SUNNYSIDE ACRES URBAN FOREST ACCESS AND RECREATION MANAGEMENT PLAN

Prepared for:
City of Surrey
Parks, Recreation and Culture Department

SURREY
CITY OF PARKS

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Executive Summary

Sunnyside Acres Urban Forest was dedicated in 1988 in response to the efforts of the Save our Sunnyside group that recognized its unique ecological characteristics and recreational opportunities. The City of Surrey Parks, Recreation and Culture Department is committed to sustaining the Forest and its associated environment in as natural a state as possible. The ecological degradation sustained by the Forest in the past threatens to continue and potentially increase with its popularity. It is recognized that the Forest cannot be classified as “wilderness” and therefore the natural resources and recreation activities must be managed to protect its ecological integrity.

This Access and Recreation Management Plan serves as a strategic document that provides direction for the management of the Forest. All of the objectives and principles within this plan are consistent with the City of Surrey Natural Areas Access and Recreation Management Strategy as well as the City of Surrey Parks, Recreation and Culture Commission Policy Manual. This plan proposes specific actions that address the access and recreation concerns of the public and Forest stakeholders while preserving the intrinsic and heritage values of the Forest.

It has been recognized that Sunnyside Acres Urban Forest contains endangered ecological features that are considered rare on both a regional and provincial level. These ecosystems must be protected while managing for increasing recreation pressures. Management of the Forest is complicated by the presence of a root rot disease that is currently endangering the rare mature Douglas-fir trees. This disease creates conditions that pose a serious risk to public safety and increases the wildfire hazard in the Forest.

One half of the trails within the Forest are unauthorized. The authorized trails are all classified as recreation nature trails except for the Wally Ross trail that has been built to accommodate wheelchairs. It is recommended that two of these unauthorized trails be adopted as authorized trails as they meet the current and future needs of the public. Efforts to close the remaining unauthorized trails should continue focusing on those within the ecologically sensitive areas of the Forest.

The current signage system in the Forest varies in text, fonts, sizes, supporting posts and colors. A standardized signage system has been recommended that will attempt to eliminate these problems and minimize the number of signs in the Forest. Additionally, recommendations have been made to ensure there are adequate facilities such as parking, gating, street safety and toilets.

The conflicts that exist between user groups in the Forest have been researched through extensive public consultation and interviews with relevant agencies and organizations. At the present time, there are few conflicts between the various user groups. The greatest conflicts to date include dog owners who do not leash or clean up after their dogs. There have been relatively low incidences or concerns involving bicyclists.

In order to manage and prioritize the recomendations made in this report, the Forest has been stratified into five distinct recreation and access management zones. Within each of these zones, the management goals and the most critical factors affecting access management have been identified. They describe the intent of management and its associated risks, the carrying capacity of the site, the signage requirements and the facilities needed. The following figures and tables summarize and prioritize the recommendations made within this management plan.

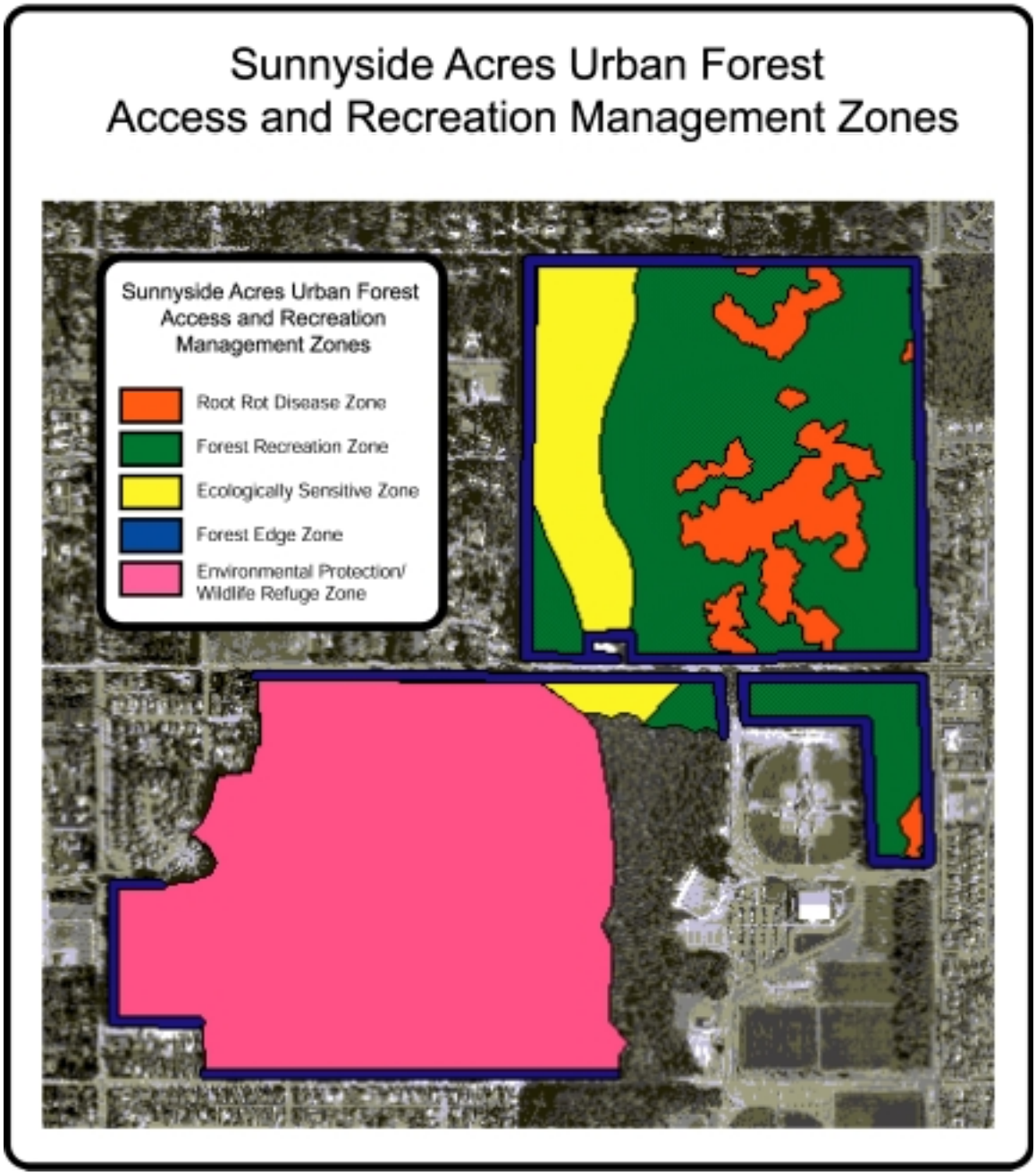

Figure 1. Access and Recreation Zones in Sunnyside Acres Urban Forest

Table 1. Summary of management objectives, primary concerns and recommendations by Management Zone

Management Zones	Objectives	Primary Concerns	Trails and Signage Recommendations	Other Recommendations
All Management Zones	• Preserve and protect the ecological integrity of the Forest • Provide legitimate access and recreational uses of the Forest that meet the needs of Surrey residents of all abilities • Provide a high quality trail system for access to and recreation within the Forest • Comprehensively plan for access and recreational activities in the Forest • Involve the public in the planning, design, construction and maintenance of access uses and opportunities in the Forest • Prepare and implement maintenance work plans that will facilitate safe use by the public • Develop and maintain an inventory that will facilitate the Access and Recreation Plan for Sunnyside Acres Urban Forest	• Many dogs are being walked off leash in the Forest • Dog waste is not cleaned up by dog owners • Damage to the vegetation and wildlife caused by users groups and their animals going off-trail • Unauthorized trails exist throughout the Forest which threaten the ecosystem integrity of the Forest • There is little variation in authorized trail types • The current signage is inconsistent and inefficient • There are no or not enough trail name, user risk, no dumping, dog rules, ecological awareness and wildfire hazard signs. • Trail standards within the Forest do not meet the specifications required for equestrian use	• Name all trails • Monitor trails during peak seasons for off-trail use, bylaw infractions and trail etiquette violations • Decommission all unauthorized trails (except trail M) • Place trail closure signs at the entrance to all unauthorized trails • Place signs informing dog owners to leash and clean up after their dogs • Install no dumping of waste signs • Develop an official trails map and trail etiquette board to install in the kiosk • Inspect and maintain trails according to the Natural Areas; Access and Recreation Management Strategy • Inspect and maintain signs in the Forest monthly and adjacent to roadways weekly ▪ Maintain trails to standards appropriate for equestrian use on those trails that permit them ▪ Produce an annual inventory of all unauthorized trails and a prioritized plan for decommissioning them	• Develop a volunteer base to assist the Parks Department staff • Install garbage cans to reduce litter and promote the clean-up of dog waste • Produce educational brochures to enforce regulations and minimize conflicts • Produce a website for the Forest • Establish a special use permit system for events involving more than 30 people • Keep a log book of all reported user conflicts

Management Zones	Objectives	Primary Concerns	Trails and Signage Recommendations	Other Recommendations
Root Rot Disease Zone	• Manage the root rot disease to ensure public safety and educate the public regarding its treatment • Motor vehicle use is the only restriction to access in this zone	• Dying trees are a safety hazard to user of the Forest • The fuel accumulations caused by the disease create a fire hazard • There are no facilities to promote wildlife viewing • If the proposed treatment recommendations for the root rot disease are not implemented, trees adjacent to trails within this Zone can fail without warning causing injury or death to people using them	• Post an educational sign describing the root rot disease and wildlife viewing opportunities • Keep the areas adjacent to trails clear of fuel accumulations to reduce the risk of wildfire ignition • If the proposed treatment recommendations for root rot are not implemented, trails within this Zone will have to be closed periodically and appropriate signage will have to be installed. Parks Division Staff only have the funding to conduct tree hazard assessments every 14 years	• Install a bench for sitting if the treatment recommendations are adopted

Management Zones	Objectives	Primary Concerns	Trails and Signage Recommendations	Other Recommendations
Environmental Protection Zone/Wildlife Refuge	• Protect this rare ecosystem and the wildlife using it by maintaining a strict no access policy to all parts of the Zone • Maintain or enhance the natural drainage patterns and water quality in this area	• Unauthorized trails are damaging fragile ecosystems that are also essential to many of the animals in this area • This area is frequented by youth who set up temporary shelters, light bonfires, vandalize signs and leave garbage • Dogs left off-leash damage vegetation and scare wildlife • There are no trails connecting 140th Street with the rest of the Forest • There are numerous signs from the adjacent bike park located along Trail # 1 • The signs located along Trail #1 are often vandalized • There have been numerous but infrequent attempts to close Trail J by the Parks Division with no success • People within this Zone will disturb the deer rearing their young	• Install signs stating the ecological sensitivity of this area • Deliver pamphlets to residents adjacent to the Forest regarding the ecological sensitivity of this area • Rehabilitate all areas degraded by party-goers • Work to reduce the number of signs along Trail # 1 that are associated with the bike park • Consider developing a trail along the north side of 20th Ave. • Monitor the non-authorized trails in this area for trespassers • Monitor this area more frequently for sign maintenance	• Erect a wooden fence or dig a ditch along the north side of 20th Ave. to restrict access to this area and prevent illegal dumping

Management Zones	Objectives	Primary Concerns	Trails and Signage Recommendations	Other Recommendations
Ecologically Sensitive zone	• Maintain or enhance the existing access through this zone while protecting the sensitive ecosystems within it • Motor vehicle use is the only restriction to access	• The preservation of natural drainage patterns • The maintenance of the natural integrity of this sensitive ecosystem • The higher moisture levels in these areas make the existing trails prone to erosion	• Monitor this zone more frequently than the rest of the Forest during peak seasons for off-trail use, bylaw infractions and trail etiquette violations • Install interpretative trail signs	• Remove all culverts and re-establish the natural drainage patterns by installing boardwalks across the seepage areas in this Zone
Forest Edge Zone	• Provide a safe and aesthetic interface with the urban environment and maintain the ecological integrity of this area • This Zone borders the outer perimeter for many Zones. Access objectives for trailheads in the Forest Edge Zone are better described in the adjacent Zones	• Dumping of garbage and garden waste • There are numerous entrances to unauthorized trails • The presence of non-native species which threaten to encroach into the Forest • Garbage accumulating from passing traffic and pedestrians • Tree hazards to adjacent roadways	• Place no dumping signs where it is a concern • Remove all garbage from the forest edge • Remove all non-native species within 10 metres of the Forest edge • Encourage local residents not to dump garden refuse and garbage in the Forest • Consider constructing a trail along the north side of 20th Ave. • Regularly inspect roadways for tree hazards	• Consider replacing metal trail entrance fencing with wooden fencing • Consider erecting a wooden fence along 20th Ave.

Management Zones	Objectives	Primary Concerns	Trails and Signage Recommendations	Other Recommendations
Forest Recreation Zone	• To provide safe access to areas of interest within the Forest. • All trails are restrict motor vehicle use • Trail M and the Wally Ross Trail (Trail 6) are restricted to pedestrian and wheelchair users only. • Trail M is a proposed nature trail. Access is restricted to pedestrian use only or the primary purpose of nature enjoyment and education. • The Wally Ross Trail is a modification of a universal access trail that restricts all access except for pedestrians (with leashed dogs) and wheelchair users	• Conflicts between user groups • Safety and liability concerns regarding trail use • There have been numerous attempts to close Trails M and O by the Parks Division with no success	• Install signs indicating trail etiquette and user safety concerns • Make Trails M and O authorized trails • Trail M restricts all users except pedestrians and dogs on leash • The only restriction to use on Trail O is to motorized vehicles • Install signs at the entrance to Trail M stating access restrictions and the reason for them • Install signs at the entrance to Trail O stating the risks associated with trail use, the dogs must be on leash and cleaned up after sign and the Sunnyside greeting sign • Install bike and horse baffles at the entrance to Trail M	• Produce educational brochures regarding trail etiquette and to enforce regulations and minimize conflicts • Install a small bridge to cross the ditch at trail O

Table 2 Prioritization of Recommendations

Signage*	Trails	Facilities	User groups	Other
1. Install no entry signs adjacent to ecologically sensitive areas and at the entry to unauthorized trails 2. Install an updated map of the Forest and its facilities and trails in the kiosk 3. Install trail name signs 4. Install signs informing dog owners to leash and clean up after their dogs 5. Install no dumping of waste signs 6. Install signs regarding trail etiquette in the Forest 7. Install signs regarding the associated risks of using the Forest 8. Install fire hazard signs 9. Install educational material in the kiosk 10. Install temporary educational signs in the root rot centres regarding the disease and its management 11. Install interpretive trail signs 12. Install appropriate signage regarding risk for the Root Rot Management Zone if the proposed treatment is not adopted. *remove existing signs as new ones are placed as outlined in this management plan	1. Make Trail M an authorized nature trail 2. Make Trail O an authorized recreation nature trail 3. Close all unauthorized trails focusing on ecologically sensitive areas first 4. Name all authorized trails 5. Develop an official trails map 6. Produce an annual inventory of all unauthorized trails and a prioritized plan for decommissioning them 7. Inspect and maintain all trails as stated in the Natural Areas; Access and Recreation Management Strategy 8. Monitor trails during peak seasons for off-trail use, bylaw infractions and trail etiquette violations 9. Develop a trail running adjacent to the north side of 20th Avenue connecting to 20A Avenue	1. Install a small bridge to cross the ditch at the entrance of Trail O 2. Locate garbage cans at the parking lot on 24th Ave. and at the junction of trails 7 and 10 3. Remove all the culverts crossing Trails 7 and 12 and re-establish the natural drainage patterns by installing boardwalks across these seepage areas. 4. Erecting a wood fence or dig a drainage ditch along the north side of 20th Ave. to discourage dumping and access 5. Put a bench in the root rot centre for wildlife viewing and resting 6. Paint parking lines in the pullout across from the entrance to Softball City to indicate diagonal parking 7. Install a safe crossing of 24th Avenue from trail #9 to the entrance to the Athletic Park. Consider an underpass in future to allow animals safe passage. 8. Install a bike and horse baffle at the entrances to Trail M	1. Closely monitor the level of conflicts between user groups in the Forest 2. Dismantle and remove all shelters and fire pits built by party-goers 3. Deliver pamphlets to residents adjacent to the Forest regarding its ecological sensitivity 4. Create a program where a representative from each user group is assigned that can pass on educational material regarding the Forest and other user groups. 5. Consider the use of a dog-waste management company or have volunteer groups stock bag supplies at the kiosk	1. Establish volunteer groups to assist the Parks Department staff 2. Rewrite the Forest brochure to include information on trail etiquette, education material regarding rare and endangered plant and animal species, an up to date trails map and an interpretive guide 3. Insert information in the kiosk regarding the Forest – similar to the brochure material 4. Develop a website to post information regarding the Forest

Introduction

As the population density of our urban centres grows, increasing pressure is placed on existing parks and natural areas. There are a variety of user groups looking to pursue different activities and experiences in these areas. This increase in use often leads to conflicts between user groups and can threaten the integrity of these ecosystems. For this reason, it is important to identify the needs and pressures of these protected areas and to develop policies and guidelines for their management that can satisfy all user groups in an ecologically sensitive and sustainable way.

Sunnyside Acres Urban Forest was initially dedicated in response to local groups, primarily the Save-our Sunnyside group that recognized this forest as a rare stand in the context of its urban environment. The size and age of the Douglas-fir trees are unique and hold both aesthetic and spiritual value for those who regularly use the Forest. The wetter ecosystems dominated by deciduous trees contain endangered plant communities and provide critical wildlife habitat. These features make this park a destination for residents from not only Surrey, but from the entire Greater Vancouver area.

