grow by approximately 5% per year (over 300,000 people visit the park annually). Growing use increases the need for maintenance, litter pick up, patrol, enforcement, cleaning, materials and supplies, and dog waste bags.

Anticipated labour requirements will increase in 2005 to two full-time employees (from one) with the current complement of two seasonal workers maintained, although on reduced time. New labour costs will add approximately \$26,300 to an existing budget of \$248,000 (\$172,000 of which is currently labour). Full and timely implementation of the management plan by 2014 will result in an estimated budget increase of \$144,000 to a projected operating budget of \$392,927, including a staffing increase to 4.10 full time equivalents (Appendix 3). Material and supplies, equipment rental, purchased maintenance and repairs, utilities, and purchased equipment (e.g. vehicles) will be included in this increase.

Operating cost projections are updated annually, and will be achieved through regular budget procedures.

The 8.5 km Perimeter Trail project will have the largest operational impact. The trail will be of a standard not now present in the park (paved, at least 3 metres wide and multi-use), and will necessitate the purchase or rental of new equipment and a significant increase in maintenance requirements. Tasks such as patrolling, flailing, sweeping and surface repairs and drainage will be added to the operations program. These changes will not take place for several years, but must be factored into operating cost projections for 2008 and beyond, if the capital funds to build this project are approved.

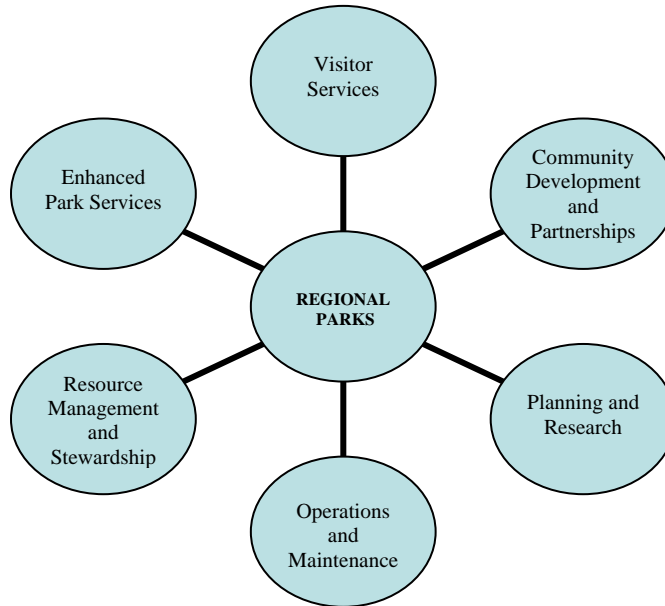
As with many other aspects of this plan, the uncertainty about Tynehead East could shift operating budget needs and responsibilities significantly. Current thinking is that a private operator would be responsible for all or most of the facilities operations there, except for possibly the Perimeter Trail. No forecasts can be made until the nature of the development and division of responsibilities is known.

It should also be noted that staff at Tynehead are responsible for the operations and maintenance of both Surrey Bend Regional Park and Robert Point Rest Area on Barnston Island, where they currently spend approximately 10% of their time. These responsibilities contribute to the need for two full time staff and two seasonal workers. These duties are recognized in existing operating costs, but are not factored into the plan projections and at some point operation of the three sites will be separated when the workload warrants.

Appendix 1: Regional Parks Department Activity Streams and Objectives

Regional parks serve many functions, and staff divisions and work programs reflect this functional diversity. This section provides context to the department’s activity streams and the objectives of each to contextualize the 2003 Tynehead Regional Park Management Plan. Figure 7 depicts the different functions of the Regional Parks Department.

Figure 9: Regional Parks Department Activity Streams



Visitor Services – Recreation and Education and Interpretation


GVRD Parks has provided hands-on learning experiences for school and community groups and the general public for over 20 years. Interpretive programs are designed to highlight the variety of natural and cultural resources that are special to each park and to inform, educate and entertain participants so they will be aware, come to appreciate and protect the natural and cultural heritage in regional parks and other protected spaces.

GVRD Parks’ interpretive programs at Tynehead contribute to increased public awareness of the importance of protecting and maintaining wildlife habitats. There are a variety of group and public programs at Tynehead including Salmon Sleuths, Stream Searchers, Chickadee Capers, Amphibian Adventures and the annual Salmon Send-Off (in partner with the Serpentine Enhancement Society). Currently, nearly 500 participants take part in Tynehead group programs annually, while public programs receive an additional 100 participants.

