



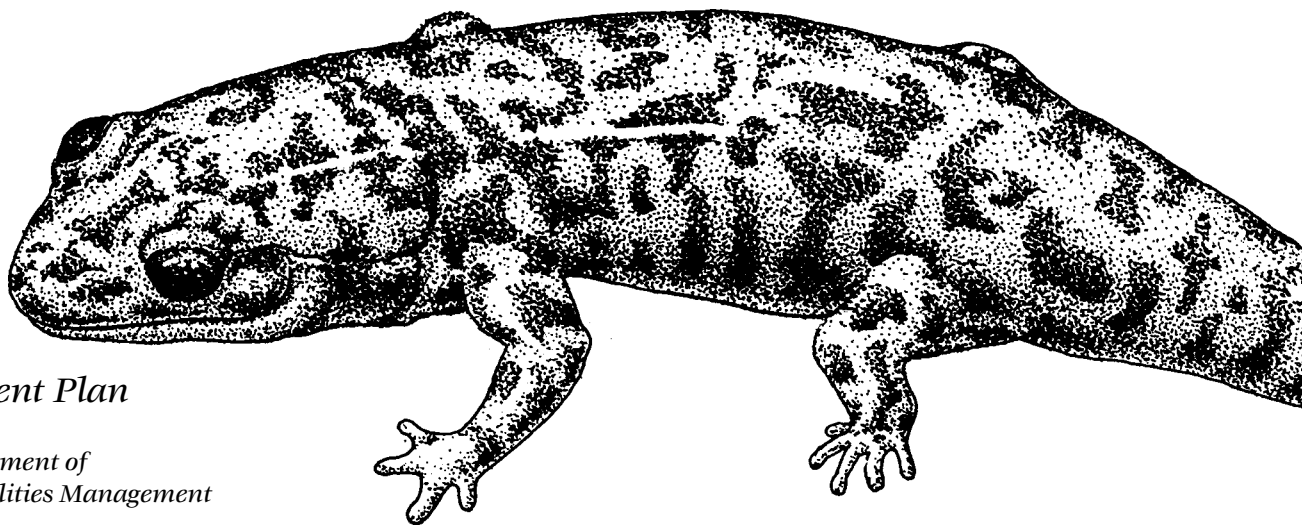
Grand Ridge Park

A Natural Area



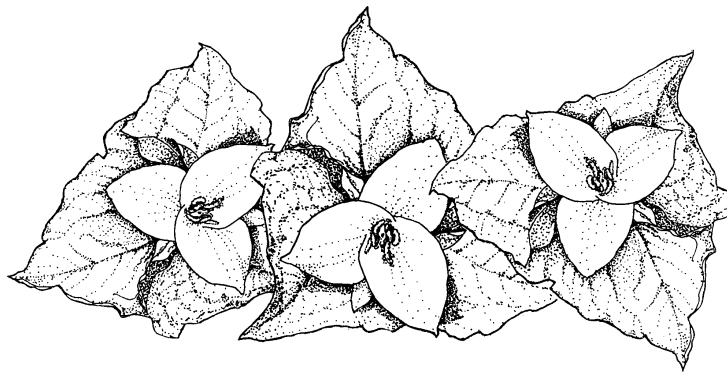
Site Management Plan

Prepared by:
King County Department of
Construction & Facilities Management
Prepared for:
King County Park System



Grand Ridge Park

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Prepared by:

King County Department of Construction and Facilities Management

Division of Capital Planning and Development

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EXECUTIVE SUMMARY

Where the foothills of the Cascade Mountains begin to rise from the Puget Lowlands, King County's Grand Ridge Park offers unusual opportunities for habitat and water resources conservation while also continuing the tradition of trail use in this richly textured forest landscape. The site is in a transition zone between urban and rural land uses and will soon have several thousand new residents living along its western border. As open space the Park will be managed to protect natural systems, to maintain and enhance wildlife habitats and corridors, and to preserve an integral piece of greenway along the rapidly developing I-90 corridor. Where public use does not compromise these resources, a low-impact trail system will be created for recreational use. Improvements will be made to the site's existing trails where necessary and connections will be made to regional trails in the vicinity where conditions permit. The following objectives reflect program goals and will be used to establish effective management of the natural area:

- Preserve, protect, and restore natural systems for fish and wildlife habitat
- Preserve the rural nature of the site as part of the existing network of open space in rural King County
- Provide trail access that protects sensitive features and directs public use in appropriate areas
- Provide interpretive experiences for the community and foster public involvement in site stewardship
- Comply with permitting requirements under the Endangered Species Act (ESA)
- Implement recommendations in phases according to priority order and available funding
- Cooperate with King County Department of Natural Resources (DNR) in forest and watershed management

Significant resources and public access opportunities include:

- 1200 acres of second-growth forest
- Forested wetlands
- North and East Forks of Issaquah Creek
- Headwaters for Canyon Creek
- Numerous unnamed, unnumbered creeks
- Habitat for terrestrial and aquatic wildlife
- Diverse habitat for a variety of resident and migratory bird species
- Existing volunteer-made trails under a wooded canopy
- Potential connections to a wider King County trail system
- Community stakeholders currently invested in the site

The following general planning and design elements are recommended for the Grand Ridge site:

- Maintain and enhance vegetation communities, especially along stream corridors, in wetland areas, and at edges exposed to urban development
- Cooperate with appropriate agencies and stakeholders in planning overall management of the forest, wildlife, fisheries, and water resources
- Improve as necessary and extend where possible the site's trails
- Increase enforcement component to control illegal encroachments from adjacent development
- Regularly monitor general site conditions for dumping, illegal access, and resource degradation
- Use existing County programs (as funding allows) to periodically monitor for water quality, habitat values, and restoration efforts to gauge the success of protection and enhancement activities
- Pursue grant-funding opportunities with appropriate agencies such as IAC (Interagency Committee for Outdoor Recreation) to enhance revenues for site improvements
- Coordinate with existing volunteer organizations involved with environmental stewardship to maintain the site in conjunction with KC Parks

- Coordinate with Washington State Department of Transportation (WSDOT) to provide additional access to trails along southern edge
- Coordinate with City of Issaquah Parks Department in creating parking for trail users at the City's Central Park.
- Explore potential for expanded trail opportunities onto neighboring sites to the east

Part I - INTRODUCTION

Foreword

Several parcels under different ownerships were brought together in the late 1980s to form a 2,223-acre parcel northeast of Issaquah traditionally known as “Grand Ridge”. Under the original development proposal, 288 five-acre lots would have been created in an area designated “rural” in the 1990 King County Comprehensive Plan. Although the City of Issaquah attempted to annex the area before 1990 (and subsequently alter the potential land use), the rural designation remained in place until 1994. At that time an agreement was drawn up between the property owner, the City of Issaquah, and King County, setting forth the concept of a planned community concentrated on the west side of Grand Ridge, to be annexed to the City of Issaquah. This western portion of the property, designated “urban” with clustered development, was permitted an increase in density while on the eastern side a 230-acre parcel remained “rural” with five-acre lots. Of these acres, 150 will be developed with 40 homes and 180 will be set aside (in increments, as the lots are sold), as a conservation easement that will revert to King County ownership, although this land will not be available for public use. Out of the original acreage, roughly 1,200 acres were committed to open space for public use and additional acres were set aside as conservation easements or buffers. The 1,200 acres of public open space will be developed as Grand Ridge Park. A ratio of four-to-one was created, four acres of open space for every acre developed at greater density. (See **Figure 1 – Region/Location**)

Urban development on the west side of Grand Ridge Park, now known as the Issaquah Highlands, will provide high density housing that will be home to approximately 7,000 residents when construction is completed. Nearly four million square feet of commercial/retail space as well as an office campus are being created within the development and between 12,000 to 15,000 employees are expected to work in the area. This part of the property is within the urban boundary of the City of Issaquah. While open spaces and recreational facilities will be created within the developed area, most notably a 47-acre “Central Park” by the City of Issaquah, Grand Ridge Park will serve some of the recreation needs of the thousands of future residents and employees. For the rural development on the east side of the ridge, which is in unincorporated King County, recreation space has not been included due to the large lot size. A road has been built across a portion of the Park, connecting the two communities.