The City of Surrey Parks, Recreation and Culture Department is committed to sustaining the Forest and its associated environment in as natural a state as possible. The ecological degradation sustained by the Forest in the past threatens to continue and potentially increase with the popularity of the park. It is recognized that the area cannot be classified as “wilderness” and therefore the natural resources and recreation activities must be managed to protect the ecological integrity of the Forest.

This Access and Recreation Management Plan acts as a strategic document that provides direction to operational forest management to take specific actions which address the access and recreation concerns of the public and Forest stakeholders. The plan outlines specific actions to be taken within the next 5 years as well as general strategies for the long-term preservation of the Forest. It is a public document that will be available for comment and may be updated in the future in response to the needs and desires of the community. However, the goals set out in this plan for the Forest cannot be compromised to meet future demands.

The plan was developed with considerable input from the public, Sunnyside Acres Advisory Committee and representatives from specific user groups. A questionnaire was developed for the general public in the immediate vicinity of the Forest and meetings were organized with the primary stakeholders to discuss access and recreation needs (see Appendix C). In general there was strong support for protecting the Forest ecosystems and that there be as little change to the Urban Forest as possible.

Park policies, city by-laws and existing management guidelines

It is critical that this plan be consistent with all higher level plans and objectives set forth by the Parks, Recreation and Culture Department, Parks Division (Parks Division). The following is a summary of the Parks Division policies and guidelines and the guiding principles for park management that have been considered and incorporated into this plan.

Parks like Sunnyside Acres Urban Forest have been "set aside in perpetuity for their intrinsic and heritage values, to provide long term non-consumptive enjoyment and benefits for the general public" (Parks, Recreation and Culture Commission Policy Manual, 1996). This statement emphasizes the need to produce an ecologically sound and sustainable management strategy. Parks Division staff, the Sunnyside Acres Advisory Committee and all user groups have re-emphasized this sentiment throughout this planning process.

Regarding access, this policy manual also states that:

a) Each local Urban Forest Advisory Committee shall develop a trail system plan to facilitate controlled access to the forest that will be designated and maintained to have minimum impact on the surrounding environment and to preserve the natural character of the area.
b) Local Urban Forest Advisory Committees may, at their discretion, designate trails for specific uses and may prohibit certain uses. Where trail use puts at risk the enjoyment of others, public safety or protection of the environment, the Local Management Authority will prohibit or segregate use.
c) Each Local Urban Forest Advisory Committee should set aside areas in which public access is restricted in order to protect the forest from human disturbance.

A citywide Natural Areas Access and Recreation Management Strategy (City of Surrey, 2000) was developed in order to provide guidance to the Parks Division and to the Parks Commission in the management of access and recreation in natural areas parkland. A number of principles were set forth in this plan in order to guide the development of management goals and objectives, preparation of work plans and resolution of associated values. These include:

- Natural areas are valuable ecosystems and must be respected
- Wildlife must be protected in areas unfrequented by people
- Natural areas are for the benefit of the general public and should be shared
- Fragmentation of natural areas must be limited when providing access
- Recreational activities must be compatible with the site and must not unduly impact significant habitats and vegetation
- Recreation activities at a site must be compatible with one another
- Access and recreation activities must be legitimate
- Access and recreation should be planned, monitored and evaluated
- Regulations designed to protect natural areas should be developed and enforced

Based on these principles, specific access and recreation goals and objectives were developed for Sunnyside Acres Urban Forest in accordance with those outlined in the Natural Areas Access and Recreation Management Strategy. These are designed to protect and enhance the ecology of the Forest environment while providing recreational opportunities for the community. These principles and objectives have been used as a framework for the development of this access and recreation plan.

Sunnyside Acres Access and Recreation Goals

1. Preserve and protect the ecological integrity of the Forest
The ecosystem of Sunnyside Acres Urban Forest provides critical habitat for many different plants and animals and contains environmentally sensitive areas supporting rare and threatened species. In cases where ecological values may be significantly compromised, access and recreation must be controlled, limited or even prohibited.

2. Provide legitimate access and recreational uses of the Forest that meet the needs of Surrey residents of all abilities
The Forest provides a unique environment for people to enjoy a diverse number of nature based activities. From bird watching to bicycling, there is an increase in users of the Forest. Legitimate access and recreation must be planned and provided for in suitable areas, while protecting the ecology, in order to meet the needs of the general public.

3. Provide a high quality trail system for access to and recreation within the Forest
Since access and recreation within the Forest is primarily provided by trails, a high quality neighborhood and community trail system is desirable. A trail strategy should provide the necessary guidance to develop safe access and recreation opportunities while protecting the ecosystem.

4. Comprehensively plan for access and recreational activities in the Forest
This plan should consider access and recreation opportunities, the needs of neighborhoods and communities, and the capacity of the Forest to sustain the desired activities.

5. Involve the public in the planning, design, construction and maintenance of access uses and opportunities in the Forest
Public involvement in the management of the Forest will contribute to the development of high quality services that are relevant to the general public, and that generate public acceptance and satisfaction. Such participation in projects by the community can also create a sense of ownership, and encourage stewardship of the Forest.

6. Prepare and implement maintenance work plans that will facilitate safe use by the public
Maintenance work plans that will optimize the safety and security of the public should be prepared and implemented by qualified personnel in accordance with Parks Division Standards and Policies. For example, such plans should include trail inspections that will identify trip hazards and/or hazard trees and actions to correct these problems.

7. Prepare and implement maintenance work plans that will facilitate safe use by the public
Maintenance work plans should include trail inspections to prevent or correct damage to the Forest. For instance, when adjacent landowners encroach on the Forest, they should be required to remove the encroachments. Or when recreational activities damage natural habitat or vegetation, the trails should be closed.

8. Develop and maintain an inventory that will facilitate the Access and Recreation Plan for Sunnyside Acres Urban Forest
This plan provides baseline information on the ecosystems and the location and types of existing recreational facilities (e.g. trails and signs) within the Forest. The inventory should be updated in the future to meet changes in the facilities provided.

Forest Description

The following is a general description physical and ecological attributes of the Forest that are relevant to the development of recreation and access management strategies. Much of the background research and justification for this section has been attached in Appendix A.

Location

Sunnyside Acres Urban Forest is bordered by 28th Avenue to the north, 20th Avenue to the south, 148th Street to the east and 140th Street to the west (Figure 2). The Forest is segmented into a northern and southern portion by 24th Avenue. The southern portion is bordered to the east by an extensive sports field complex called the Athletic Park that includes Softball City, numerous playing fields, tennis courts and a skateboard park. Additionally, there is a portion of the forested stand south of 24th Avenue designated as a mountain bike park that is not part of the Urban Forest.

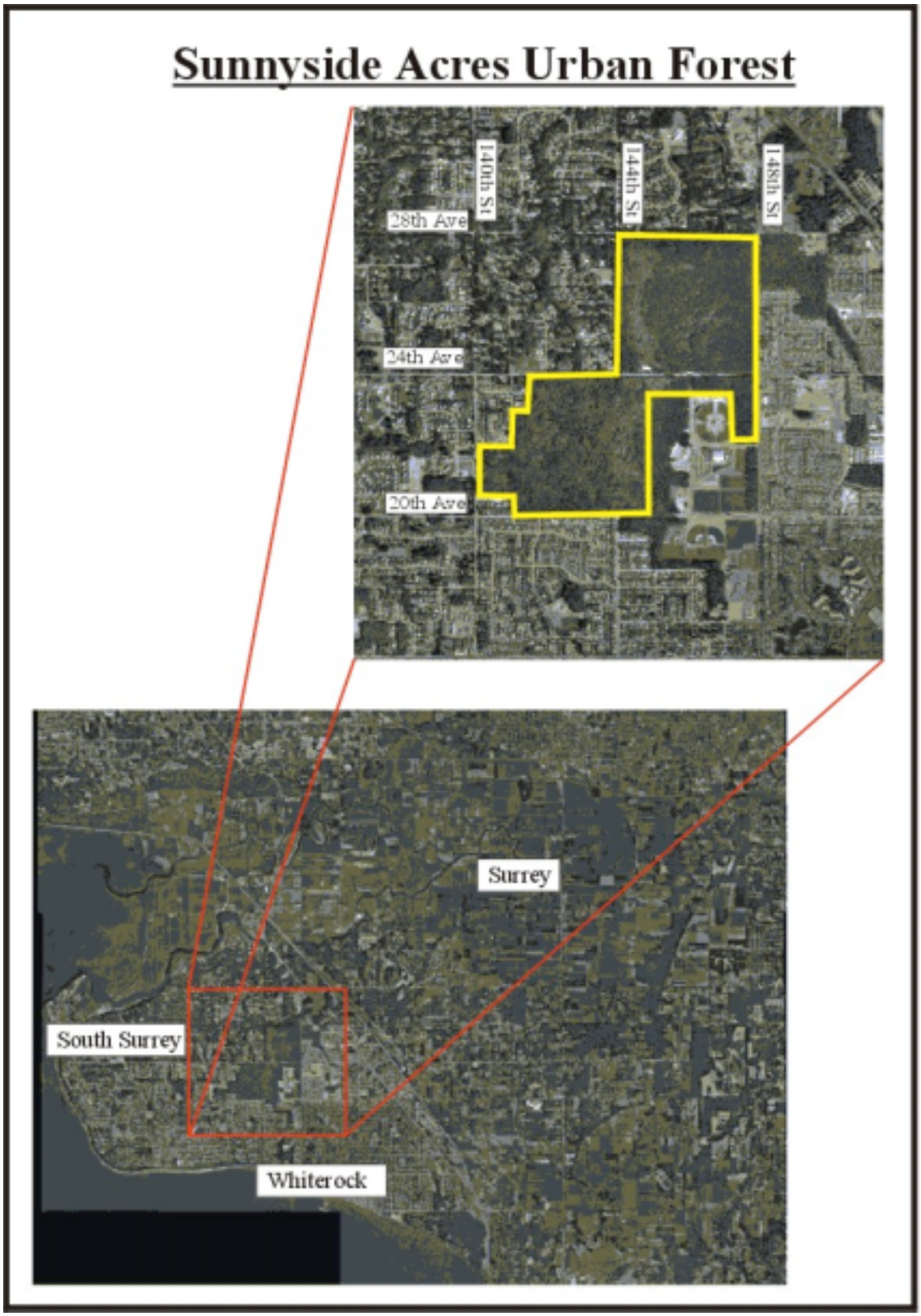

Figure 2. Location of Sunnyside Acres Urban Forest

Climate

This area lies in the rain-shadow created by the western mountains of Vancouver Island and the Olympic Mountains. Their influence results in characteristically warm and dry summers with mild and moist winters. This climate is within a zone classified as the mildest in Canada and experiences some of the greatest sunshine hours in B.C. The growing season is long with pronounced water deficits.

Physiography

Generally, the Forest contains flat to rolling terrain with slopes reaching no more than 20%. The parent material consists of 30-160cm of gravelly glacial outwash over moderately coarse-textured glacial till deposited during the last period of glaciation, about 12,000-13,000 yeas ago. In some areas of the Forest a cemented layer exists, that restricts water and root penetration. The soils are classified as humo-ferric podzols according to the Canadian System of Soil Classification. Soil textures are generally sandy loams with a coarse fragment content ranging from 30-50%.

According to the Sunnyside Acres climatic station, which is located in the vicinity of the Forest, it receives an average of 1,237mm of rain annually. Most of the runoff is absorbed by the vegetation on the site or is filtered down through the soils to add to the ground water. There are two major drainage patterns within the Forest. North of 24th Avenue, a small stream starts from a culvert running under the main parking lot. This small creek is intermittent and ephemeral. It drains to the north, parallel to 144th Avenue. The water that does not go underground is caught in the city's storm water system along 28th Avenue.

The second major drainage system is located south of 24th Avenue and west of the 14400 block. The Douglas-fir forest located adjacent to the Bike Park drains down slope into this deciduous forest. This large area is generally very wet and slowly drains towards a culvert at 24th Avenue. A number of small intermittent creeks can be found in this area but none are perennial or continuous. This drainage area is of particular interest as it has been identified as the headwaters of Elgin creek, which is a fish-bearing stream.

Forest Ecology

According to the Biogeoclimatic Classification System of B.C. (Green and Klinka, 1994) Sunnyside Acres Urban Forest is classified as the Moist Maritime Coastal Douglas-fir Subzone (CDFmm) but lies close to the transition zone to the Very Dry Maritime Coastal Western Hemlock subzone (CWHxm). Within the BEC system, subzones are further categorized according to the level of available moisture and nutrients into units called site series. A more detailed description of this classification can be found in Appendix A and in Green and Klinka (1994).

For the purposes of developing management zones and subsequent strategies, similar ecosystem types were grouped together into strata as illustrated in Figure 3. In general, the Forest is dominated by site series 04, 01 and 06 with small pockets of 11 and 14. These site series classifications are important as they help to identify similar plant communities and determine how they will develop and react to various management regimes. Additionally, they help to identify the location of rare and endangered species, habitats and plant communities. Refer to Appendix A for an explanation of the ecology and site series within the Forest.

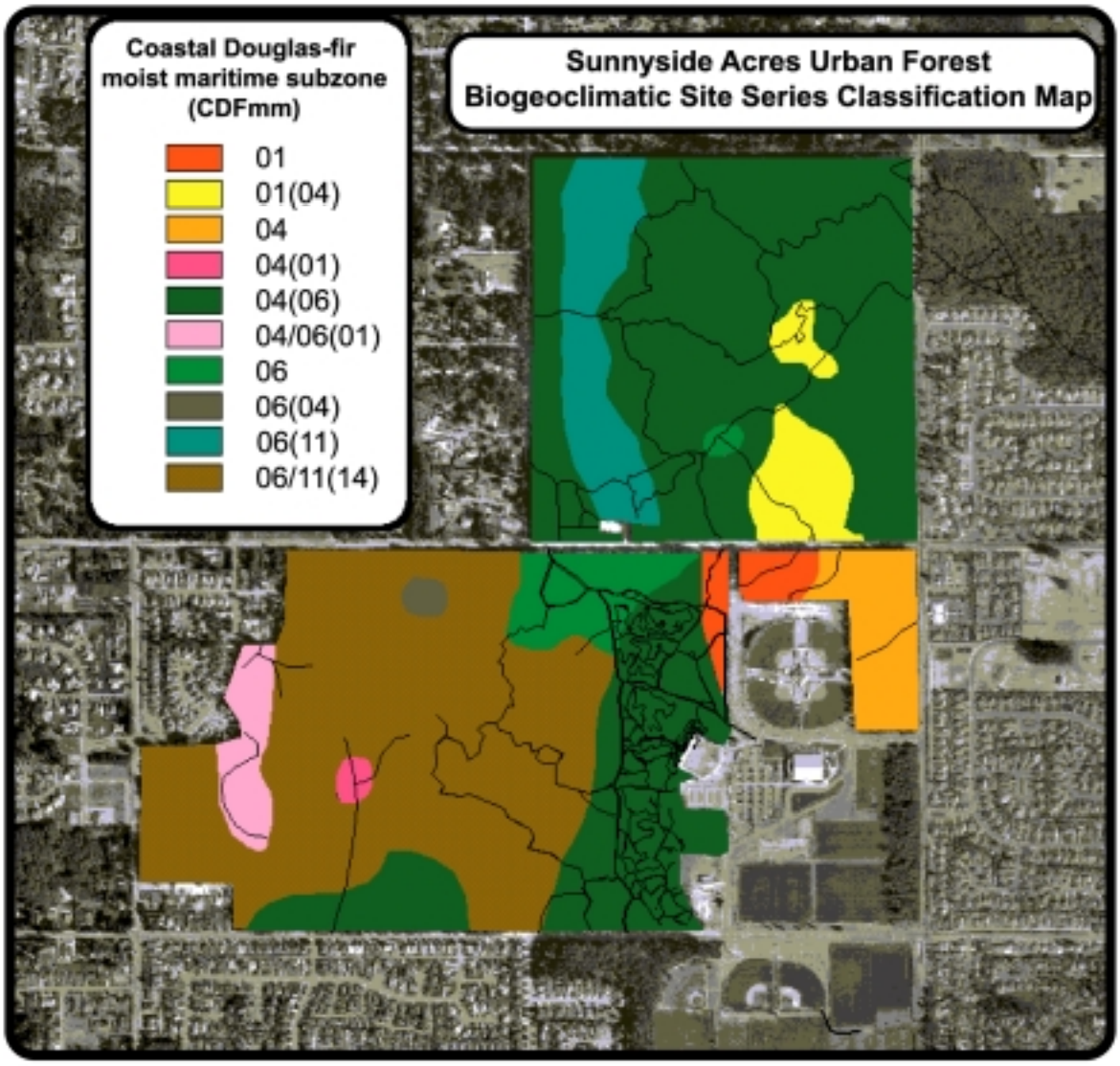

Figure 3. Ecosystem types in Sunnyside Acres Urban Forest. Refer to Appendix A for a description of the site series and ecology of the Forest

Vegetation

There is a well-developed understory throughout Sunnyside Acres due to the high concentration of nutrients within the soils. Plant and tree species have certain moisture and nutrient thresholds and ranges in which they will survive and compete. For this reason, certain plants are characteristic of distinct ecosystem types. The common shrubs and herbs found within each site series can be found in Appendix A.

Wildlife

There is a healthy mix of ecotypes across Sunnyside Acres Urban Forest that contain characteristics and habitat types that support a wide variety of birds, small mammals, amphibians and ungulates.