GVRD Parks is committed to providing information that allows visitors to become oriented to a park’s site, features, activity areas, and rules and regulations, in turn enhancing their visit, ensuring their safety, and encouraging positive behaviour and wise use of park resources.

Objectives:

- Provide opportunities for public education and interpretation of natural and cultural resources.
- Provide educational brochures, signs, displays and other materials developed for self-guided use by the public.

 *Resource Management and Stewardship*

The resource management and stewardship section of GVRD Parks coordinates park recreation and conservation research and resource inventories on natural features, cultural assets and important species and habitats within the context of the park management plan for each park. Specific resource and recreation management issues are assessed and strategies developed and implemented to resolve user conflicts and protect features in a sustainable manner. Local community knowledge, expertise of park staff and other agencies assist in development of resource management strategies and policies.

Objectives:

- Identify and communicate the types and quality of sensitive features within the park.
- Participate in activities that promote the enhancement and conservation of natural and cultural resources, striving to minimize and mitigate negative impacts on water quality and quantity, riparian and upland habitats, heritage and other sensitive features.

 *Community Development and Partnerships*

GVRD Parks is committed to encouraging and supporting community involvement. In 1998, GVRD Parks launched the Park Partnership Program to build upon and expand working relationships between GVRD Parks and community groups. The program facilitates development of community-based park associations at the area level and also links with other community groups and volunteers to encourage and enable people of all ages, interests, and abilities to support and participate in regional parks.

Objectives:

- Develop and support a partnered approach to meeting park objectives and maintaining the park's long-term health.
- Develop, support and coordinate opportunities for meaningful citizen involvement in parks management and planning decisions.
- Encourage and support initiatives in regional parks by community groups in the areas of stewardship, visitor education, and recreation.

Planning and Research

GVRD Parks' Planning strives to balance the dual objectives of conservation and recreation and determine suitable land use, management, facility requirements and design within regional parks. Public and community attitudes, needs, and capabilities are identified and incorporated into plans. Key responsibilities include: managing site natural resources, designing public consultation processes, resolving public use issues, working with community groups, initiating and supporting stewardship projects, facilitating capital projects, providing information to decision-makers, participating in preparation of licenses and agreements with others, participating in analysis of revenue generation proposals, advising on land acquisition, and participating in fundraising for projects through Pacific Parkland Foundation or other means. External proposals for park land use are evaluated. Staff manage available resources, supervise specialist contractors, and consult on plans and issues.

Objectives:

- Model applied sustainability principles that consider and strive to balance social, environmental and economic values.
- Maintain and promote effective working partnerships and relationships with other agencies, individuals and groups.
- Provide recreational opportunities and facilities to attract a wide range of users from across the region and beyond, and complement the features and activities provided in nearby recreation, natural and historical areas.
- In cooperation with other levels of government, groups or individuals, provide trail and external linkages for a variety of users, connecting Tynehead to other parks, open spaces and communities.

Operations and Maintenance

Park Operations and Maintenance maintains public facilities and infrastructure, provides on-site public relations, information, and education, patrols, emphasizes visitor security, monitors land-banked sites, enforces bylaws and regulations, assesses risks and manages occupier liability, coordinates emergency response, responds to natural resource and property threats, and supplements the capital development program with skilled labour, supervision of crews, and contractors.

Operations personnel follow operating procedures and standards that are defined by GVRD and applied system-wide. The standards incorporate paramount concern for employee safety, public safety and environmental responsibility.

Objectives:

- Provide recreational opportunities, facilities and park operation services that minimize negative impacts on sensitive habitats.

- Provide supervision, staff, supplies, services and long-term operations planning for the day-to-day operations and maintenance of park sites, facilities and activities.
- Ensure that park facilities are well maintained, using sustainable practices, providing park users with a safe and enjoyable experience.

Enhanced Park Services and Revenue Generation

GVRD Parks' Enhanced Park Services coordinates the development and management of non-tax revenue sources for GVRD Parks. New opportunities to generate revenue are explored through commercial visitor services and other suitable projects. Fundraising for donations of cash and in-kind contributions is conducted by the Pacific Parklands Foundation (PPF) which works closely with this program. Filming activity for all GVRD sites, buildings and facilities is coordinated through this Program on behalf of the Corporation.

Objectives:

- Produce reliable, significant and growing non-tax revenue from fundraising, business operations and compatible uses of park and land banked land to supplement tax funding.
- Provide non-tax revenue that offsets tax levy increases beyond that required to accommodate population growth
- Develop a resilient network of philanthropic support for Parks and Greenways engaging the private sector, foundations, individuals, non-profit organizations and service clubs.