It is the open space that resulted from the four-to-one agreement that is the subject of this study: a north-south reaching parcel characterized by varied topography and second-growth mixed forest typical of the Puget lowlands. Although the area was logged early in the 20th century, it has seen only minimal trail use since that time and has no active roads (with the exception of the new road linking the urban and rural sides of the Issaquah Highlands development). Other than stumps of cedar trees – still with spring board notches – and the proliferation of second-growth vegetation that follows logging, there is no indication of earlier uses. Access has been limited by very steep slopes along the site’s southern edge, by an extensive forested wetland along the northern edge, by a lack of roads and parking on the east, and dense vegetation on the west. The latter has largely been cleared for development and one road has been created from Issaquah Highlands into the Park to provide access to a water tower that serves the site. Undeveloped parcels further east are either preserved as forested open space, are held by private timber interests, or are in low-density residential development. Zoning to the east is rural, one dwelling unit per five acres.

For decades recreationists have used simple trails in the south-to-central portion of the site and before construction activities began at Issaquah Highlands, a few narrow trails traversed the property, allowing visitors to cross the central portion of the ridge. Some of the trails were along utility easements and others were created by hikers and equestrians. None extended all the way north to the Issaquah-Fall City Road. Bicyclists in recent years have taken advantage of trails along the steep slopes at the southern property edge for their recreational pursuits. With the creation of Issaquah Highlands many segments of trail were disrupted and the potential for a far greater number of visitors was increased.

The enabling legislation for the Park (created in 1993) cited its potential to serve recreational users, especially equestrians, through the development of onsite trails. Recreational use, however, will have to be minimal because of the number of sensitive areas and rather than providing extensive public access, ecosystem preservation will be emphasized instead. Due to experience with development adjacent to Cougar Mountain Wildland Park, one of the County's concerns will be to protect the site from encroachments and other illegal activities, especially along the Issaquah Highlands' edge. Prevention of erosion, preservation of wildlife habitat, and protection of wetlands and waterways are central to maintaining this site as a healthy transition zone between urban development to the west and rural parcels to the east. At the same time immediate neighbors and recreational visitors will be able to continue to enjoy this rural landscape on a limited trail system.

Purpose

The purpose of this document is to provide a record of existing features of the Park and to create guidelines for future site use and trail development. This plan includes:

- Short and long term goals
- Location
- Description
- Passive recreation potential
- Connections to regional trails
- Site access and parking
- A site inventory and analysis of existing natural resources and land uses
- Trail corridor considerations
- Site management recommendations
- Site-wide issues

Goals

Grand Ridge Park will be maintained as open space by King County Parks, in accordance with Parks policies and conditions established in the dedication of the site. Management will focus on protection and enhancement of natural systems: fish and wildlife habitats and corridors, water resources, and sensitive areas. Because of the site's historic trail use and because of the large number of people expected to live adjacent to the park in coming years, it will be necessary to provide access along a trail system that will guide visitors into and through the park in an appropriate manner. Both existing and proposed trails will be made to meet U.S. Forest Service (USFS) standards.

Short Term Goals

- Provide attractive and well-marked "official" entry points into the Park
- Plan and build well-defined low-impact trail in the south-to-central portion of the Park using existing trail segments where possible, and create loop around central ridge where conditions are appropriate
- Eliminate existing trails that do not meet USFS trail design standards, that pass in to Issaquah Highlands, that are unsafe, or that impact sensitive areas
- To the extent possible, use volunteer labor guided by King County Parks staff to build trails
- Provide signage and other physical controls to direct public use in appropriate areas and to protect natural systems