The wetter deciduous ecotypes generally contain a dense shrub and herb layer providing excellent ground cover and forage. The ephemeral streams and swampy areas provide critical water sources and habitat for many species including amphibians. Additionally, many of the deciduous trees are reaching a mature age and are beginning to decay and fall to the forest floor. Standing dead trees, downed coarse woody debris, increased insect use and canopy gaps that increase light to the understory vegetation has improved biodiversity in the Forest.

The Douglas-fir dominated stands in the Forest are considered to be a mature to older forest type and, as such, provide specific characteristics required by many animal species. The large limbs of the Douglas-fir provide nesting and roosting for many birds such as the bald eagle, marbled murrelet, great blue heron and a variety of owls and hawks. These large trees and snags also provide optimum habitat for cavity nesting birds such as woodpeckers. These cavities are subsequently used by secondary nesting birds such as owls and chickadees. There are a variety of smaller birds that breed and overwinter in these older forest types such as kinglets, juncos and migratory warblers and flycatchers. The huge cone productions of the Douglas-fir trees provide an excellent food source for many of these bird species.

Squirrels thrive in these stands, taking advantage of the cavities produced by woodpeckers and the ample cone supply produced by the Douglas-fir trees. A number of bat species find nesting sites behind the thick bark and cavities of the Douglas-fir. The trees in the Forest have now reached an age and size such that they can provide a continuous supply of downed woody debris to the forest floor that is critical for many terrestrial amphibians, reptiles and small mammals. Many larger mammals also rely on this forest, including coyotes, raccoons and black-tailed deer.

Ecological Biodiversity

It is difficult to determine the level of biological diversity in a stand as the term implies a general measure of the number of species supported by an ecosystem. The greatest degree of biological diversity is usually found in the earliest and latest stages of stand development. Young shrub communities contain a diverse composition of herbs and shrubs that form a complex structural habitat and abundant food sources for many species. As the forest ages into a young stand, the tree canopy closes and the understory is shaded out, causing the structural and species diversity to decline. After about 80 years in this type of ecosystem, the biodiversity level increases again as the trees reach a larger size, scattered wildlife trees are created and gaps form in the canopy admitting light to the forest floor.

Sunnyside Acres Urban Forest contains a variety of seral stages ranging from the young shrub herb communities forming in the root rot centres, to stands of young and mature deciduous species and mature Douglas-fir trees. All of these stand types contain different features that provide specific habitat for a wide variety of species. None of these stands have reached an age that can be classified as old forest. However, the mature Douglas-fir stands are reaching an age and structure, due in part to the extensive root rot disease in the Forest, where they exhibit features of old growth forests such as multiple canopy layers, canopy gaps, large trees with large limbs and numerous standing dead trees.

Sunnyside Acres: a rare ecosystem

On the coast of B.C. there are few ecosystems that receive low levels of precipitation. These dry ecosystems are generally located on the leeward side of mountains, such as those on Vancouver Island. As a result of urbanization and development in these dry, warm climates, mature to old forest stands are considered rare and endangered. Most unprotected Douglas-fir stands similar to those found in Sunnyside Acres Urban Forest have already been encroached upon by urbanization or have been harvested for their timber.

The mature forests of Sunnyside Acres are considered sensitive not only because they are rare in occurrence but also because they support a rich diversity of plant and animal species. For further information regarding the sensitivity of this ecosystem please see Appendix A.

Rare and Endangered Plant Communities, Plants and Animals

It is widely agreed that the protection of rare and endangered ecosystems is critical for conserving both genetic and species diversity in B.C. All rare ecosystems need to be conserved not only to ensure the natural state of these plant communities but also to provide habitat for the rare plant and animal species that rely on them.

The British Columbia Conservation Data Centre (CDC) is a part of the Wildlife Inventory Section of the Resources Inventory Branch of B.C. This organization is responsible for collecting and storing information on rare and endangered plants, animals and plant communities in B.C. All of these entities have been ranked by the CDC as red, blue or yellow-listed. Red-listed entities are considered extirpated, endangered, or threatened in British Columbia. Blue-listed entities are considered to be vulnerable and are sensitive to human activity or natural events. Yellow-listed entities are not at risk but are considered vulnerable during times of seasonal concentration (CDC, 2001). The species and plant communities identified by the CDC have been compared to those that exist in Sunnyside Acres Urban Forest in order to determine their rarity (Figure 4).

Rare Plant Communities

Plant communities are defined as units of vegetation with a relatively uniform plant species composition and physical structure. The CDC classifies rare and endangered plant communities according to the age of the ecosystem and how it is classified according to the biogeoclimatic classification system. Generally, young plant communities tend to be more common and therefore are not considered as rare as older plant communities that are undisturbed by human activity. These older ecosystems are considered more diverse and provide a stable habitat for a range of plants and animals.

The forests at Sunnyside Acres are not old enough to be classified as old growth and therefore do not exactly match most of those identified by the CDC. However, it is important to recognize that they already express, and will continue to develop, some of the characteristics unique to these endangered stands. The rare and endangered plant communities identified by the CDC that are similar to those in Sunnyside Acres are listed in Table 3 and shown in Figure 4.

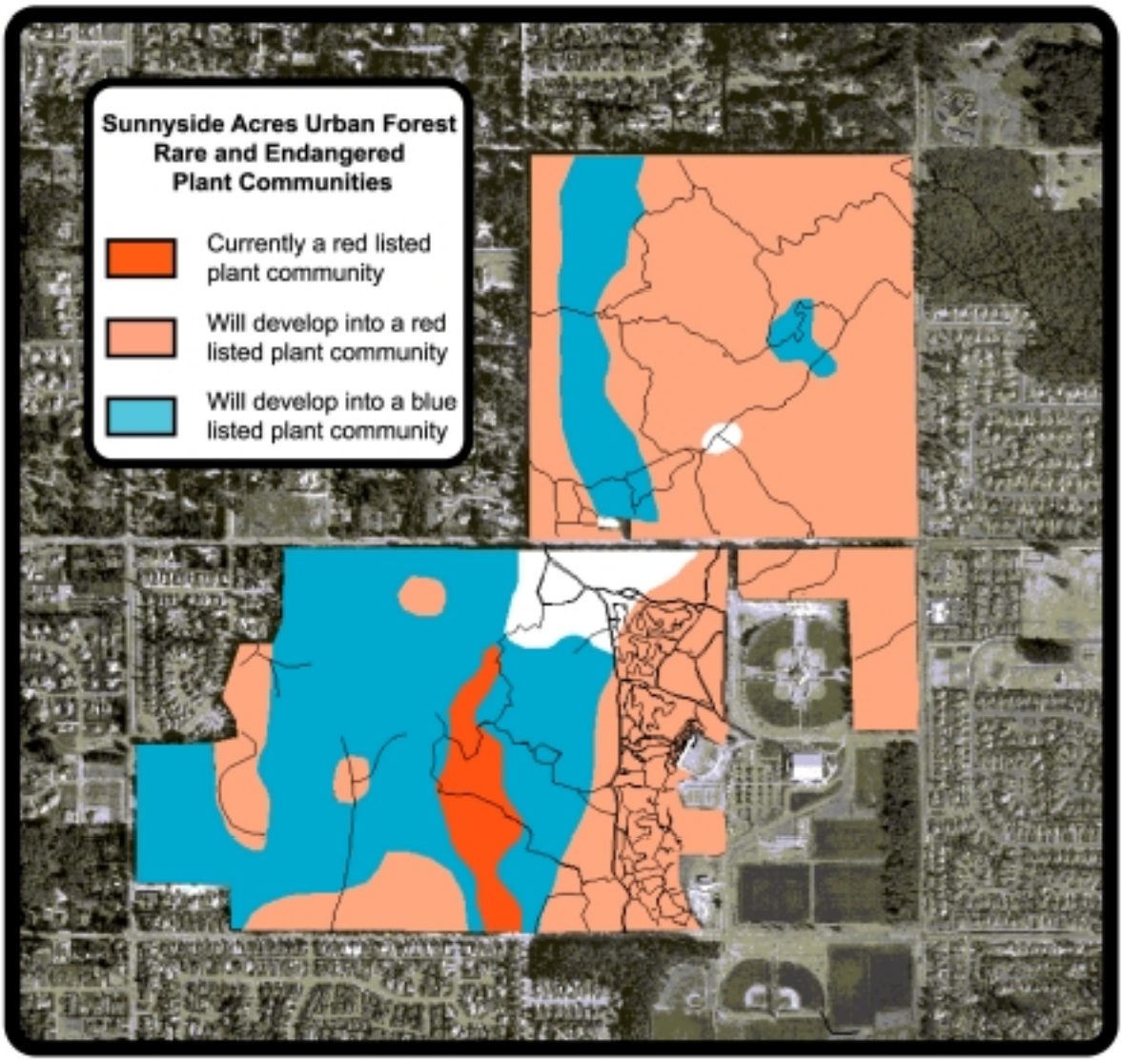

Figure 4. Current and future red listed (rare and endangered) and blue listed (at risk or vulnerable) ecosystems according to the Ministry of Sustainable Resource Management Conservation Data Centre (CDC).

Table 3. Current or future rare plant communities in Sunnyside Acres Urban Forest according to the CDC.

ID #	*Scientific name*	Common name	Biogeoclimatic Ecosystem Classification Unit[1]	Provincial Ranking[3]	Structural Stage[2]
1	*Pseudotsuga menziesii / Gaultheria shallon*	Douglas-fir / salal	CDFmm/01	Red	7
2	*Thuja plicata - Pseudotsuga menziesii / Kindbergia oregana*	Western redcedar – Douglas-fir / Oregon beaked moss	CDFmm/05	Red	7
3	*Alnus rubra / Carex obnupta [Populus balsamifera* ssp. *trichocarpa]*	Red alder / slough sedge [black cottonwood]	CDFmm/14	Red	6
4	*Alnus rubra / Lysichiton americanum*	Red alder / skunk cabbage	CDFmm/11	Blue	7

[1] See Green and Klinka (1994)
[2] 7 indicates old growth forests, 6 indicates mature forests
[3] Red listed (rare and endangered) and blue listed (at risk or vulnerable) ecosystems

Plant community #1 is an old forest Douglas-fir stand growing on moderately dry sites with medium nutrients. This forest type is starting to express the characteristics of an older forest and will continue to develop into this endangered plant community.

Plant community #2 is not as common in Sunnyside Acres, as it is a mix of old forest Douglas-fir and western redcedar that is located on slightly wetter sites with poor to medium nutrients. This forest type is starting to express the characteristics of an older forest and will continue to develop into this endangered plant community.

Plant community #3 are red alder and cottonwood dominated stands located on wet and rich ecotypes with a fluctuating water table. These sites are often located in riparian areas and therefore form critical habitat for many species. There is a distinct community of old cottonwood and red alder that follows a drainage system near 20th Avenue and 144th Street and running north. This area can currently be categorized as red-listed.

Plant community #4 are red alder dominated stands located on wet and rich ecotypes. These sites are often located in riparian areas and therefore form critical habitat for many species. This area will evolve into a blue-listed ecosystem.

Rare Plant Species

The only rare plant species that has been confirmed in Sunnyside Acres Urban Forest to date is western trillium (*Trillium ovatum*). This species generally grows in rich ecosystems under the tree canopy. No other rare and endangered plant species have been confirmed, although the forests provide suitable habitat for a number of these species. Poison oak (*Toxicodendron diversilobum*) for example, is a blue-listed species that often grows on drier sites in the CDFmm subzone, and Smith's fairybells (*Prosartes smithii)* is a blue-listed species that grows on moist sites in these ecosystems.

Rare Animal Species

Many rare species of animals rely on the habitat features found only in older forests. Two of these species that likely use the large Douglas-fir stands in Sunnyside Acres for habitat include the great blue heron (*Ardea herodias*), a blue-listed species, and the bald eagle (*Haliaeetus leucocephalus*), a yellow-listed species. These large birds rely on the large strong Douglas-fir branches for nesting and perching. Bald eagles are also known to nest and roost in large cottonwood trees such as those found north of 20th Avenue.

Although many rare and endangered animal and plant species have not been confirmed in Sunnyside Acres Urban Forest, it is important to note that these forests will continue to provide the type of habitat that they require. As this forest ages, the trees will get larger, there will be more wildlife trees created and the structural complexity of the stands will increase. Additionally, they will provide a constant supply of coarse woody debris that will eventually provide suitable habitat for a number of rare and endangered amphibians and reptiles.

Unconfirmed rare and endangered species that may already inhabit these stands include the red-listed marbled murrelet (bird), Keen's long-eared myotis (a bat), Townsends big-eared bat, the red-listed sharp-tailed snake, the blue-listed red-legged frog and the blue-listed coulded salamander.

Root Rot Disease

Laminated Root Rot (*Phellinus weirrii*) is distributed mainly in the southern half of coastal B.C., Washington and Oregon and remains one of the most damaging diseases in the province. *Phellinus weirrii* is a wood decay fungus that gradually kills the host's root system up to and including the lower bole. It spreads primarily by root-to-root contact, causing infection centres to spread radially. The pathogen can live for decades in dead material left in the soil, making innoculum removal very difficult.

In British Columbia the primary hosts for this disease are Douglas-fir and grand fir. Once infected, trees show initial symptoms including chlorosis, reduced terminal growth, crown thinning and a distressed cone crop. The fungus eventually kills the support system of the tree, often causing it to blow down. Downed trees lying in a criss-cross pattern with standing symptomatic and dead trees along the perimeter are characteristic of infection centres.

In Sunnyside Acres Urban Forest there are currently 10.9 hectares infected with root rot. The disease is spreading at a rate of about 50cm per year and threatens to drastically change the composition and structure of the Forest. Allowing this disease to spread will eventually result in the loss of the majority of the mature Douglas-fir stands. A shrub community will succeed the Douglas-fir forest and over a long period of time will become a stand of predominantly deciduous trees. Additionally, the spread of the disease creates dead standing trees that are susceptible to blowdown and become a public safety concern. In the spring of 2001, these disease centres were identified and mapped. A management plan was developed analyzing the costs and benefits of 4 various management strategies.

Forest Resources and Facilities

Trail System

There are essentially two types of trails in Sunnyside Acres Urban Forest. There are authorized trails, sanctioned by the City of Surrey as part of the official trail network and, as such, are maintained by the City. The second are unauthorized trails not sanctioned by the City of Surrey that have been created naturally by continual public use. This trail network has been mapped out in Figure 5. It is important to note that there is an extensive network of trails in the bike park adjacent to Trail #1. These trails are managed and maintained by the City of Surrey in conjunction with the Surrey Off-Road Cycling Enthusiasts (SORCE). This area has been developed for the primary purpose of mountain bike riding and has not been included in this management plan.

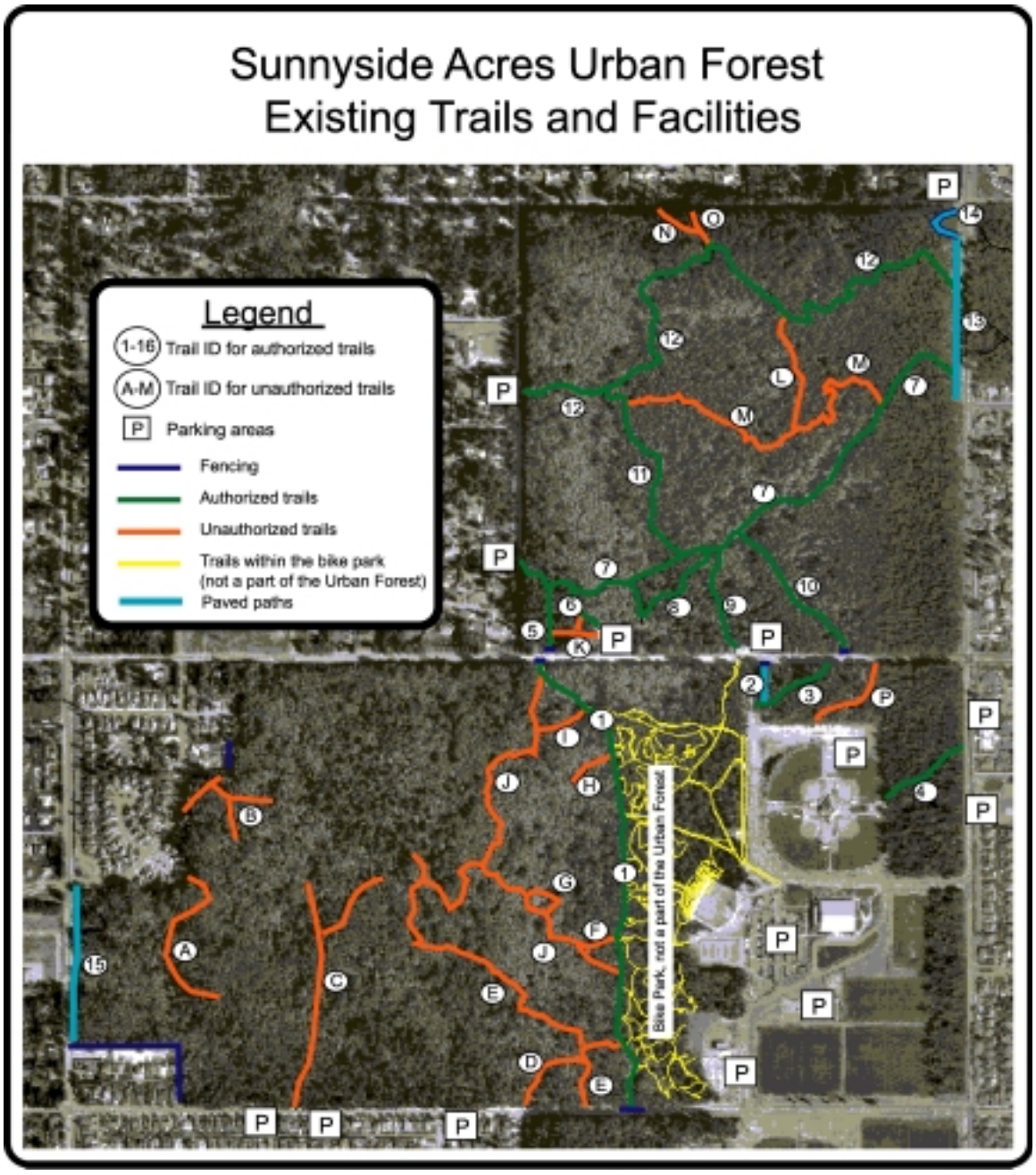

Figure 5. Trails and Facilities in Sunnyside Acres Urban Forest

Authorized and Managed Trails

There are approximately 4.5 kilometres of authorized trails (Figure 5) within the Forest. Almost every one of these trails is classified as a recreation nature trail with the exception of the Wally Ross Trail (Trail #8) according to Parks Division *Trail Classification Standards* (Appendix B). This document states that a recreation nature trail is designed for:

- Explorative, recreation based walks and slow off-road bicycling where the values of the recreation activity and access use are equal to the values of enjoyment and appreciation of nature
- Single or double track variance depending on the site
- Medium usage rates
- Limited multi-uses
- Travel in pairs if personal security in the natural area is a concern

There is a section of trail called the Wally Ross Trail (Trail #8) near the 24th Avenue parking lot that has been built for wheelchair accessibility. Facilities along this trail include a boardwalk constructed along the wetter portion of this trail (Figure 6). This type of trail is designed for:

- Unimpeded relatively safe access for users of varying physical abilities
- Users who may be blind, visually impaired, deaf, have respiratory problems or mobility problems (e.g. confined to a wheelchair, require crutches or walking aids, or unsteady on their feet)
- *All recreational uses, but primarily for users as described above

*Please note that this Plan recommends adjusting the trail use for this type of trail to restrict access to all users except for pedestrians (with dogs on leashes) and wheelchair users.