Appendix 2: Project Prioritization, Dependencies, and Relative Implementation Schedule

Task / Project	Park Priority (1-5)	Dependencies	2004							2014	
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OPERATIONS / FACILITIES

Trail Rebuilding / Conversion Program	1									COMP		
Upgrade Serpentine Loop Bridges for Service Vehicles	2	Roll into Trail Rebuilding and Conversion Program					COMP					
Upgrade remaining park bridges to accommodate service vehicles (2 not on Serpentine Loop). Sign Replacement.	3									COMP		
Erosion protection/stream improvements	1									COMP		
168th Street staging area redesign and expansion	1	TYN East decision. Would be first priority for staging area expansion if possible								COMP		
Upgrade drainage on trail from 168th staging area to Loop Trail	2	TYN East decision								COMP		
Survey park boundary on west side of park	2			COMP								
Serpentine Hollow staging area expansion (add 30 car gravel lot in existing field parking or paved if possible).	2	Goes with expanded picnic facilities. Reverse with 168th if possible.					COMP					
Expand picnic facilities at Serpentine Hollow across river (add 8-10 tables).	2	Goes with Expanded parking					COMP					
Trail Link from Serpentine Hollow to 162A	3	After Serpentine Hollow Upgrade and boundary survey						COMP				
Hollow Viewing Tower - reconfigure (at end of trail prog.)	3	At end of trail prog.						COMP				
Trail from 162A to Serpentine Loop Trail or 96th Ave.	4	After Viewing Tower								COMP		
Immediate Picnic Table Replacement Program	2			COMP								
Caretaker's Residence Program	2						COMP					
Raven's Nest fireplace/stove	3	PPF fundraising		COMP								
Worksyard Upgrade	3	TYN East decision								COMP		
Investigate pedestrian overpass at head of 168 th Street to connect with Surrey greenways and associated trail development	3	Linked to 168 th Street closure and Surrey greenway plan development										



Design / Plan / Implement



Ongoing



Completed

VISITOR SERVICES

Replace interpretive signage on Salmon Interpretive Loop trail.	2		COMP							
Update Tynehead Hatchery displays and create a 'new and improved' kiosk as focal point. Focus messaging on watershed sensitivities.	3					COMP				
CTS - relocate and restore butterfly garden. Design and install interpretive signage to complement.	3	CTS moves into Tynehead	COMP							
Other projects to support Youth initiative/partners	4	CTS moves into Tynehead								
Initiate interpretive signage project to address 'dogs in creeks' and wildlife feeding issues.	4					COMP				
Partner with SES and local schools to initiate a 'Stream of Dreams' fish art project for Hatchery fence.	4						COMP			



Design / Plan / Implement



Ongoing



Completed

Projects Contingent on Other Outcomes - UNKNOWN TIMELINE - Respond as necessary

Consolidate 21 rental properties - Respond as necessary based on Tynehead East development
Cooperate with Surrey for 96th Avenue Expansion and Re-profiling - Respond as necessary
Cooperate with Province on Fraser River Crossing impacts - Respond as necessary
Relocate Service Yard - Respond as necessary based on Tynehead East development
Relocate 168th Street Staging area - Respond as necessary based on Tynehead East development and 168th Street closure
Participate with the City of Surrey, DFO, and the SES in Serpentine River Management Plan - Respond as necessary
Interpretation/kiosk sign installation / replacement. Respond as necessary based on project requirements and implementation.

Appendix 3: Implementation – Operating Cost , Staffing, and Capital Cost Projections

TYNEHEAD PROJECTS TRIGGERING OPERATIONS & MAINTENANCE BUDGET INCREASE REQUEST

Task / Project	Funding Source	O&M Requirements	O&M Cost	Year Anticipated
EXISTING OPERATIONS AND FACILITIES				
<p>Park Visitor Increases</p> <ul style="list-style-type: none"> • Visitation has increased at 5% per annum • Has increased 50% since 1993 • 2003 visitation was 303,000 <p>Other Factors</p> <ul style="list-style-type: none"> • Vandalism, graffiti, after hours use • Increase caretaker's patrols • Park boundary patrols • Weekly water line flushing • Surrey Bend / Robert Point demands • Initiate Youth Initiative (provided for in 2004) • Safety requirements (e.g. new water procedures) 	Not Applicable	<ul style="list-style-type: none"> • 7 day a week, year round coverage needed • Patrols, litter pick-up, dog management increases • Clean-up of picnic areas • Vandalism a problem at Raven's Nest and Robert Point • Raven's Nest bookings increase O&M requirements especially spring and fall weekends • Special programs like Youth Initiative • Partnership programs increase demands on O&M staff; current levels are included in existing budget; Youth Initiative can expand somewhat 	<p>Park Worker (seasonal) to Park Assistant (full-time - \$8,000)</p> <p>New .23 Park Worker \$12,000</p> <p>Caretaker – additional patrols \$2,000</p> <p>PIP = \$4,299</p> <p>2005 Total = \$26,299</p>	2005
Rebuild and convert existing trails to gravel	<p>Capital replacement program</p> <p>\$10,000 to \$25,000 budgeted per year</p>	<p>O&M costs do not change</p> <ul style="list-style-type: none"> • Patrol, litter pick-up, maintain drainage, minor surface repairs • Clean bridge and boardwalk surfaces, repair handrails • Sign replacement, repair, cleaning. • Leaf blowing, graffiti removal • By-law compliance 	Covered in existing budget	Not Applicable