Long Term Goals

- Form partnerships with land-managing agencies to develop trails on adjacent public lands
- Undertake management practices that will promote the development of forest structure and biodiversity in cooperation with King County DNR
- Aid in forming non-profit volunteer groups such as Friends of Grand Ridge Group (especially from Issaquah Highlands) as well as Park Ambassadors, include all stakeholders in regular meetings to create annual goals, and work collaboratively to the greater good of the site
- Design and implement a site-specific enforcement program that highlights voluntary compliance to site rules and regulations
- Explore potential to extend trail north to Issaquah-Fall City Road with a connection to Duthie Hill Park
- Preserve the rural nature of the site in keeping with community wishes by preserving vegetation and limiting access
- Create connections to King County regional trails where possible

Location

The southern site boundary is along a former railroad grade within the right-of-way for Interstate 90 (I-90) and the northern boundary extends just north of the Issaquah-Fall City Road. The site is outside King County's urban boundary as set under the Growth Management Act. Immediately adjacent to the southwest is the Issaquah Highlands development, the greater portion of which is within the urban boundary of the City of Issaquah. The 230-acre rural parcel on the southeast side of the Park is outside the urban boundary of both the City of Issaquah and King County. Less than a mile from the site's northwestern corner is the Klahanie development, a planned residential neighborhood of roughly 9,000 residents.

Approximately half way along the north-south axis of Grand Ridge Park, on the east side, is the McCormick/Mitchell Hill area, also in King County ownership. This area will be preserved as open space under the management of the DNR, with the County owning all development rights as part of a Transfer of Development Rights program. Together with the 1,200 acres of Grand Ridge, this area will be considered a greenway and wildlife corridor and will be managed for habitat and ecosystem preservation. North of the McCormick/Mitchell Hill area are three 40-acre parcels that are privately owned and are managed for forestry and further north are residential homes on five-acre lots. To the northeast several hundred acres are managed by Plum Creek Timber and Washington State DNR. Several groups, including Mountains-to-Sound Greenway, Issaquah Alps Trail Club, Washington State DNR, and King County, have a shared vision of preserving a corridor of wildlife habitat through this area that would serve as a connector to larger habitats in the region. (See **Figure 2 – Publicly Held Land**)

A large parcel near the center and immediately west of Grand Ridge is the former Black Nugget Ranch site, once a destination resort that offered recreational equestrian pursuits. Currently several homes exist in this area where zoning allows one dwelling unit per five acres.

South of I-90 is the state-owned Tiger Mountain Park, a working forest managed by Washington State DNR, where trails are available for recreational use. Access from this park to Grand Ridge is provided at the Highpoint underpass.

Description

Because Grand Ridge Park was formed out of a larger parcel that allocated developable land for building, the site has an irregular shape and the boundary takes an unusual number of twists and turns, especially on the western edge. The Park also contains numerous sensitive areas such as wetlands, streams, and steep slopes that were considered unsuitable for development and now preclude extensive recreational use of the site. On a high

point between two watersheds, drainage flows either west to the Cedar River basin or east to the Snoqualmie River basin. A number of small, unnamed and intermittent streams drain the hillsides, some of which form the headwaters of three major creeks that drain offsite. Large wetland complexes are found in low-lying level areas and smaller wetlands are found along hillsides as seeps. Vegetation communities represent typical second-growth in the Puget lowlands. Large stands of mature conifers have been identified as well as stands of mature deciduous/coniferous trees. Evidence of wildlife is found throughout the site. See **Figure 3 – Existing Conditions**)

Passive Recreational Potential

For many years Grand Ridge has offered trails for recreational use and with the advent of thousands of new residents to the immediate area, these trails should be prepared to accommodate additional visitors in a way that protects natural systems to the extent possible. In the south-to-central part of the site, where parking will be available, where trails already exist, and where access from the Issaquah Highlands is planned, improvements and extensions to trail segments should be laid out. Where possible, a trail segment that loops around the central ridge should be created to allow visitors access further into the site, providing them with greater opportunities for exploration and allowing them to return to their starting point.