Figure 6. Boardwalk constructed along the Wally Ross Trail

Trail Inspection and Maintenance

The Parks Division staff inspects these trails annually. Following inspection, maintenance work is completed with the goal to minimize trail degradation and to maintain safe access for all user groups. Trail standards should meet those required for equestrian use as outlined in the Parks Division trail standards.

The Hearts-in-Motion Trails

The Hearts-in-Motion Trails have been implemented with the help of the BC and Yukon Heart and Stroke Foundation. The goal of this trail is to promote walking as a means of maintaining a healthy lifestyle. These trails are marked with wooden posts placed at the trailhead and at junctions in the trail, as shown in Figure 10. On some of these posts in the trail system there are small signs indicating the direction to the roads nearby.

Greenways Plan and Adjacent Nature Corridors

There are a number of natural areas that connect with the trail system in Sunnyside Acres Urban Forest. The Semiahmoo Trail, the natural areas associated with Elgin Creek and the greenways branching west from 22nd Avenue at 140th Street. The City of Surrey has identified many of these natural corridors in their Greenway Plan illustrated in Figure 7. However, the current Greenway Plan does not include the use of the Forest trails.

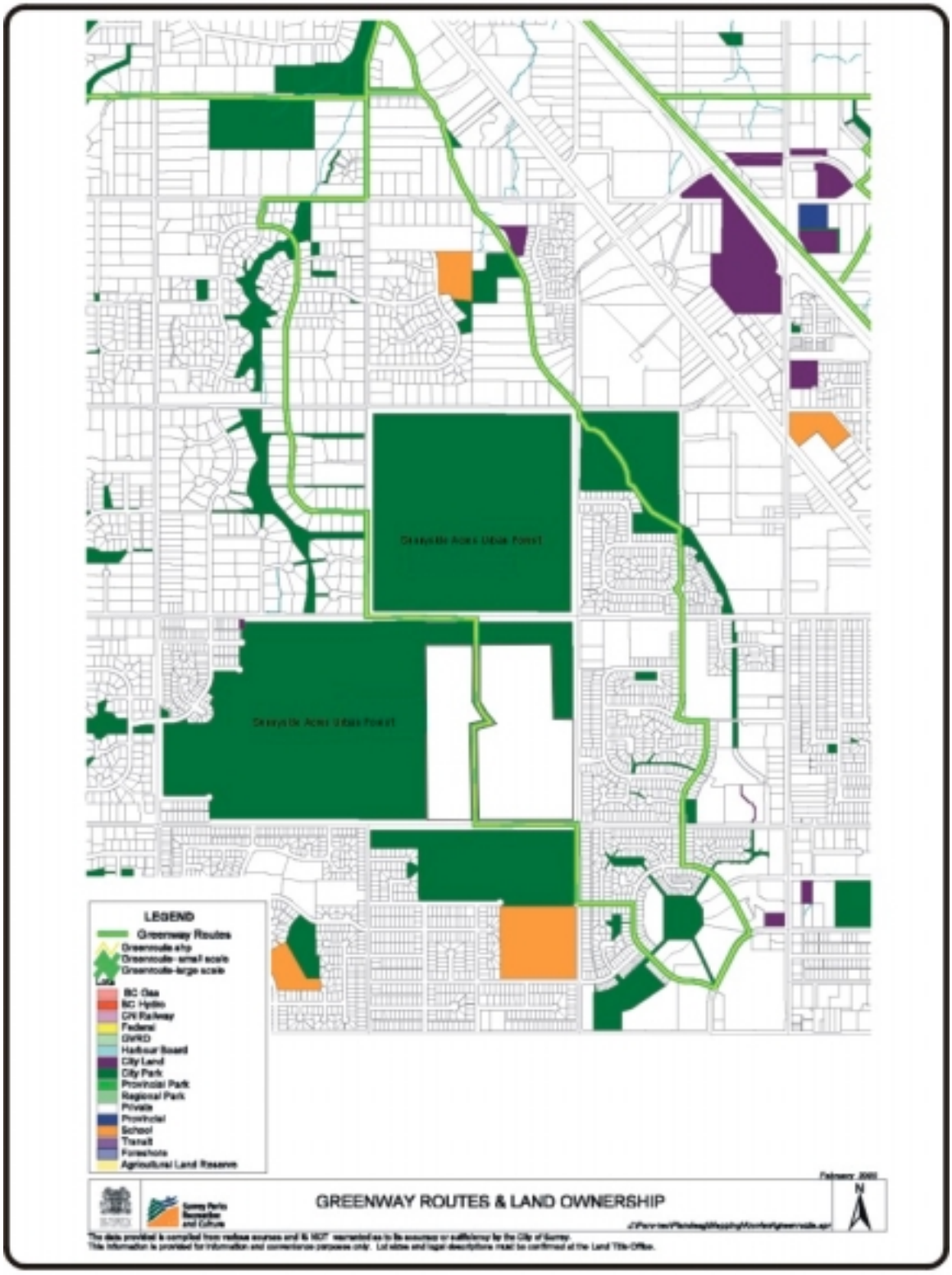

Figure 7. Greenway routes and land ownership adjacent to Sunnyside Acres Urban Forest

Primary concerns regarding authorized trails:

- There is no trail in-between 20th and 24th Avenues that runs in an east west direction
- There is no authorized trail that accesses 28th Avenue
- There are no official names for these trails
- There is little variation in trail types. This may lead to user groups seeking out less–maintained, unauthorized trails for a more secluded experience. The current trail system and designs do not meet the needs of user groups looking for a nature experience or solitude within the Forest
- There are no up to date maps of the Forest indicating trail uses and locations
- The Wally Ross Trail is designated as a universal access trail and therefore should not limit user groups. However, at this time the trail is restricting access to able-bodied individuals with dogs, bikers and equestrians
- Trail use will increase with growth in population, the implementation of the Greenways Plan and as the Forest increases in popularity

Recommendations regarding authorized trails :

- **Make Trail M an authorized nature trail that restricts access to pedestrians**
- **Install a new trail along the north side of 20th Avenue to provide an east west connector between 20th and 24th Avenues**
- **Make Trail O an authorized recreation nature trail that provides general access to all user groups except motor vehicles to meet the need for access to 28th Avenue**
- **Give names to the authorized trails and put up signs to identify them**
- **Inspect these trails on an annual basis and maintain them according to the Parks Division standards**
- **Install a map of the Forest, its authorized trail system and facilities in the kiosk at the parking lot on 24th Avenue**
- **Continue to restrict able-bodied individuals with dogs, bikers and equestrians to the Wally Ross Trail**
- **Work with the Engineering Department to establish a trail running adjacent to the north side of 20th Avenue**

Naming of the Trails

Each of these authorized trails should be named and signs should be put up at their trailheads to identify them. The names of these trails should be consistent and follow a theme for the Forest. Examples of themes to follow include first nations heritage, the names of plants and animals found in the Forest or the historic names in South Surrey. It is recommended that children from the local schools decide on the names of the trails. This process will help to promote a sense of pride and community for the youth in the area. The trail names could also be posted on the City of Surrey website where the public could vote and make further suggestions.

Trail System Design

The current system of authorized trails is well designed to access most areas open to the public within the Forest. The majority of the authorized trail system is located north of 24th Avenue and provides access to almost all the main streets on its perimeter. However, the current trail design does have its limitations. Unauthorized trails M and J have been closed down and rehabilitated numerous times with no or little success. They are nature trails that are narrow and have natural surfaces. They provide an opportunity for pedestrians looking to get off the wider surfaced trails so that they can enjoy the solitude of the Forest. In addition, residents and other user groups looking to enter or leave the Forest from 28th Avenue can only do so by using unauthorized trail O.

The only other feature needed for the current trail network is to compensate for the access restrictions in the environmental protection zone. Here, 20th and 24th Avenues are linked only by the north-south trail alongside the Bike Park. To meet the demand of a trail running in a east-west direction, a new trail should be built running along the north side of 20th Avenue that connects with the greenway by 140th Street. The proposed trail is illustrated in Figure 8.

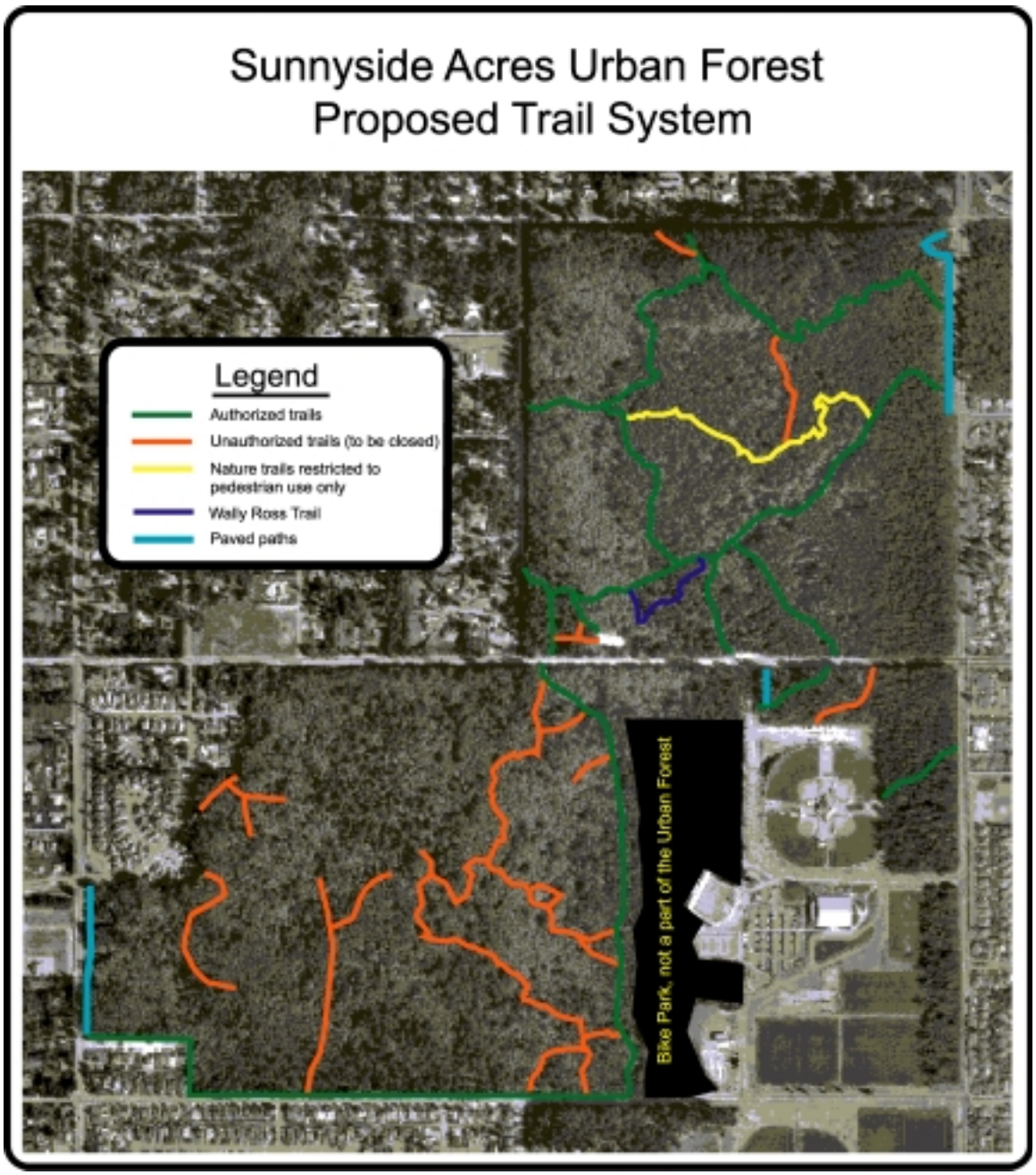

Figure 8. Proposed Trail System in Sunnyside Acres Urban Forest

Unauthorized Trails

There are approximately 5 kilometres of unauthorized trails (Figure 5) that have been identified in the Forest. These trails vary in their degree of traffic use and condition. They are not maintained by the City and as such can only be classified as nature trails, according to NAARMS.

There are a number of reasons why these trails have been established. Primarily, these trails lead to areas of the Forest not currently accessed by the sanctioned trail system maintained by the Parks Division. As they are not maintained, they are generally not as wide and provide more diverse and complex surfaces to recreate on. Many people prefer to travel on these trails to gain a more intimate experience with the natural environment. Additionally, these trails are more difficult to locate, as they are often barely visible from where they branch off from the authorized trail network. Travel on these unauthorized trails is difficult in places because of the uneven grades and woody debris on the ground and as a result, these trails experience less traffic. For this reason many users prefer them in order to avoid the traffic experienced by the maintained trails. There are also unauthorized trails throughout the Environmental Protection Zone that lead to secluded areas where youth regularly meet and party.

The concern is that by not closing down these trails, there is a greater chance that users will continue to go further into undeveloped areas to establish additional trails. This process can eventually lead to extensive networks of trails that become extremely difficult to identify and decommission. For this reason, it is important to produce an annual inventory of all unauthorized trails and a prioritized plan for decommissioning them.

Closing Unauthorized Trails

There are a number of techniques of varying intensity that can be used to permanently close and rehabilitate unauthorized trails. The success and extent to which these techniques will have to be implemented by Parks Division staff is dependent on the level of traffic and establishment of the trail. The following process used to close trails incorporates many of the ideas outlined by the *Natural Areas Access and Recreation Management Strategy* (2000) NAARMS. These recommendations are in listed order of increasing intensity.

1. Remove any identified tree hazards and utilize the debris to physically block access to the trail. Limited amounts of small debris can be laid flat so that it does not create a fire hazard. Place large rocks in front if they are readily available.
2. Place natural debris (wood and shrubs) along the entrance of the trail to hide it and discourage users. Use clipped and dead blackberry bushes, which are common around the perimeter of the Forest, would help to discourage those users determined to access the trail. This could be done in conjunction with the removal of non-native species.
3. Put a discreet sign at or near the trail entrance indicating that the surrounding habitat is an ecologically sensitive area that is being rehabilitated (see section regarding signage for recommendations).
4. Plant native species along the unauthorized trail for about 25 metres from its beginning. It is recommended that armed plants be used where ecologically suitable. These plants would make travel through the brush more difficult and uncomfortable. Examples of such plants for Sunnyside Acres are salmonberry in wetter areas and wild rose in drier areas.
5. Erect a wood fence barrier to a height of 1.3 metres to block access (Figure 9). These types of fences have been successful in other parks such as the GVRD's Pacific Spirit Regional Park.

Figure 9. An example of a wooden fence barrier found in the GVRD's Pacific Spirit Regional Park

Primary concerns regarding unauthorized trails:

- Many of these unauthorized trails lead into ecologically sensitive areas, threatening their integrity
- These trails present safety and liability concerns for the City, as they are not maintained
- There are no signs indicating that they are unauthorized trails or that they endanger sensitive ecosystems
- There is the likelihood that further unauthorized trails will grow from the present ones

Recommendations regarding unauthorized trails:

- **Close all unauthorized trails. Concentrate first on trails that lead through ecologically sensitive areas. Follow the guidelines outlined in the NAARMS for trail closures**
- **Do not officially close off Trails M and O as they meet the needs of certain user groups**
- **Place signs at or near unauthorized trailheads telling people to stay out and that the area is an ecologically sensitive ecosystem under rehabilitation (see section on signage for recommendations)**
- **Produce an annual inventory of all unauthorized trails and a prioritized plan for decommissioning them**

Signage

Signage is an important aspect of park management. City employees cannot patrol every park at all times to ensure that they are being used responsibly. Therefore, a certain amount of signage is required in each park to ensure the safety of its users, to promote education, to indicate the rules and regulations governing it and to help minimize the impacts on its ecology. The current inventory of signs posted in and around the Forest are shown and described in Figure 10.