Task / Project	Funding Source	O&M Requirements	O&M Cost	Year Anticipated
Raven's Nest Group Camp & Fireplace (Propane)	Pacific Parklands Foundation fundraising	<ul style="list-style-type: none"> • Installation of fireplace will not increase O&M substantially • As camp gets more fully utilized, set-up and cleaning become more frequent. Current duties - Set-up camp prior to bookings (four hours minimum for two people); move in picnic tables, garbage cans; set-up toilet; clean-up after bookings • In 2002, accounted for 7% of staff time (with minimal bookings) • New weekly water line flushing 	Incidental costs of propane for fireplace estimated at \$500-\$700 per year	2006
Caretaker's Residence Program <ul style="list-style-type: none"> • Caretaker was relocated to a new residence within the park 	Operating Budget Capital Replacement Program for large items	<ul style="list-style-type: none"> • Regular painting, gutters cleaned, occasional repairs • Will be done mostly by small contractors • Contractor supervision is only cost 	No net change	Ongoing
Works Yard Upgrade or relocation depending on Tynehead East decision	Capital Replacement Program.	<ul style="list-style-type: none"> • In 2002 accounted for 4% of staff time. • Upgrade or relocation should not increase this. 	No net change	Unknown
Serpentine River Erosion Protection	Capital Replacement or Emergency Contingency (after a flood)	<ul style="list-style-type: none"> • Minor pick-up displaced rip rap • Minor repairs after high water events • Usually done by contractor • Bridge and footing repairs done by C&E (minimal operations time required) 	Incidental and covered in existing O&M budget	Ongoing

NEW OR EXPANDED FACILITIES TRIGGERING OPERATIONS & MAINTENANCE BUDGET INCREASES

Task / Project	Funding Source	O&M Requirements	New O&M Cost	Year Anticipated
STAGING AREA EXPANSION				
168th St. / Dog Off-leash Area <ul style="list-style-type: none"> • Minor parking expansion and paving • Also provides staging area for Perimeter Trail • Trailhead changes a possibility 	Capital Replacement or Basic Facilities Capital Program	<ul style="list-style-type: none"> • Minor parking expansion will accommodate visitors who are using site now but parking on road. • Paved parking requires sweeping, line painting. • Additional O&M not significant. 	Incidental and covered in existing budget	2006
Serpentine Hollow <ul style="list-style-type: none"> • Parking expansion (30 cars) and pave lot • Add additional picnic facilities and trail connections • Add another set of pit toilets • Also provides staging area for Perimeter Trail 	Basic Facilities Capital Program	<ul style="list-style-type: none"> • Major effect on O&M May to Sept. and will increase costs: more toilets to clean, litter pick-up, patrols, cleaning supplies, garbage disposal etc. • Paved parking requires sweeping, line painting • Expansion of picnic facilities and trails will increase park use over time 	(2009 Operating Budget) Add .25 FTE = \$13,100 Materials and Supplies = \$1,500 PIP = \$4,745 2009 Total = \$19,345	2008
96th Ave. Hatchery Entrance <ul style="list-style-type: none"> • Phase I: Pave parking lot • Phase II: Add flush toilets & water 	Basic Facilities Capital Program	<ul style="list-style-type: none"> • Increase in litter, garbage • Parking lot cleaning, minor repairs and line painting • Use will increase if parking expanded • Washrooms will substantially increase operating costs (Services may be available with Tynehead East development) • Clean and maintain washroom building 	Incidental O&M costs Costs shown under Perimeter Trail	Phase I: 2007 In conjunction with Surrey's 96 th Ave. upgrade and portion of Perimeter Trail built Phase II: 2014