With interpretive signs providing details of the site's wildlife and vegetation, the educational aspects of a trail can be highlighted and protection of these resources can be enhanced. Public understanding and appreciation of the Park will be an asset to the County's efforts to restore salmonids under the Endangered Species Act (ESA) as well as essential to maintaining the ecological health of the greater watershed.

Where the site's former trail system has been disrupted by construction activities at Issaquah Highlands, steps should be taken to revegetate discontinued segments or to create barriers that would prevent their further use. A few of the existing trails in the southwest corner of the site show signs of erosion due to poor siting and location. Some of these trails will be improved and others will be closed off to prevent further erosion. Parks staff and Park Ambassadors will have to closely monitor edge conditions adjacent to Issaquah Highlands to prevent dumping, illegal access, and to watch for any resource degradation.

Connections to Regional Trails

A Bonneville Power Administration (BPA) transmission line traverses the western side of Grand Ridge, passing through the Issaquah Highlands development. Under this power line is a dedicated King County trail that connects with other trails in the southwest corner of Grand Ridge Park as well as with the Klahanie Trail to the north. This has been used by bicyclists and equestrians in the past but because Issaquah Highlands is within the urban boundary of the City of Issaquah, equestrians will no longer be allowed as horses are not allowed on trails in urban areas. The Grand Ridge trail will connect with the BPA trail at the Central Park site in Issaquah Highlands, where parking will be provided for Grand Ridge Park users.

Northwest of the Issaquah-Fall City Road the East Plateau Trail is planned as a hard-surface trail that will extend east from its beginning just north of Lake Sammamish State Park, along SE 43rd Way. After climbing to the plateau it will follow an existing sewer easement as it heads east to Klahanie, passing through that development, then continuing further east to Duthie Hill Park. A future connection is planned that will link this East Plateau Trail north through Duthie Hill Park to an easement that will pass through the Trossachs residential development and on to Section 36, a King County Park roughly two miles north of the Issaquah-Fall City Road. A trail extending the full length of Grand Ridge Park would connect with the East Plateau Trail at Duthie Hill Park.

Along the southern edge of Grand Ridge is an old railroad grade that runs east-west for roughly two miles between High Point and the BPA power line corridor. Along this grade is a trail that currently provides access to informal trails at the southwestern corner of the Park site. From the western end of the old railroad grade a

connection is planned to extend the trail further west to Issaquah and Lake Sammamish, a link that will be made following development of the Sunset Interchange at I-90. Also planned is a trail extension further east from High Point that will connect with the Preston-Snoqualmie Trail. When funding allows, the creation of a new connection should be explored in the southeastern corner of Grand Ridge, one that would link a trail along the upper contours of the Ridge more directly with the High Point parking area. Potential also exists for a future connection to trails on Tiger Mountain to the south.

Several hundred acres of undeveloped properties extend east of Grand Ridge toward the Preston area. Many of these holdings are in public ownership and have potential to offer some low-impact trail use. They also provide important wildlife habitat and corridors. At present there are no organized, formal recreation facilities on the different holdings, but where trails wouldn't compromise wildlife habitat and waterways protection, they will be planned for limited trail use. The McCormick /Mitchell Hill property, adjacent to Grand Ridge to the east, is considered a timber resource and trees are available for harvest; however, a management plan has been created that includes stream and wetland buffers as well as reforestation. Some recreational trails will be created within this forested environment with potential to connect with Grand Ridge trails.

Site Access and Parking

Access to Grand Ridge Park is limited. At the southern edge of the park site near High Point is a small gravel parking lot that opens on to the old railroad grade. Primarily used by mountain bicyclists, this lot is within the right-of-way for I-90 and is maintained by Washington State Department of Transportation (WSDOT) work crews. Further development of this parking lot would be difficult due to the presence of the East Fork of Issaquah Creek, which forms the north and west edges of the lot. Removing trees here to create more space would be subject to regulations of the Washington State Department of Fish and Wildlife and to concerns of WSDOT. Site users could also park along the south side of I-90, either along SE 79th or at the High Point trail head to Tiger Mountain, south of the freeway. Horse trailers could park south of I-90 in the parking lot for Tiger Mountain. Access into the interior of Grand Ridge along most of this southern section is difficult because of the topography that rises steeply from the old railroad grade.