Figure 10. Signs within and adjacent to Sunnyside Acres urban Forest

Figure 10. Extended legend for existing signs

Figure10. Extended legend for existing signs

It has been noted during the compilation of this plan that there is no consistent design or plan for signage within Sunnyside Acres Urban Forest. The current signs vary in text, fonts, sizes, supporting posts and colors. Within the Forest some of the signs have little impact or are not necessary. A standardized signage system should be developed to eliminate these problems and minimize the number of signs within the Forest.

Signage is created to communicate a message quickly and efficiently. When applicable standards for the signs font, typography, image and logo for the Forest should attempt follow the guidelines set out in this document. Wherever possible images should be used to convey information rather than words as they have proven to be more effective. These visuals speak to a wider audience and do not necessarily require the viewer to read or understand one particular language. There should also be an attempt to stack images or set them alongside each other when possible in order to minimize their spatial impact.

Sunnyside Acres and Green Timbers Urban Forests are the only parks in Surrey set aside in perpetuity by referendum. This history along with the intrinsic values within the Forest merit a unique color scheme and trademark image for its signage system. This will help ensure that the public is aware they are in a park that deserves special consideration.

Primary concerns regarding signage:

- There is an initiative among Parks Division staff and members of the Sunnyside Acres Advisory Committee to minimize the number of signs in the Forest and to make the necessary signs as discreet as possible
- There is no consistent design or plan for signage within the Forest
- Many of the signs are not read because they are too wordy
- There are too many signs in and adjacent to the Urban Forest, taking away from ones 'nature' experience
- The height of many of the posts and size of many of the signs reduce the aesthetic quality of the Forest
- There are no signs indicating trail names
- There are no maps of the Forest indicating the location of authorized trails, sensitive areas and trail closures
- The signs and posts adjacent to the Youth Park are often vandalized
- There are no signs telling the potential Forest user about the nature of the trails and their use
- There are no signs indicating the potential risks associated with the Urban Forest
- There is inadequate signage to discourage dumping of waste and garbage around the perimeter of the Forest
- There are not enough signs indicating that dogs must be on a leash and that their excrement be properly disposed of
- There are not enough signs indicating the ecologically sensitive areas within the Forest
- There are no wildfire hazard and awareness signs as recommended in the *Sunnyside Acres Forest Fire Management Plan* (City of Surrey, 2001)
- There are no signs posted at the entrances to the proposed Trails M and O

Recommendations regarding signage:

- **The signage system should follow a similar theme and, where possible, should be located on the same post**
- **The Sunnyside Acres Urban Forest logo and the City of Surrey crest should always be located on at least one sign at the entrance to all trails starting from a roadway**
- **All signs should be manufactured using metal sign placards with lettering and images made from adhesive vinyl**
- **Have all signs with Gill Sans font with a green (Pantone 356) background with yellow text (Pantone 116)**

- **Use a network of wooden posts similar to those used for the Hearts-n-Motion (HIM) signs or as shown in Figure 11. Small metal signs will be used that state the trail names on either side of the post parallel to the trail. Where applicable, use the front side of the post to place dog rules, HIM, no smoking and shared trail signs. The height of the post can vary in height from 0.5 to 1.5 metres**
- **Use a network of metal posts, similar to those already found in the Forest, for signs requiring significant amounts of written text. These posts can vary in height from 1.0 to 2.0 metres. This is the least natural-looking post, but is the most durable and least likely to be vandalized**
- **New signs will need to be placed at the entrances to Trails M and O to show permitted access and trail names**

Figure 11. Examples of wooden posts and proposed signage system from the GVRD Pacific Spirit Park

Examples of the required signs and their locations are found in the following section. The numbers associated with each of the recommended signs refers to those locations in Figure 15.

1- Dog Waste Signs

Signs indicating that dogs must be on leashes and that owners must clean up their waste should be similar to the sign #7 (Figure 10). As this is one of the primary concerns for users of the Forest, these signs should be clearly posted at the entrances to all trails in the Forest

2- Trail Names

Signs should be produced indicating the names of each trail similar to those shown in Figure 11. They should be placed at all entrances and major intersections within the Forest as indicated in Figure 15. These signs will be placed parallel to the trail on the edge of the wooden posts described above.

3- Shared Trail Sign

At every major trail entrance, there should be a small sign put on the square wooden posts indicating permitted use and right of way. An effective example of a larger version of this sign is of that in Figure 12.

Figure 12. Example of an effective user group and trail right of way sign from the GVRD's Pacific Spirit Regional Park

4- Risk Associated with the Forest

At the entrances to all trails, there should be a sign indicating the nature of risk associated with entering and using the trails within the Forest. It should state information regarding the tread surface of the trail, the potential for hazards and the risks associated with running into other user groups.

5- Trail Closure/Sensitive Ecosystem Sign

The trail closure signs should be low to the ground but clearly visible to anyone thinking of entering the trail. They should indicate that the trail is closed and state the reason for its closure, namely 'Sensitive ecosystem undergoing rehabilitation – Help keep it natural, protect your park – For more information or to report violations, please call the Parks Department at 604 501-5050." These signs should be posted at or near all unauthorized trail entrances until there is no longer an indication of its use.

Figure 13 An example of a Sensitive Ecosystem Sign from the GVRD's Pacific Spirit Regional Park

6- Illegal Dumping Sign

Currently, there are "no dumping" signs located around the perimeter of the Forest. A more effective sign (Figure 14) would encourage Forest visitors and nearby residents to report violations and to get them to compost at home.

Figure 14. An example of a no dumping sign already in use by the City of Surrey

7- Fire Hazard Sign

Fire hazard awareness signs should be posted near the 24th Avenue entrance to Softball City and at the south entrance along 20th Avenue. This information should be on both sides of the sign so that it can be seen by traffic coming from both directions. These signs should indicate the current Ministry of Forests fire hazard rating and a number to call if a wildfire is found in the Forest.

8- Interpretive Sign

If an interpretive trail is designed, it is recommended that a numbering system be used with small signs (10cm by 10cm) on a square wooden post, coming 30cm out of the ground. These numbers will correspond to an interpretive brochure explaining the unique ecological features and habitats of the Forest. This brochure will be provided at the kiosk, the Parks Division website for Sunnyside Acres Urban Forest or at any of the Parks Department offices.

9- Hearts-in-Motion Sign

The Hearts-in-Motion Trails have been implemented with the goal of promoting walking as a means of maintaining a healthy lifestyle. These signs should be similar to those already present.

10- Information Kiosk

The kiosk located at the main parking lot on 24th Avenue will contain a substantial amount of information regarding the Forests trail system, etiquette, ecological features, rules and regulations, associated risks, brochures and current events.

11- Root Rot Interpretive Sign

The management of the root rot in the Forest is a complicated and controversial issue. The proposed treatment may begin in the fall of 2002. It is recommended that temporary educational signs be posted within one of the large root rot centres to explain the disease and how it spreads. This would help bring awareness to the issue and minimize any negative reaction from the public.

12- Sunnyside Acres Sign - Small

This should be similar to sign #18, Figure 10. It is a small and simple sign located at strategic locations around the perimeter of the Forest.

13- Sunnyside Acres Greeting Sign

This sign will be similar to the existing greeting sign located on 24th Avenue. It will state the name of the Forest with its new logo and the City of Surrey crest.

14- Restricted Access/Pedestrians Only

This sign should be placed on wooden baffles at the entrance to the trail restricting access to pedestrians only. The sign will indicate that no bikes or horses are allowed on the trail. An example of this type of system is shown in Figure 9.

15- Environmental Protection Area/ Wildlife Refuge

A sign should be placed around the perimeter of the Environmental Protection Zone. It should state ”Environmental Protection/Wildlife Refuge Area. This area contains endangered plant communities. Help keep it natural. For more information or to report violations, please call the Parks Department at 604 501-5050.”

Sunnyside Acres Logo

Currently, the image of a Steller's Jay acts as a logo for Sunnyside Acres Urban Forest. Designating an official logo for the Forest should be decided upon prior to developing signage so that it can be incorporated onto some of the Forest's signs. It is recommended that a number of designs be proposed by the Parks Division and the Sunnyside Acres Urban Forest Advisory Committee and that they be voted on by the public. Local schools could do this in conjunction with naming the trails or it could be posted on the website for suggestions.

The design of the logo should be simple and clear. It should reflect a unique quality or historical reference of the Forest. One of the distinguishing features of Sunnyside Acres Urban Forest that prompted its protection is the size of the Douglas-fir trees. One logo option is an image of one or a group of these trees. A second option is to select a unique plant or animal in the Forest. One rare plant found in the Forest is Western Trillium. This three-leafed plant would make a simple yet effective symbol. A third option could be an animal that inhabits the Forest such as the Black-tailed deer.

Figure 15. Proposed locations of signs and facilities

Facilities

Kiosk

There is one kiosk located in the parking lot on 24th Avenue that contains information regarding the history and ecology of the Forest. This kiosk should have some design modifications so that it is similar to that in Figure 15.

Primary concerns regarding the kiosk:

- There is no container for brochures or dog waste bags on the kiosk
- There should be a small area for the Parks Division, local groups, and interested parties to post upcoming events and educational or recreational activities related to the Forest
- There is no map displaying the authorized trails, their permitted use and associated risk and ecologically sensitive areas

Recommendations regarding the kiosk:

- **Incorporate a small holder for brochures**
- **Make a container for dog waste bags**
- **Designate a small area where the public can post information pertaining to the Forest and community involvement. However it should be required that all material posted must be approved by the Parks Division**
- **Install a map of the Forest, its authorized trail system and facilities**
- **A sign should be posted stating the risks associated with the forest, permitted trail use and critical ecological features**

Figure 16. An example of a kiosk found at the GVRD's Pacific Spirit Regional Park

Gates and Fencing

At many of the trail entrances, there is either a metal fence or an obstacle such as a large rock to prevent motor vehicles from entering the Forest and to slow bicyclists (Figure 5). These entrances are wide enough for all user groups including equestrians. Chain link fencing is located adjacent to the small development at 140th Street and 20th Ave. Additionally a new fence has been erected in the housing development at 140th Street and 24th Avenue to minimize dumping and to restrict access. There is also a metal fence running adjacent to both sides of trail #14.

Figure 17. Wooden fencing at the entrance to Trail #2

Figure 18. Metal fence at the entrance to trail #5

Primary concerns regarding fencing:

- There is no fence restricting access to Trail M
- Nothing prevents residents and visitors to the Forest from pushing a wheelbarrow or driving a truck into the park and dumping its contents along 20th Avenue

Recommendations regarding fencing:

- **Fencing should be installed in front of Trail M to restrict access to user groups. It should be wide enough to discourage restricted recreational pursuits from attempting to circumnavigate it. This baffle should be similar to that shown in Figure 9 with the appropriate signage posted on it stating the trails permitted use**
- **Consider erecting a wood fence along the north side of 20th Avenue, as shown in Figure 9, to discourage excessive dumping and access into the ecologically sensitive zone. A small wooden fence is more natural looking as compared to a metal fence. A ditch would alter the hydrological processes within the urban forest**

Parking Facilities

There is one primary parking lot designated for users of Sunnyside Acres Urban Forest. It is located at the north side of 24th Avenue, about 200 metres east of 144th Street. The parking lot is 40 metres wide and 100 metres in length allowing it to accommodate between 25 and 30 cars. In this northern portion of the Forest there are three other areas used for parking. Across from the entrance to Softball City, there is a pullout about 40 metres long that can accommodate approximately five cars. Along 144th Street, from 24th Avenue to 28th Avenue, there is a wide shoulder commonly used for parking. In addition, visitors often park at the northwest corner of 148th Street and 28th Avenue. There is also ample parking at Softball City and along the north side of 20th Avenue. From these parking areas, it is only a short walk to the north and south sides of the Forest. Currently, there is no need to increase the amount of parking around the Forest.

Primary concerns regarding parking:

- In the pullout on 24th Avenue across from Softball City many cars do not park diagonally, greatly reducing the potential capacity of this area

Recommendations regarding parking:

- **Paint parking lines in the pullout across from the entrance to Softball City to indicate diagonal parking**

Street Crossings

Through the public consultation process, it has been noted that there is a need to provide crosswalk across 24th Avenue near the entrance to the Athletic Park. This is a busy street with no crossings between 148th Street and 140th Street

Primary concerns regarding street crossings:

- Due to the heavy traffic in this area there is high risk of accidents with pedestrians

Recommendations regarding street crossings:

- **A safe crossing site across 24th Avenue from the Bike Park and Trail #1 should be pursued with the Engineering Department**

Public Toilets

At this time there are no toilet facilities provided for users of the Forest. The nearest facilities are at the Athletic Park.

Primary concerns regarding public toilets:

- There is no map showing the location of toilets near the Forest
- Users may not be willing to travel all the way to the Athletic park to use the facilities

Recommendations regarding public toilets:

- **The map of the Forest in the kiosk and the proposed brochure should show where toilet facilities are located in Softball City**

User groups and Identification of Conflicts

One of the primary reasons for developing an access and recreation management plan is to identify current and future conflicts between user groups and to protect the ecological integrity of the Forest. Over the past decade, Sunnyside Acres Urban Forest has experienced a dramatic increase in the number of visitors. As urban development increases in the South Surrey area, the demands on the Forest will continue to grow and more conflicts will occur among groups and the natural environment.

Conflict / Interaction Matrix

The following table helps to identify and quantify the conflicts and interactions that have occurred between both social and natural components in the Forest. The table entries indicate the level of conflict between the user groups, Forest facilities and natural features.

The level of conflict that exists between two elements has been categorized and labeled as follows:

L – Low
M – Medium
H – High
VH – Very High
N/A – Not Applicable

Table 4. The conflict / interaction matrix

1 Running	2 Walking/ hiking	3 Dog walking	4 Mountain biking	5 Wildlife viewing	6 Horse-back riding	7 Plant communities	6 Wildlife	7 Water quality	8 Trail system	Elements of conflict
	L	H	M	L	M	L	L	L	L	1 Running
		H	M	L	M	L	L	L	L	2 Walking/ Hiking
			M	H	H	H	H	M	M	3 Dog Walking
				M	M	L	L	M	H	4 Mountain Biking
					L	L	L	L	L	5 Wildlife Viewing
						M	M	M	M	6 Horseback riding
							N/A	N/A	N/A	7 Plant communities
								L	N/A	6 Wildlife
									N/A	7 Water Quality
										8 Trail System

Conflicts Between User Groups

The conflicts that exist between user groups in the Forest have been researched through extensive public consultation and interviews with relevant agencies and organizations (see Appendix C). At the present time, there is a low incidence of conflict between the various user groups. In other parks in the Lower Mainland that have already experienced an increase in demand for recreational pursuits, the greatest conflicts have occurred between people on foot, mountain bikers and horseback riders. These types of conflicts have caused managers to partition off trails restricting specific user groups. So far, this type of segregation is not necessary at Sunnyside Acres Urban Forest. It is recommended that the Parks Division keep a logbook of all user conflicts in the Forest. This will help to monitor the level of user conflict and determine if this plan requires updating.

Walking/Running/Wildlife Viewing

Those traveling in the Forest by foot frequent the Forest most often, have the least amount of impact on the surrounding environment and are travelling in control. For this reason, there are very few conflicts between visitors on foot. The conflicts that occur with these groups usually involve dog owners not leashing their dogs. Recommendations to reduce these conflicts will be discussed in the following sections.

Bicyclists

Presently, the primary interest for the majority of the cyclists using the trails in the Forest is the enjoyment of nature. However, many cyclists who ride in the Forest are also riding in the adjacent bike park where the primary interest is recreation. Only slow cycling within the Urban Forest is permitted (less than 10 km/hr) to minimize the chance of an accident and to ensure the right-of-way for pedestrians. One of the greatest risks of conflict in the Forest is a collision caused by a cyclist who is riding too fast and is not in control.

To this date there have been few complaints regarding bicyclists on the trails. This may be partly explained by the construction of a bike park in 2000, located adjacent to Trail (#1). This area likely attracts the more aggressive riders searching for more challenging trails. The bike park was designed for technical, off-road cycling and to remove riders from the sensitive sites in the adjacent Urban Forest.

It is likely that there will be more conflicts stemming from mountain biking in the Forest as the trails becomes more popular. The number of conflicts should be monitored carefully and documented in a conflict logbook to determine if more intensive management strategies are necessary.

Primary concerns regarding bicyclists:

- There is the potential for collisions with other visitors of the Forest caused by a cyclist who is riding too fast or is out of control
- There will likely be an increase in the number of bicyclists visiting the Forest as the trails become more popular
- Bikes have a significant, negative impact on the ecology if they go off designated trails

Recommendations regarding bicyclists:

- **At the entrances to all trails, signs should be placed stating that competitive cycling is not permitted. The sign should inform cyclists to ride slowly and in a controlled manner, and should also indicate the location of the bike park for more challenging rides**
- **Bikes are not to be permitted on trail M and the Wally Ross trail**
- **The Forest brochure should mention the degradation that occurs by a bike tire in its trail etiquette section. Representatives of all user groups, including bicyclists, should be educated about the consequences of off-trail use**
- **Monitor the number of conflicts associated with bicyclists and their locations within the Forest**

Horseback Riding

Sunnyside Acres Urban Forest is part of a unique loop for local equestrians. A natural area network exists from the base of Elgin Creek up to the Semiahmoo Trail and into the Forest from the corner of 28th Avenue and 148th Street. This loop offers equestrians the chance to walk their horses in an area where motor vehicles are not permitted.