Management Plan Operating Cost Implications

Projection in 2004 Dollars

Category	2004	New	2005	New	2006	New	2007	New	2008	New	2009	5 yrs.	New bet. 2010-2014	2014
Salaries and benefits	\$171,943	\$20,000	\$196,242		\$200,648		\$205,164	\$13,100	\$222,893	\$13,100	\$240,738	...	\$26,200	\$292,508
Corporate Salary Increase (2.5%)		\$4,299		\$4,406		\$4,516		\$4,629		\$4,745		...	* \$25,570	
Consulting and Professional Services	\$12,767	\$2,000	\$14,767		\$14,767		\$14,767		\$14,767		\$14,767	...		\$14,767
Asset Purchases and Maintenance	\$7,209		\$7,209		\$7,209		\$7,209		\$7,209		\$7,209	...		\$7,209
Materials and Supplies	\$16,929		\$16,929		\$16,929		\$16,929	\$5,000	\$21,929	\$1,500	\$23,429	...	\$5,000	\$28,429
Other	\$31,356		\$31,356		\$31,356		\$31,356		\$31,356		\$31,356	...		\$31,356
Utilities, Permits and Taxes	\$7,768		\$7,768		\$7,768		\$7,768		\$7,768		\$7,768	...		\$7,768
Truck Rental								\$6,000			\$6,000	...	\$4,000	\$10,000
Totals	\$247,972	\$26,299	\$274,271		\$278,677		\$283,193	\$28,729	\$311,922	\$19,345	\$331,267		\$60,770	\$392,037

Main Factors for Increase

Steady Visitor Use Increases; Security and patrol increases due to vandalism; Raven's Nest; Safety requirements (new water procedures)

Perimeter Trail Phase I; Hatchery Parking paved (staging area expansion = increased use); Excludes \$20,000 for sweeper

Serpentine Hollow Expansion

Full Perimeter Trail operation and patrol; Hatchery entrance full development including water and flush toilets

Management Plan Staffing Implications

Category	2004		2005		2006		2007		2008		2009		2014	
Regular Full Time	1.33	1	2.33		2.33		2.33		2.33		2.33	...		2.33
Regular Part Time														
Temporary Full Time	1.52	-0.75	0.77		0.77		0.77	0.25	1.02	0.25	1.27	...		0.5
Temporary Part Time (auxiliary)														1.77
Totals	2.85		3.1		3.1		3.1		3.35		3.6	...		4.1

Assumes:

No operating cost changes due to Tynehead East, Surrey Bend or Robert Point

There is capital program or fundraising that provides modest capital funds for new development over time (at present there is not)

Operating cost implications are assumed in the first year after capital funds are spent

Incorporates corporate salary allowance associated with salaries and benefits (increase of \$4-\$5300 / year)

* Amount includes: 2.5% increase in salary allowance for 2009, 2010, 2011, 2012, and 2013

Management Plan Capital Cost Implications

Capital Maintenance and Replacement

	2004	2005	2006	2007	2008	2009		2014
Raven's Nest Fireplace		\$5,000						
Youth Initiative Support Projects	\$15,000	\$15,000	\$12,000	\$12,000	\$12,000	\$12,000	...	
Caretaker's Residence maintenance	\$5,000	\$5,000	\$5,000				...	
Service Facility			\$20,000				...	
Trail resurfacing and conversion	\$25,000	\$25,000	\$25,000	\$25,000	\$10,000		...	
Erosion Protection / stream improvements		\$40,000	\$100,000	\$10,000	\$10,000		...	
Viewing Tower Replacement						\$40,000		
168th St. Staging Area (2008: parking lot paving)			\$40,000				...	
Old Field / Invasive Species Management	\$5,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	...	
96th Avenue Staging Area (2005: Pit toilet; 2007: Pave parking lot; 2014: Water hookup and flush toilets)		\$15,000		\$15,000				\$150,000
Total	\$50,000	\$115,000	\$212,000	\$72,000	\$42,000	\$62,000		\$150,000

New Capital Projects

	2004	2005	2006	2007	2008	2009		2014
Serpentine Hollow Staging Area and Picnic Expansion							...	
Parking lot expansion and paving					\$50,000		...	
Picnic Tables, Landscaping, Pathways					\$25,000		...	
Perimeter Trail							...	
Majority Surrey Cost with 96th Ave. Widening (GVRD cost is estimated at \$25,000) (1.7 km)				\$25,000			...	
Trail Construction (~6.5 km); '11 Stream Crossings (conservative estimate = \$100,000 ea.); and associated costs (landscaping,							...	\$1,750,000
Total	\$0	\$0	\$0	\$25,000	\$75,000	\$0		\$1,750,000

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