A second point of entry has been from the BPA easement at the southwest corner of the site. This will be developed further as one of the Park's main access points when the City of Issaquah builds a public park on 47 acres immediately east of the powerline easement. The city's park will be built largely to serve residents of the Issaquah Highlands development with active recreation fields, but it will also include 20 parking stalls for Grand Ridge visitors.

On the rural east side of the Issaquah Highlands is a trail access point that has traditionally been used by the local community. No improvements are planned here because of the wetlands and streams as well as steep slopes and landslide hazards in the area. A narrow road with limited site distance and a right-angle turn on this east side largely serves local residents. It is recommended that the county post "No Parking" signs here to prevent further use of this area. Entry here is on Issaquah Highlands property.

Access to the site's northern end is constrained by the presence of a large wetland complex south of the Issaquah-Fall City Road and a lack of parking. The only feasible site for parking in this area is Duthie Hill Park, a King County Park of 120 acres that lies north of the Issaquah-Fall City Road. The park was formerly leased by the Cedar River Bowmen who have since moved to a new location and the site is currently undeveloped. It has fairly level upper terrain and gentle slopes to the west, north, and east. It has some open fields suitable for development of recreational features, particularly for equestrian facilities. The eastern side of the park is adjacent to the Cleveland Memorial Forest, a Seattle Public Schools property used for environmental education. The County also owns a narrow parcel that extends north to Duthie Hill Road from the park. Currently this parcel is used by King County as a holding facility for salvaged plants but it could serve for a future trail route that would connect Grand Ridge further north and on to Section 36. At the time of this writing no funding has been allocated for development of recreation facilities at Duthie Hill Park.

Three access points are being created from Issaquah Highlands. The northern most point will be along a service road that leads to a one million gallon water reservoir (located within Park boundaries) at the 1250-foot level that will serve the development. A second access point will be at the road connecting the east and west (urban and rural) sides of Issaquah Highlands and a third will be in the southwest corner of the Park where an existing trail historically crossed into what is now part of the Issaquah Highlands development.

Part II - SITE INVENTORY AND ANALYSIS

Topography

A 600-foot difference marks the change in elevation from the lower portions of the Park to the “Grand Ridge” that dominates the site. Topography varies from an extremely steep rise along the southern portion to a few nearly level areas at the higher elevations of the ridge. Smaller hills and valleys are found throughout the site. Along the northern boundary, adjacent to the Issaquah-Fall City Road, a level area with a large wetland spreads across several acres. (See **Figure 4 – Sensitive Areas**)

Much of the southern portion of the site is designated as an Erosion Hazard Area in the King County Sensitive Areas Map Folio. The southwest hillside along the I-90 corridor is cited in the Map Folio as an area of Landslide Hazard.

Trail corridors will be designed to meet gradients recommended in USFS guidelines, which are not steeper than 15 percent. Switchbacks will allow users to climb the steeper slopes at acceptable gradients.

Soils

Alderwood soils predominate. These are gravelly sandy loams that are up to 40 inches deep. Runoff varies from slow to medium and the erosion hazard is moderate to severe. Owall soils are found in an area near the central ridge and are a gravelly loam, typically found on hilly uplands. Runoff is medium and the erosion hazard is severe. At the northern part of the site, near the Issaquah-Fall City Road, Everett soils (gravelly, sandy loam) predominate. Runoff from these soils is medium to rapid, and the erosion hazard is moderate to severe.

Poorly drained Seattle Muck and Norma soils are found in the low area paralleling the Issaquah-Fall City Road. With less than two percent slope, this depression has hydric soils consisting of black sandy loam about 10 inches thick, with subsoil that can extend to a depth of 60 inches or more. Permeability is moderately rapid and the seasonal water table is at or near the surface. Runoff is slow and the erosion hazard is slight.