Traditionally, horseback riding in areas like as Sunnyside Acres Urban Forest has raised a number of concerns. Horses are large animals that take up a lot of space on the trails. For this reason, there is a higher potential for collisions with other user groups. Many pedestrians are not comfortable around these animals and worry about their own safety. Many dogs are not familiar with horses and will bark and scare them, increasing the chance of an accident. Conflicts between horseback riders and dog owners are a common problem in other heavily used parks.

Horses rarely travel off the trail system and usually do not damage the ecology. However, horses do leave droppings along the trails. This is not a natural component of these ecosystems and can introduce the seeds of non-native plant species into the Forest. Additionally, the droppings are generally large and unpleasant for pedestrians and cyclists.

Currently, there is a very low level of horseback riding in the Forest. This is largely due to two factors. First, the properties in South Surrey continue to be divided into smaller parcels, making ownership of a horse difficult. Second, the increase in popularity of the Forest discourages many equestrians from using it.

Primary concerns regarding horseback riding:

- There is the potential for collisions with other visitors of the Forest
- Other user groups sometimes do not yield to the horses
- Dogs off leash can easily scare a horse and threaten to have the rider injured.

Recommendations regarding horseback riding:

- **Closely monitor the level of conflicts involving horses in the Forest**
- **Closely monitor the number of equestrians using the Forest**
- **The Forest brochure should mention in its trail etiquette section guidelines for horse riders regarding their speed. Representatives of all user groups should be educated about trail etiquette and how to behave around horses**

Dog Owners

City Park By-law No. 13480 requires dogs to be leashed in City parks, primarily to ensure that dogs are controlled by their owners and will not pose a threat to others visiting the Forest. The greatest number of conflicts to date stem from dog owners who do not leash or pick up after their dogs. This concern has been voiced throughout the public consultation process. Some local residents have even confirmed that they do not visit the Forest for this reason. A recent GVRD study, *Canine Conundrum in GVRD Parks*, found that 18% of non-dog park patrons experienced a dog conflict, and 23% of those reported the conflict was a personal safety threat. 96% of the total conflicts in this study involved dogs off-leash.

Primary concerns regarding dog owners:

- Many people are afraid of dogs and do not like to encounter them running off-leash
- Some dogs tend to get in the way of bikers and runners, increasing the possibility of an accident
- Dogs will chase and scare the wildlife in the Forest
- Dogs off-leash often wander off the trail causing damage to the vegetation
- Dog waste is often not cleaned up by their owners. Droppings left on the trails makes the Forest less attractive to other user groups

Recommendations regarding dog owners:

- **There is a nearby park called Dogwood Park where dogs are allowed to run off-leash. This area is located only five blocks west of the Urban Forest on 20th Avenue. This should be stated at the kiosk on 24th Avenue**
- **Place signs at the entrances to all trails indicating that dogs must be on a leash and that owners must clean up after their dogs**
- **Place garbage cans at strategic locations to encourage owners to dispose of dog droppings**
- **Install a container for dog-waste bags at the kiosk. Volunteers can assist the Parks Division staff by stocking the container with bags**

Planned Events within Sunnyside Acres Urban Forest

Apart from the most common user groups there are also organizations that plan special activities within the park. These include events such as orienteering exercises, running and biking races and educational activities such as nature walks. Sunnyside Acres Urban Forest is an excellent site for such activities because of its location, size and access. Many of these events involve a large number of people and depending on the activity may cause damage to the ecosystem and/or trails in the Forest. Additionally, there is a safety and liability concern that must be addressed when a large event is planned.

There has been little regulation of these activities in the past. Any organizations wishing to plan events involving more than approximately 20 people should obtain a special use permit from the Parks Department. This will allow the Parks Department to ensure the safety of all parties involved and to minimize the impacts on the ecology and trails in the park.

If the event will inconvenience any other users of the Forest, signs should be posted two weeks before the event. Additional facilities such as portable toilets and fencing can also be organized in conjunction with the Parks Department.

Primary concerns regarding planned events:

- Events involving large numbers of people threaten the ecology of the Forest and may damage the trail system
- There are a number of safety and liability issues that must be addressed when such a large event is planned

Recommendations regarding planned events:

- **The Parks Department must issue a special use permit for events involving more than 20 participants. Activities that degrade the environment or go off the trails will not receive a permit**
- **If the event will inconvenience other users in the Forest, signs must be posted two weeks before the event is planned**
- **The organization should work with the Parks Department to provide adequate facilities and ensure the safety of all Forest users**

Access Management Zones

Sunnyside Acres Urban Forest has been stratified into five distinct management zones. Within each of these zones, the management goals and the most critical factors affecting access management have been identified. They describe the intent of management and its associated risks, the carrying capacity of the site, the signage requirements and the facilities needed. The primary concerns regarding each zone are summarized at the end of each section.

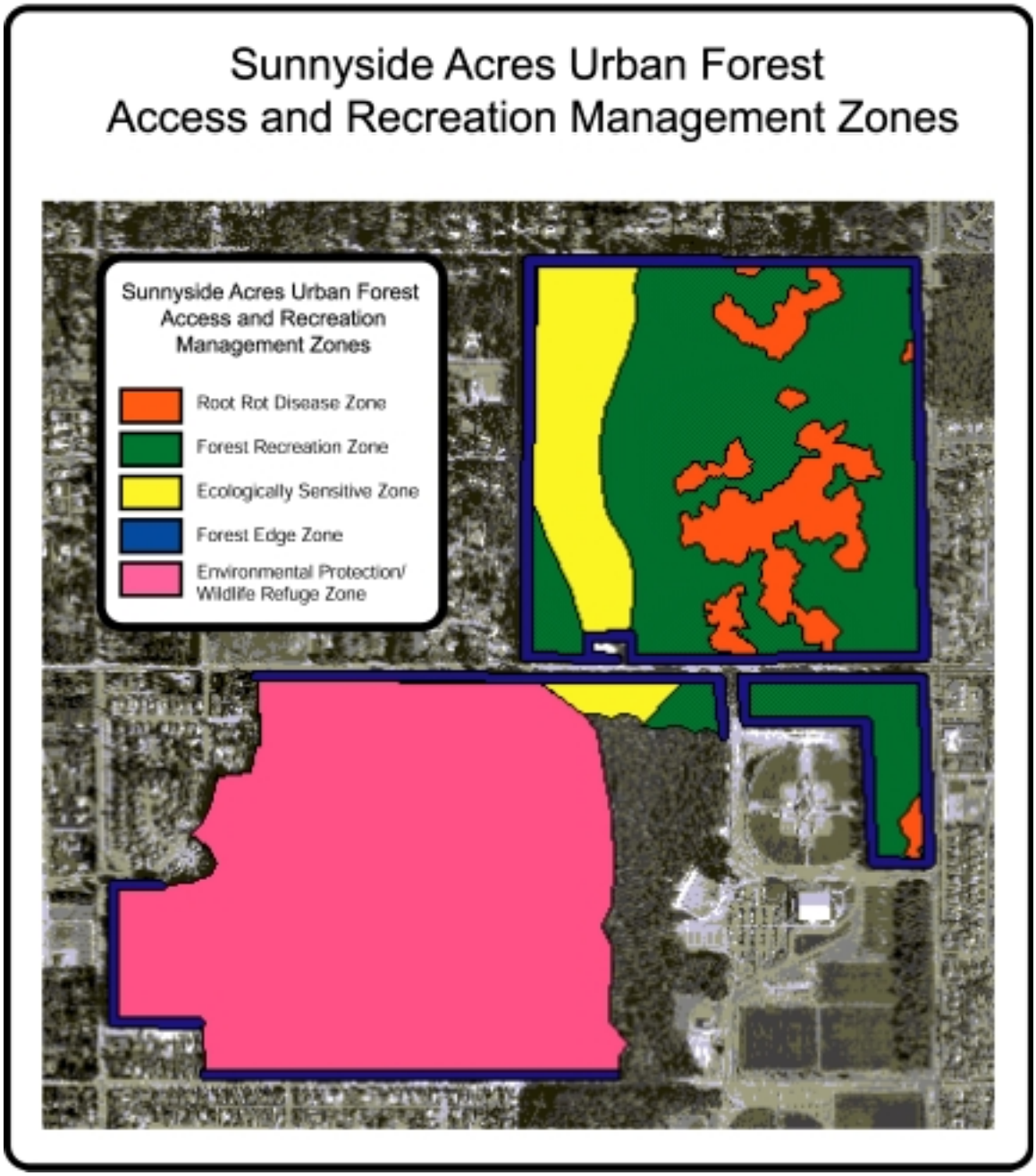

Figure 19. Access and Recreation Management Zones

Root Rot Disease Zone

This management zone is located in the Douglas-fir forest to the north of 24th Avenue, and a small section is located adjacent to 148th Street, just south of 24th Avenue (Figure 17). This area has been designated as a separate management unit due to the high incidence of Laminated Root Rot (*Phellinus weirrii*) in the Douglas-fir trees.

In Sunnyside Acres Urban Forest there are currently 10.9 hectares infected with root rot. This disease is a serious safety concern to the users of the Forest and to the adjacent roadways because of the risk of trees failing at their root system. Therefore, the potential hazards associated with the infected centres have become an issue of liability for the City of Surrey.

The Forest's uniform composition of Douglas-fir, density and age leaves it highly susceptible to the spread of root rot in this climate. The average rate of spread for this disease is estimated at about 30cm per year (Allen et al. 1996). It appears from air photo interpretation that the centres within the Forest are spreading at about 50cm per year. At this rate, the areas of infection will total 16.5 hectares in twenty years, 23.2 hectares in fifty years and 32.0 hectares in 100 years.

Without intervention to stop the extension of this disease, it will continue to spread and eventually kill the majority of the Douglas-fir trees remaining in the Forest. The presence of this disease and the treatment options to stop its spread has been addressed in a separate management report. For more information regarding this issue, please see *Sunnyside Acres Urban Forest Root Rot Disease Management Cost Benefit Analysis* (Diamond Head Consulting Ltd., 2001).

Primary concerns in the Root Rot Disease Management Zone

- If the proposed treatment recommendations for the management of the root rot disease are not implemented, trees adjacent to trails within this Zone may fail without warning causing injury or death. The Parks Division has funding to assess for tree hazards in the Forest only every fourteen years
- If the proposed treatment recommendations for the management of the root rot disease are implemented all tree hazards related to the disease will be removed. Any other tree hazards can be periodically checked as Parks Division staffs are within the Forest.
- The root rot disease kills fir trees, creating significant buildup of ground and standing fuels. These fuels increase the wildfire hazard in this area. The risk of a fire starting adjacent to trails in this area is higher due to the high ground fuel loading. The current fire management plan has addressed this issue and recommends that fuel reduction take place adjacent to these trails (*Sunnyside Acres Urban Forest Fire Management Plan*, 2001)
- A distinctly different plant community is found in these disease centres. The dense shrub communities and standing dead trees provide excellent habitat for birds and small mammals. Those visitors wishing to view wildlife are more likely to spend time in this zone as there is an open canopy in the forest providing better viewing opportunities. For these groups, there are no facilities or designated areas to sit and rest.

Recommendations regarding the Root Rot Disease Management Zone

- **If the proposed treatment recommendations for the management of the root rot disease are not implemented, the trails within this Zone will have to be closed during windy months to prevent injury from falling trees. The Parks Division only has funding to assess for tree hazards in the Forest every fourteen years**
- **Keep the area adjacent to the trails clear of fuel accumulations to reduce the risk of wildfire ignition**
- **Post an educational board identifying and describing the root rot disease and its impact on the ecology of the Forest at the kiosk in the parking lot on 24th Avenue**
- **Due to the wildlife viewing and ecology educational opportunities in this area, a sign could be posted adjacent to a root rot pocket that identifies the primary bird and**

mammal species and their habitat requirements (See Figure 15 for the location of the educational signs)
- **A garbage can should be located at the intersection of Trails 10 and 7. This will reduce litter in the Forest and promote the clean up of dog waste**
- **Install a bench, near the educational signage described above, at the junction of Trails 10 and 7**

Environmental Protection Zone/Wildlife Refuge

This zone is bordered by 20th Avenue to the south, 24th Avenue to the north, the bike park to the east and 140th Street to the west. This area is unique and warrants special consideration as it contains rare plant communities, including a red-listed plant association as well as critical habitat for rare and endangered species. These rare ecological features and wildlife habitats have been discussed in more detail in Appendix A. Due to the rarity and size of this type of ecosystem in the context of an urban setting, there is to be no public access to this area. This is the most responsible course of action to ensure the future integrity of the unique ecological features in this area. This recommendation coincides with the requirement stated in the Parks, Recreation and Culture Commission *Policy Manual* (1996). It requires an area to be set aside, where public access is restricted, in order to protect the forests from human disturbance.

There are a number of unauthorized trails currently being used in this area It has been noted that some users of the Forest wish that there was a maintained trail system in this area. These trails sustain enough traffic so that they are not yet grown over. There have been numerous attempts to close a few of the trails in this area without much success. This is due in part to the lack of monitoring, resources to rehabilitate trails and efforts being concentrated at only one end of the trails. Closing down these trails and effectively monitoring its success is a priority. The need to preserve the ecological integrity of this area overrides the need for recreational pursuits within it.

Additionally, due to the limited access to this portion of the Forest, it is an area frequented by youth that seek remote and secluded areas to meet and party. These groups often build temporary shelters, light bonfires and leave garbage behind causing significant ecological degradation.

Primary concerns in the Environmental Protection Zone
- Unauthorized trails are being used throughout this area, causing ecological damage
- This area is frequented by youth that set up temporary shelters, light bonfires and leave garbage behind
- Dogs left off-leash in this zone damage vegetation and scare wildlife. They are a serious threat to deer and birds rearing their young in this area
- There are numerous signs from the adjacent bike park along Trail #1
- There are no trails connecting 140th Street with the rest of the Forest
- The signs along Trail #1 are often vandalized

Recommendations regarding the Environmental Protection Zone
- **Close all trails within this zone. Please see the Trails section for recommended actions on how to close trails**
- **Monitor the non-sanctioned trails in this area for trespassers. This may require extensive work by Park Division staff, volunteers and Forest wardens for the first few years while the trails are being rehabilitated. This activity would be a good opportunity for secondary school youth to obtain their community service hours**
- **Monitor this area for sign maintenance more often than in other areas of the Forest**
- **Deliver pamphlets to residents adjacent to the Forest regarding the ecological sensitivity of this area and the damage caused by dumping, while reinforcing the benefits of composting at home**

- **Dismantle and remove all shelters and fire pits built by party-goers. Rehabilitate these areas by replanting native plant species**
- **Post signs at the entrances of all unauthorized trails indicating that the area is environmentally sensitive**
- **Discuss with members involved with the management of the bike park to reduce the number of trails adjacent or accessing Trail #1**
- **Consider developing a trail on the north side of 20th Avenue to provide an east-west connector to 140th Street (Figure 8).**

Ecologically Sensitive Zone

This zone includes the seepage area that begins just south of the parking lot on 24th Avenue and extends northward to 28th Avenue. It contains wetter ecotypes dominated by deciduous species that are considered rare in this climate. With time and with proper protection, this area will develop into a red-listed plant community. The moisture provided from the ephemeral streams and seepage areas in this zone is critical to the plants and wildlife found in the Forest.

Two trails (Trail #7 and Trail #12) cross this ecologically sensitive zone. Both these trails travel in an east-west direction. The seepage travels north along a very gentle slope. Consequently, the compacted layers put down to construct the trails are impeding the natural flow of water in this area. On the southern side of these trails, the surface water is pooling because of the compaction.

Primary concerns in the Ecologically Sensitive Zone

- Natural drainage patterns are being altered
- The natural integrity of this sensitive ecosystem is being compromised
- The higher moisture levels in these areas make the existing trails prone to erosion faster than trails in other areas of the Forest
- Off trail use is causing damage to the sensitize plant communities

Recommendations regarding the Ecologically Sensitive Zone

- **Monitor this zone more frequently than the rest of the Forest for the establishment of unauthorized trails and dogs running off-leash**
- **Consistently close all unauthorized trails found in this zone**
- **Remove all culverts crossing Trails 7 and 12 and re-establish the natural drainage patterns by installing boardwalks across these seepage areas. Rehabilitate any areas damaged from the construction of these boardwalks**
- **Install a garbage can in the parking lot at the entrance to Trail #6**
- **Install interpretative signage (see Figure 15 for the location of the interpretative trail section)**

Forest Edge Zone

The Forest Edge Zone consists of the fringe areas of the Forest interfacing with the surrounding streets and residences. The management goals for this area are to maintain and enhance the natural elements of the Forest in order to maintain a safe and visually natural streetscape. This area of the Forest is of special concern as it is exposed to a high degree of traffic and pedestrians on adjacent streets. There is also a significant amount of illegal dumping of garbage and garden waste in these fringe areas. Therefore, it is susceptible to the introduction of non-native species from adjacent property owners. Facilities to be managed in this zone include trailheads, a potential trail along a portion of 20th Avenue and shoulder parking (as required).

Most of the Forest boundary edges are well forested. Many areas along the forested edge have been adversely impacted due to the dumping of debris, street work and damage to native vegetation. In places this has resulted in an unnatural, messy and unkempt look. A gradual clean up and restoration of the forest edge is proposed. The intent is to retain a transition landscape between the urban environment and the forest, thereby showing that the Forest is well managed and respected. Some clean up can be conducted in conjunction with the recommendations made in the Fire Management Plan for the Forest.

Primary concerns in the Forest Edge Zone

- Dumping of garbage and garden waste. The areas most susceptible include those along 20th Avenue and adjacent to the housing development at 140th Street and 24th Avenue. The rest of the perimeter is not as prone to dumping due to ditches and thick vegetation
- There are numerous trailheads to unauthorized trails
- Non-native species have been introduced by illegal dumping and threaten native species
- There is garbage accumulating from passing traffic and pedestrians
- There are numerous tree hazards adjacent to roadways and sidewalks

Recommendations regarding the Forest Edge Zone

- **Place "no dumping" signs in areas where dumping is common. Refer to the Signage section above for sign design and Figure 15 for sign locations**
- **Establish volunteer groups that can perform a gradual clean-up and maintenance program for the forest edge. Local schools are good candidates for such a program. Efforts should be focused on removing all garbage, garden refuse and non-native species**
- **Remove all non-native plant species within ten metres of the forest edge**
- **Encourage local residents not to dump garden refuse and garbage in the Forest. An educational brochure can be distributed with a description of the Forest's ecology and information regarding composting**
- **Consult with volunteers and interest groups involved with the Forest to ensure that illegal dumping is reported to the Parks Division**
- **Work to close all unauthorized trails, including placing "keep out" signs at trailheads (see Figure 15 for their proposed locations). These trails should be closed, following the guidelines set out in the Trails section of this report**
- **Erect a wooden fence or dig a ditch along 20th Avenue to prevent dumping and restrict access**
- **Construct a new trail in co-operation with the Engineering Department on the north side of 20th Avenue as shown in Figure 8**
- **Regularly inspect roadways for tree hazards**

Forest Recreation Zone

Located to the north and south of 24th Avenue, this zone contains a forest dominated by maturing Douglas-fir trees that are considered a unique and rare ecological feature in this climate. Over time, these stands will develop into what is considered a red-listed ecosystem according to the Conservation Data Centre of B.C. This zone contains the majority of authorized trails and is used extensively by visitors to the Forest. For this reason, these areas are where the majority of user conflicts occur. These conflicts arise primarily due to dogs off-leash and cyclists who ride quickly and recklessly.

Primary concerns in the Forest Recreation Zone

- Dogs are being left to run off-leash
- Dog owners are not cleaning up after their dogs
- There are conflicts occurring between user groups
- There are safety and liability concerns regarding the trail use in this zone
- Attempts to close Trail M by the Parks Division have been unsuccessful

Recommendations regarding the Forest Recreation Zone

- **Put up signs enforcing dogs to be kept on leashes. Refer to the Signage section above for sign design and Figure 15 for sign locations**
- **Put up signs to minimize user risk and conflicts. Refer to the Signage section above for sign design and Figure 15 for sign locations**
- **Install signs indicating trail etiquette and user safety concerns at trailheads**
- **Make Trail O an authorized recreation nature trail that only limits motor vehicle access**
- **Make Trail M an authorized nature trail that is for pedestrian use only**
- **Install bike/horse baffles at the entrances to Trail M with the appropriate signage as seen and stated in Figure 15**
- **Install signage for Trail O as stated in Figure 15**
- **Produce educational brochures regarding trail etiquette to enforce regulations and minimize conflicts**
- **Install a small foot bridge to cross the ditch at the entrance to Trail O**

Public Education Opportunities

Parks are preserved for the people who own them. They offer a unique natural experience within urban settings. These areas provide a tremendous opportunity for people to learn about our natural environment. Through education and awareness, the users of a park often gain a sense of ownership where they develop an appreciation and understanding of the park's resources and features. Consequently, the users are more inclined to help preserve the ecological integrity of the park.

Currently at Sunnyside Acres Urban Forest, there are few interpretive or educational programs offered by the Parks Division for the public. The following are recommendations for improving public knowledge and awareness regarding the Forest's unique qualities.

Interpretive Trail

An interpretive trail is an excellent way of increasing the awareness of significant ecological features within the Forest. Points of interest are identified along a section of trail and its ecological characteristics or processes are described (see Figure 15 for the proposed location of the interpretative trail).

Designing an interpretive trail does not mean that numerous large signs have to be placed along the trail system. The most unobtrusive method is to place small, numbered plaques at ground level along a stretch of trail. An educational brochure can then be produced that contains interesting ecological facts and information corresponding to these numbered plaques.

This type of brochure could be distributed to school groups and be available to the public at the kiosk or available from the City's website. This is an inexpensive and discreet way of educating the public about the unique ecological features in the Forest.

Root Rot Education

The Laminated Root Rot centres within Sunnyside Acres Urban Forest are large and, consequently, have a significant visual impact. The management of this disease is an issue of great controversy among users in the Forest. It is a complicated issue and requires a great deal of knowledge regarding how the disease spreads and how it affects the ecology of the Forest. It is recommended that temporary educational signs be posted within one of the large root rot centres to explain the disease and how it spreads. This would help bring awareness to this issue and hopefully minimize any negative reaction from the public once treatment begins (see Figure 15 for the location of educational signage).

Sunnyside Acres Urban Forest Brochures

This Forest contains many unique ecological features including the mature Douglas-fir trees, the rare and endangered plant communities, an abundance of habitat for wildlife and the root rot disease centres. It would be a good idea to produce some small educational brochures that can be handed out or simply posted on the website for the public to view. This brochure could have an updated trail map, describe the rarity of the Forest's ecosystems and the unique features found within it. It could also raise awareness regarding the root rot centres and the wildfire hazard in the Forest. Another brochure could explain trail etiquette and guidelines similar to that put forth in *Trail Use Guidelines & Code of Etiquette* (GVRD, 1998). If dogs off leash and their waste continue to pose a problem in the Forest, a brochure similar to the *Your Dog* (GVRD, 2000) handout could be produced. The more educated the public are about these issues, the more inclined they will be to self-regulate the Forest.

Liaison with User Groups

Prior to this area becoming an Urban Forest, many nearby residents were frequent users of the existing trail network. The local community lobbied to have the area set aside in perpetuity by public referendum, and when this happened, the City of Surrey had many Forest supporters. To continue community involvement and to assist in patrolling and maintaining this area, the Parks Division should establish a working relationship with representatives of the different groups using the Forest. These representatives could be educated about the sensitive areas in the Forest and how and where potential conflicts with other user groups can occur. They could then pass this information onto their members and assist the Parks Division in future planning or for volunteer work regarding Forest improvement projects.

Website Design

The dramatic increase in the popularity of the World Wide Web has changed the way we share and distribute information. It is increasingly important to make information available over the Internet. It is the simplest and cheapest means of reaching the greatest proportion of the public. This is especially true for the younger generation that has grown up with the Internet. It is recommended that the Parks Division produce a website where information similar to that printed in the brochures can be posted regarding the Forest and its unique features. The website could also be used by the public to provide feedback regarding the management of the Forest. This site could act as a pilot project for the rest of the major parks within the City of Surrey.

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Appendix A – Detailed Ecosystem Description

Biogeoclimatic Classification of Sunnyside Acres

The Biogeoclimatic Classification System (BEC) is a hierarchical system that stratifies B.C.'s landscape into similar ecosystem types based on a combination of climate, physiography, surficial material, bedrock geology, soils and vegetation. This system consists of a broad regional classification as well as a more specific site classification. The regional classification stratifies the landscape into the basic units of this system called subzones. Within each subzone, specific sites are further classified based on the levels of available moisture and nutrients. An extensive description of this system can be found in the publication *Ecosystems of British Columbia* (Meidinger and Pojar, 1991).

Site Series and Vegetation Found in Sunnyside Acres Urban Forest

The following are general descriptions of the four primary site series and related plant species found in Sunnyside Acres.

Site Series 01

Site series 01 includes sites with poor to medium available nutrients and moderately dry moisture levels (average for this subzone). In Sunnyside Acres, this type of ecosystem is generally found as a complex with components of site series 04. Often it can be found where there the ground is slightly raised, resulting in fewer available nutrients. The soils are generally sandy loam with 25-40 % coarse fragments and the humus form is predominantly a mor.

The stands in this ecotype are similar to those of site series 04. They are dominated by mature Douglas-fir with minor components of western redcedar, red alder and bigleaf maple. There are also scattered western hemlock, paper birch, cherry and cascara.

The understory is generally dominated by salal, dull Oregon grape, red huckleberry, baldhip rose and bracken fern. Distinguishing features from site series 04 include a much stronger presence of salal and a much lower abundance of sword fern. A complete list of all the major shrubs and herbs found in this ecotype are listed in Table 5.

Table 5. Dominant shrubs and herbs found in site series 01 ecotypes within Sunnyside Acres Urban Forest

COMMON NAME	*SCIENTIFIC NAME*	COMMON NAME	*SCIENTIFIC NAME*
Shrub layer		**Herb layer**	
Vine Maple	*Acer circinatum*	Sword fern	*Polystichum munitum*
Salal	*Gaultheria shallon*	Spiny wood fern	*Dryopteris expansa*
Red huckleberry	*Vaccinium parvifolium*	Bracken fern	*Pteridium aquilinum*
Flowering dogwood	*Cornus nuttallii*		
Dull Oregon-grape	*Mahonia nervosa*		
Baldhip rose	*Rosa gymnocarpa*		
Ocean spray	*Holodiscus discolor*		
Dull Oregon Grape	*Mahonia-nervosa*		
Snowberry	*Symphoricarpos spp.*		
Hairy honeysuckle	*Lonicera hispidula*		
Indian plum	*Oemleria cerasiformis*		
Mountain ash	*Sorbus sitchensis*		
Cascara	*Rhamnus purshiana*		
Saskatoon	*Amelanchier alnifolia*		

Site Series 04

Site series 04 includes areas with rich to very rich available nutrients and moderately dry moisture levels (average for this subzone). The soils are generally sandy loam with 25-40 % coarse fragments and the humus form is predominantly moder.

The stands in this ecotype are generally dominated by mature Douglas-fir with minor components of red alder and bigleaf maple. There are also scattered western redcedar, western hemlock, paper birch, cherry and cascara.

The dominant understory shrubs and herbs which distinguish this site series include an abundance of salal, trailing blackberry, sword fern and bracken fern. A complete list of all the major shrubs and herbs found in this ecotype are listed in Table6.

Table 6. Dominant shrubs and herbs found in site series 04 ecotypes within Sunnyside Acres Urban Forest

COMMON NAME	*SCIENTIFIC NAME*	COMMON NAME	*SCIENTIFIC NAME*
Shrub layer		**Herb layer**	
Vine Maple	*Acer circinatum*	Sword fern	*Polystichum munitum*
Salal	*Gaultheria shallon*	Vanilla leaf	*Achlys triphylla*
Red huckleberry	*Vaccinium parvifolium*	Bracken	*Pteridium aquilinum*
Thimbleberry	*Rubus parviflorus*	Lady fern	*Athyrium filix-femina*
Trailing blackberry	*Rubus ursinus*	Rosy twistedstalk	*Streptopus roseus*
Red elderberry	*Sambucus racemosa*	Cleavers	*Galium aparine*
Flowering dogwood	*Cornus nuttallii*	False lily-of-the-valley	*Maianthemum dilatatum*
Dull Oregon-grape	*Mahonia nervosa*	Bleeding heart	*Dicentra formosa*
Baldhip rose	*Rosa gymnocarpa*	Northwestern twayblade	*Listera caurina*
Ocean spray	*Holodiscus discolor*	Large leaved avens	*Geum macrophyllum*
Salmonberry	*Rubus spectabilis*	Western trillium	*Trillium ovatum*
Snowberry	*Symphoricarpos spp.*	Piggy-back plant	*Tolmiea menziesii*
Western trumpet huneysuckle	*Lonicera spp.*		
Indian plum	*Oemleria cerasiformis*		
Mountain ash	*Sorbus sitchensis*		
Saskatoon	*Amelanchier alnifolia*		

Site Series 06

Site series 06 includes sites with rich to very rich available nutrients and slightly dry to fresh moisture levels (greater than average for this subzone). In Sunnyside Acres, this type of ecosystem is generally found where water tends to collect, such as in depressions and around streams and seepage draws. The soils are generally sandy loam with 25-40 % coarse fragments and the humus form is predominantly moder. Often these soils contain mottling which is a sign of fluctuating moisture levels.

The moisture levels on these sites are generally higher than is preferred by Douglas-fir trees, while many deciduous species are naturally suited to these conditions. The stands on these sites are predominantly red alder with components of cottonwood, paper birch and cherry. There are scattered Western Redcedar and grand fir which, over time, will form the climax species on these sites.

The understory is generally dominated by a dense layer of salmonberry, sword fern and lady fern. Generally, there is a lack of salal on these sites as compared to site series 01 and 04. A complete list of all the major shrubs and plants found in this ecotype are listed in Table 7.

Table 7. Dominant shrubs and herbs found in site series 06 ecotypes within Sunnyside Acres Urban Forest

COMMON NAME	*SCIENTIFIC NAME*	COMMON NAME	*SCIENTIFIC NAME*
Shrub layer		**Herb layer**	
Vine Maple	*Acer circinatum*	Sword fern	*Polystichum munitum*
Thimbleberry	*Rubus parviflorus*	Vanilla leaf	*Achlys triphylla*
Red elderberry	*Sambucus racemosa*	Lady fern	*Athyrium filix-femina*
Salmonberry	*Rubus spectabilis*	False lily-of-the-valley	*Maianthemum dilatatum*
		Piggy-back plant	*Tolmiea menziesii*

Site Series 11

Site series 11 includes sites with medium to very rich available nutrients and wet moisture levels. In Sunnyside Acres, this type of ecosystem is generally found where water collects and does not drain properly such as in depressions and the collection zones of drainages. The water table is often not farther than 30cm from the surface in these sites. In Sunnyside Acres these sites are usually small and form complexes with site series 06.

The soils are either organic, due to poor decomposition of organic matter which builds up over time, or sandy loam with 25-40 % coarse fragments. The humus form is predominantly moder.

It is difficult for many trees to grow on these wet sites as the high water tables create anoxic conditions. Usually deciduous species and western redcedar will establish on slightly drier microsites such as raised knolls. The understory is generally dominated by salmonberry, elderberry and sword fern, lady fern and skunk cabbage. Sphagnum moss is a common indicator of this site series. A complete list of all the major of shrubs and plants found in this ecotype are listed in Table 8.

Table 8. Shrubs and herbs found in site series 11 ecotypes within Sunnyside Acres Urban Forest

COMMON NAME	*SCIENTIFIC NAME*	COMMON NAME	*SCIENTIFIC NAME*
Shrub layer		**Herb layer**	
Indian Plum	*Oemleria cerasiformis*	Sword fern	*Polystichum munitum*
Red elderberry	*Sambucus racemosa*	Lady fern	*Athyrium filix-femina*
Salmonberry	*Rubus spectabilis*	False lily-of-the-valley	*Maianthemum dilatatum*
		Skunk cabbage	*Lysichitum americanum*

Sunnyside Acres: a rare ecosystem

The Sensitive Ecosystems Inventory (SEI) is a joint project between the Ministry of Environment Land and Parks (MOELP) and the Canadian Wildlife Service, with the purpose of identifying rare and unique terrestrial ecosystems and encouraging their preservation. The dry climate of South Surrey, its mature Douglas-fir, combined with extensive human development, make the forests of Sunnyside Acres similar to those studied by the SEI.

The SEI considers stands such as those in Sunnyside Acres as older forests, defined as stands of conifer forest (predominantly Douglas-fir) with an average tree age of 100 years or older. It was reported by this study that these older forests occupy only 2.6 % or 10, 605 ha of eastern Vancouver Island and the Gulf Islands, the majority of which currently exist in protected areas. Additionally, most of these forests measured less than 7 ha in size. The primary reason for the scarcity of this ecosystem type is due to extensive logging and development in these areas. These forests are considered sensitive not only because they are rare but also because they contain specific habitat features required by a rich diversity of plant and animal species.

The Ministry of Environment, Lands and Parks published a series of reports on ecosystems at risk. The *Coastal Douglas-fir Ecosystems* (Flynn, 1999) report underlines the importance of preserving mature and old growth Douglas-fir stands in the CDF subzone. It states that only an estimated 0.5 % of stands in this dry climate remain in an undisturbed old growth state and that almost every one of these stands is on the province's rare and endangered list. The report stresses the need to protect these remaining old growth stands as well as the remaining mature Douglas-fir stands.

The only other substantial stand of mature to old Douglas-fir located within the CDFmm is that of Lighthouse Park in West Vancouver. Other Douglas-fir stands do exist, such as those in the Pacific Spirit Park and the Delta watershed, but these stands are not located in the rare CDFmm subzone and are generally younger, between 60 and 80 years old.

Appendix B Natural Area Trail and Pathway Specifications

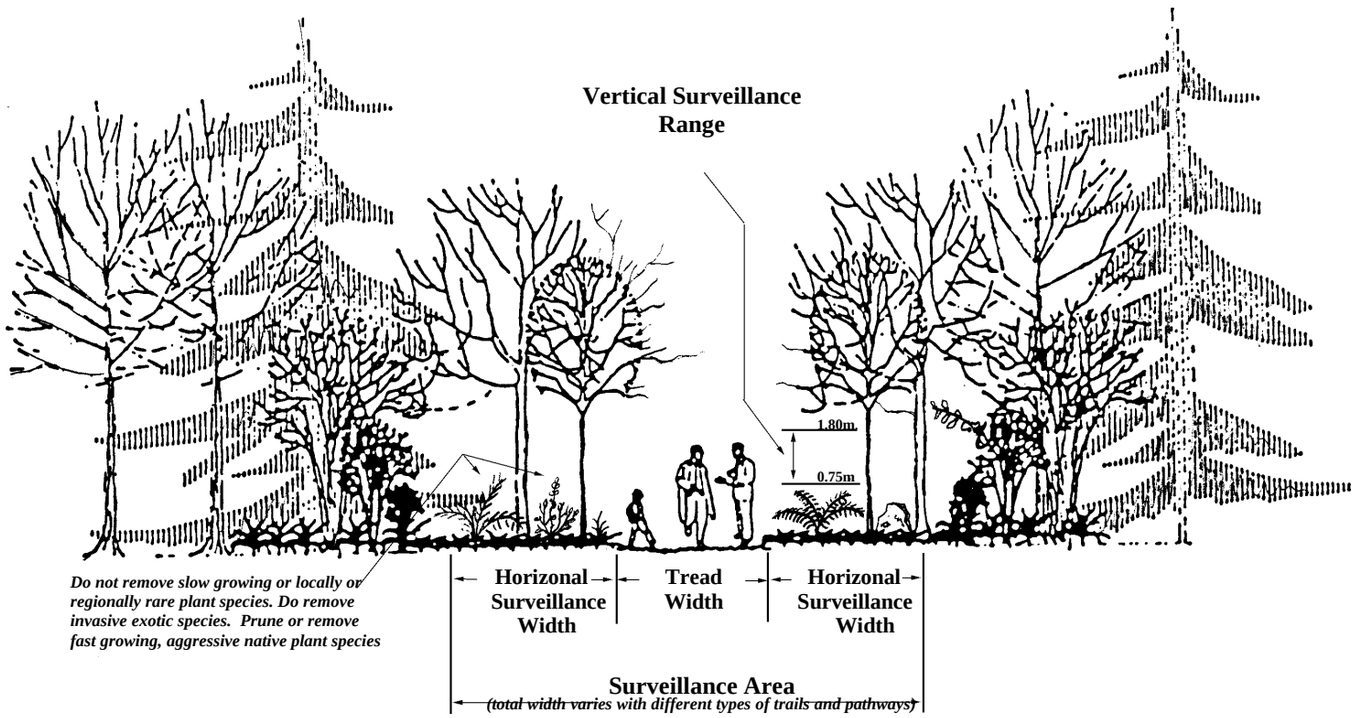
Table 9. Natural Area Trail and Pathway Specifications

Trail	**UNIVERSAL ACCESS / BARRIER FREE TRAIL**	**GENERAL ACCESS AND RECREATION TRAIL**	**RECREATIONAL NATURE TRAIL**	**PATHWAY**	**EQUESTRIAN TRAIL**	**MULTI-USE PATHWAY (AS PER ENGINEERING STANDARDS)**	**NATURE TRAIL**	**OFF ROAD BICYCLE TRAIL**	**UNSANCTIONED TRAIL**	**CLOSED TRAIL**
Trail Type CODE	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
PURPOSE	Unimpeded, relatively safe access for users of varying physical abilities. For transportation and low impact or passive recreational activities	Multi-access and medium and low impact recreational uses. Connective travel corridors. i.e. school-forest-residential area	Exploration, discovery and recreation based foot traffic and slow off-road bicycling.	Designed to bear weight of larger vehicles for service or emergency access to a site. Other uses are accommodated.	Horseback riding, other uses possible but not encouraged.	Designed to accommodate mass alternative transportation. Refer to Urban Systems Document re: Multi-use Pathway Standards	Urban hiking, solitude, nature interpretation	Technical, off-road bicycling. Not recommended for pedestrians	Used for purposes that are inconsistent or contradictory to site objectives.	Closed due to negative environmental impacts or conflict with sanctioned uses
INTENDED USAGE RATE	Low-High Double Track or Single with pullouts	Medium-High 2-way traffic	Low-Medium Double or Single Track	Low-High (location dependant)	Medium-High (demand based)	Medium-High	Low Single track	Medium-High Single track-unidirectional Double track-bi-directional	Variable: If very high for legitimate uses, consider formalizing.	None
TREAD WIDTH	1.5m-2.5m	1.5m.-2.5m.	1.0m.-1.5m.	2.5m-4.0m.	0.5m.-2.5m.	3.0m-4.0m	0.5m.-1.0m.	0.3m.-1.2m.	Variable	None
SURVEILLANCE AREA WIDTHS *(WIDTH EACH SIDE OF TRAIL)*	1.0m-4.0m. each side	1.0m.-4.0m. each side	1.0m-2.0m. each side	Line of sight maintained Obstructions cleared. 1.0m.-4.0m each side	Line of sight maintained Surveillance area provided (***x***). Tread width +2***x*** = min 2.5m	1.0m.-2.0m. each side	None provided Line of sight maintained	0.5m-2.0m each side. Line of sight maintained Handle-bar clearance maintained.	Not applicable	Green-up encouraged. Physical barriers maintained.
SURVEILLANCE AREA VERTICAL RANGES *(ABOVE TREAD SURFACE)*	clear between 0.75m.-1.8m.	clear between 0.75m.-1.8m.	clear between 0.75m.-1.8m.	clear between 0.75m.-1.8m. on demand	on demand, as required for safety	clear between 0.75m.-1.8m.	to maintain line of sight only	clear between 0.75m.-1.8m.	Not applicable	Not applicable
SURFACE TYPE	Crushed rock, Wood shreds, Concrete, Asphalt No bumps, dips or other obstructions greater than 2cm.	Crushed rock, Wood shreds, bark mulch.	Crushed rock, Wood shreds, bark mulch, native mineral soils.	Compacted crushed rock, soil cement, asphalt, concrete	Crushed rock, wood shreds, bark mulch.	Asphalt, concrete, compacted crushed rock.	Crushed rock, Wood shreds, bark mulch, native mineral soils, log corduroy.	Crushed rock, Wood shreds, bark mulch, native mineral soils, log corduroy.	Native soils or log corduroy, planks and plywood	Coarse woody debris, rocks, native plants / trees/ grasses, native soils.
SUBGRADE *(AS REQUIRED)*	Crushed rock, Rip-rap, geotextiles, geo grids	Crushed rock, Rip-rap, geotextiles.	Crushed rock, Rip-rap, geotextiles	Road mulch, rip-rap, geotex., geogrids	Crushed rock, Rip-rap, geotextiles, geo grids,	Road mulch, rip-rap, geotex., geogrids	Crushed rock, Rip-rap, geotextiles, logs	Crushed rock, Rip-rap, geotextiles, logs	Not applicable	Not applicable

Trail	Universal Access / Barrier Free Trail	General Access and Recreation Trail	Recreational Nature Trail	Pathway	Equestrian Trail	Multi-Use Pathway (as per Engineering Standards)	Nature Trail	Off road Bicycle Trail	Unsanctioned Trail	Closed trail
PREFERRED GRADE	0%-3% preferred 8%<4m. max. >5%= handrails >10%=steps	8%:max. <5%=preferred	0%-8% average 10% maximum	3%: sustained 5%: 30m. or less 10%: 15m. or less	0%-10% variable up to 15% for <25m.	3%: sustained 5%: 30m. or less 10%: 15m. or less	0%-10% variable up to 15% for <25m.	10%-15% max. sust. 15%-25% maximum	Not applicable	Not applicable
OVERHEAD VEGETATION CLEARANCE	2.5m. above tread surface	2.5m. above tread surface	2.5m. above tread surface.	3.0m. above tread surface	3.0m. above tread surface.	2.5m.-3.0m. above tread surface	Obstructions only to 2.4m. above tread surface	2.75m.-3.0m. above tread surface.	Not applicable	Favour “chest high” barriers.
ADDITIONAL FEATURES *(SITE AND DEMAND DEPENDANT)*	Wheel-stops, pullouts, boardwalks, bridges, ramps, benches, garbage receptacles, maps, signs	Boardwalks, stairs, bridges, benches, garbage receptacles, maps, signs	Only as needed	Not applicable	Tethering sites, pullouts, manure disposal area, bridges.	Wheel-stops, pullouts, boardwalks, bridges, ramps, benches, garbage receptacles, maps, signs, bike racks	Only as needed	Technical challenge features, safety rails, wheel stops, pullouts, bike racks, maps, signs, bike wash areas.	Remove all forts, tree houses, plank bridges, raw log tread, garbage, yardwaste, fire pits, makeshift benches, etc	Closure signs, fabricated barriers, gates.
COMMENTS	Build according to local demand. Limited applications. Highest maintenance standards	Use sparingly in sensitive natural areas. Maintain to high standards.	Utilize in more sensitive natural sites. Medium maintenance standards.	Use only when service / emergency access to a given area is absolutely necessary	Utilize when local public demand dictates. Maintain to high standards. Utilize professionals to design	Do not use in forests or near trees. Do not use in sensitive sites. To be utilized as a part of the Greenways system.	Maintain to avoid wet spots and vegetation encroachment	Utilize when local public demand dictates. Maintain to high standards. Utilize professionals to design	To be closed and deactivated upon detection in sensitive sites. Formalize trails if heavily used and appropriate for the site.	Should be checked and maintained in a deactivated state for 2 years. Closure should be enforced when needed

Natural Areas Trails and Pathways

Surveillance Areas and Overhead Vegetation Clearances



Overhead Vegetation Clearance Height: All trees and large shrubs to be lift pruned or tipped back to the specified height **above** the tread surface.

Surveillance Area: the trail surveillance area has two dimensions, horizontal and vertical.

Horizontal Surveillance Width: the distance from the trail tread edge, into the adjacent natural area, where vegetation is selectively managed for security purposes**.**

Vertical Surveillance Range: the **elevation span**, above the trails' tread surface where vegetation, except tree trunks, is selectively removed.

Note that these guidlelines should be used as such. Flexibility in design and construction must be employed to minimize any potential safety or security issues and to minimize any envronmental impacts.

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Appendix C Summary of Public Questionnaire

The following questions were asked to local residences and people using the Forest. A total of 100 questionnaires were filled out and the answers have been summarised by percentage response.

1. How often do you visit Sunnyside Acres Urban Forest?

Very little (<1/month)	28 %
Monthly (1-3/month)	24 %
Weekly (1-2/week)	33 %
Very often (>2/week)	15 %

2. What area of the park do you use most?

The entire Forest	48 %
South of 24th Ave.`	15 %
North of 24th Ave.	37 %

3. What activity or activities are you using the park for?

Walking/hiking	55 %
Dog walking	25 %
Jogging	13 %
Bike riding	7 %
Horse back riding	0 %

4. Have you had any conflicts or problems with other users of the park?

None	78 %
With dogs	16 %
With bikes	6 %

Comments

- The primary problem with bikes is that they are riding too fast
- Conflicts related to dogs include owners not cleaning up droppings, dogs running off leash and dogs jumping up on walkers. One man interviewed was bitten by a dog.

5. Are there any issues that you feel should be addressed within this management plan?

No	56 %
Work to leash all dogs	8 %
There are too many coyotes in the Forest	3 %
Concerned about the management of the Root rot disease centres	3 %
More trails should be developed	3 %
Stop cutting down any more trees in the Forest	3 %
Stop any further development of the Forest	3 %
Work to reduce the level of vandalism	3 %
The underbrush should be cleaned up	1 %
Bike riders damage the trail	1 %
Bikers ride to fast in the Forest	2 %
Concerned about trees falling over in the wind	2 %
Take down the power lines along 148th	1 %

Reduce traffic around the park	2 %
Work to minimise dog droppings in the Forest	2 %
Place gravel on all of the trails	1 %
Patrol the park more often to improve safety and enforce bylaws	2 %
Work to the reduce dumping of waste around the Forest	2 %
No horses should be allowed in the Forest	1 %
There are inadequate parking facilities	1 %

6. Do you agree with the current Trail Uses and their Standards of upkeep?

Yes	91 %
The trails are too muddy	9 %

Comments:
- The gravel surface is nice for walking on

7. Do you think some user groups should be limited to the trails they use? If so to what areas.

No	83 %
There should be some limits to bikers	10 %
There should be some limits to horses	5 %
There should be some limits to dogs	2 %

8. How can the Parks and Recreation department ensure that dog owners pick up after their dogs?

Did not have a suggestion	55 %
Patrol the park more often	3 %
Put in more garbage cans	13 %
Provide bags for owners	13 %
Put up more threatening signage	8 %
Try to educate owners better	4 %
Hand out fines	4 %

Comments:
- It does not seem to be a problem
- Many people commented that dog owners do not want to carry droppings very far and more garbage cans would allow closer drop off area
- Provide a separate area just for dogs

9. How do you think the City can remedy the problem of illegal dumping in the park?

Did not have a suggestion	61 %
Patrol the park more often	13 %
Give out fines	18 %
Put up more threatening signage	5 %
Make the city dump free	1 %
Put up fences	1 %
Provide a free pick up service for residents	1 %

Appendix D Contact List

NAME	PH #	REPRESENTING	Comments
Dianna Olsen	590-5172	Equestrian Clubs	Throughout south Surrey their group is losing areas to ride within the parks. Would like to work with the City to promote awareness of equestrians and their horses within parks. Believes that through education other recreators can co-exist with horse riders. This group has a set of rules of conduct they abide by while riding in the Forest. Would like to see highly visible signage showing that horse riding is permitted- 'written signs are often ignored'
David Short	531 8354	Earl Marriot Cross Country Runners	Up to 20 runners at a time. Used often when weather permits. No concerns.
Gary Peninsular shoes owner)	531-7879	Peninsular Runners	Do not use the trails
Rob Way	538-7498	Locate Rate Payers -Elgin	Concerned about activities affecting water flow for Elgin Creek.
Patsy	581-7130	Chamber of Commerce	No concerns regarding park management in South Surrey at this time.
Larry		Hatchery owner downstream at base of Elgin Creek, north of Crescent Rd.	Headwaters for Elgin Creek is in the Park. Concerned about reduced water flow in the Creek and if water drainage patterns had been altered upstream.
Fire Department			Conducted with fire management plan
George Budin		Parks Engineering	Discussed maintenance within the park, schedules for vandalism repair - monthly. He provides no garbage cans for the Forest. Discussed plans for the widening of 20th Avenue and whether it could include a bike path - yes.
Jean Lamontagne	591-5080	Surrey Planning Department	No future plans involving Sunnyside Acres Urban Forest. Greenways plan goes through Athletic Park. Heart and Stroke Foundation has circuit in park.
Susan Eburn	502-6240	Youth Centre Staff	Youth entering forest to hide, has put out fires in the forest adjacent to the skate park. Youth have dragged old couches into forest beside centre, garbage is often left in the forest here. Another concern while jogging in the park - dogs off leash.
Murray Gagekol	531-3220	Softball city	Primary concern - area adjacent to softball city has only one trail through it from 148th.
	502-6477	Local RCMP	Patrol in summer- have had no security issues to deal with, safety concerns only regarding to trees falling down
Gary(Peninsular shoes owner)	531-7879	Semiahmoo fun runners	Meet at south surrey arena. Use trails almost daily. A map along the north south trail between 20th and 24th would help. Minor conflicts with other users, dogs off leash and bicyclists.
Sunnyside Acres Urban Forest Advisory Committee			Members of the advisory committee represent a variety of associations including, SORCE, WCWC, South Surrey/Whiterock Naturalists, Sunnyside Acres Heritage Committee. Had numerous conversations with all advisory members. All aspects of this plan were discussed.
Park Urban Forest and Environmental Service Department			Discussed with most staff all issues regarding this plan
Ken Duncan	501-5181	Parks Engineering	Discussed sign maintenance, sign materials and images. Discussed cost of changes to signs and posts.
S.O.R.C.E			See Sunnyside Acres Advisory Committee
Western Canada Wilderness Committee			See Sunnyside Acres Advisory Committee
South Surrey/Whiterock Naturalists			See Sunnyside Acres Advisory Committee
Sunnyside Acres Heritage Committee			See Sunnyside Acres Advisory Committee

VOLUNTEERS	ADDRESS	PHONE
Gene Stronski	14338 19 Ave.	536-6193
Lois +Trevor Phillips	14310 19A Ave.	536-1627
Charli +Sheila Gregor	14265 19A Ave.	541-8343
Pete Snell	14382 19B Ave.	538-2768
Karen Dery	14120 23 Ave.	
Kim Watt	2285 141 Street	541-9626
Laurna Wood	14144 20 Ave.	531-1220
Linda Mann	2719 North Crest	535-9343
Jean Hornstein	14270 26th Ave.	541-1698
James McLean	14337 26 Ave.	538-6235
Marg Steeves	14362 26 Ave.	535-1093
Darlene Meg	14874 26 Ave.	536-4837
Evanka Grant	2585 26 Ave.	535-0967
Frank Swanson	14824 26 Ave.	535-0582
Andrea Green	14852 26 Ave.	536-3050
Frank Weipert	2538 148 St.	536-4042
Andra Thomson	24 Ave.	535-0203
Rong Wang	14346 24 Ave.	531-8682
Dave Clark	14365 25 Ave.	541-1132
Daniel Rosenblatt	14364 25 Ave.	535-0349
Barbara Simpson	14324 25 Ave.	535-9716
Anita Phillips	14345 25 Ave.	535-5884