Trail layout will have to avoid the site’s highly erodable soils to the greatest extent possible and appropriate surface materials will have to be used where needed. Impacts to surrounding soils and vegetation should be minimized during trail construction and may include work only during the drier summer months. Trail use may be similarly constrained by weather conditions to prevent erosion.

Hydrology

Surface Water

The greater part of the Park drains to Issaquah Creek, either along the East Fork of the creek (stream #08.0183), which flows at the foot of the steep hills along the southern property edge, adjacent to I-90, or the North Fork (stream #08.0181), which drains west-facing slopes further north. The North Fork of Issaquah Creek is classed in the King County Sensitive Areas Map Folio as a Class 2 stream with salmonids and it flows into Lake Sammamish, which is part of the Cedar River Basin. Alligator Creek (08.0181Bd) drains across a corner of the Grand Ridge site and joins the North Fork of Issaquah Creek.

A creek commonly known as Samdog Creek (08.0190) flows from the southeastern corner of the site to join the East Fork of Issaquah Creek (08.0183) near I-90 just east of High Point. This is a Class 2 stream and its two upper elevation tributaries (08.0190D and 08.0190C) are likely Class 2 without salmonids. Many other small drainages, unnamed but numbered, exist along the southern edge of the property and are considered Class 3

streams. Further study would be necessary to determine the class and appropriate buffers for these streams if trail plans were to impact their corridors.

Canyon Creek (07.0382) also begins in these hills, flowing north, but heads northeast to join Patterson Creek near the Redmond-Fall City Road, and is in the Snoqualmie River Basin. Canyon Creek is a Class 2 stream with salmonids and water quality is considered excellent as it enters Patterson Creek.

Numerous other small creeks, many of which are intermittent and identified only with numbers, drain the site's hillsides. Where trail segments will cross streams, appropriate measures will have to be taken to preserve water resources and habitat conditions.

Wetlands

A Class 2 wetland has been identified along the northern portion of the site, just south of the Issaquah-Fall City Road. This complex of forested wetlands and uplands has a wide variety of vegetation, from western red cedar to black cottonwood, salmonberry, devil's club, and skunk cabbage. Drainage is to Canyon Creek, off site to the northeast, although it is possible that there is a connection with the adjacent larger wetland that drains west to the North Fork of Issaquah Creek. The onsite portion of the wetland is roughly 10 acres and serves a number of functions. It collects drainage from two streams, provides water quality improvement by filtering the flow through dense vegetation, provides base-flow support for Canyon Creek, and provides attenuation for stormwater. Much debris from earlier logging activities has accumulated here and the area is nearly impenetrable. There is no open water component. Further studies may be required by permitting agents if a future trail route is designed that passes through any of the buffer area.

A smaller wetland has been identified at roughly the 500-foot elevation near the center of the Park. Although not included in the Sensitive Areas Map Folio, it is cited in the environmental impact statement (EIS) for the Grand Ridge/Issaquah Highlands development (1995). A network of wetlands and small waterways that may be connected exists along the east side of the park property in the narrow "neck" adjacent to the former Black Nugget Ranch. A smaller complex of wetlands exists near the edge of the urban portion of the Issaquah Highlands development, just south of the former Black Nugget Ranch, one portion of which acts as head waters for a small, unnamed waterway that drains to the North Fork of Issaquah Creek. Another small complex exists south of the road that connects urban and rural Issaquah Highlands. Many seeps along the hillsides are considered wetlands in different places throughout the site.

The interconnected nature of the Park's wetlands, their proximity to streams and headwaters of streams, and the relatively large size of some of the wetlands contribute to high resource values for biological support, water quality improvement, erosion control, and flood and stormwater control. Streams and wetlands would require buffers, the setbacks of which would vary according to their classifications .

It may not be possible to build a north-south trail without passing through at least a portion of the buffer of the major wetland along the Issaquah-Fall City Road. Other wetlands and/or their buffers also lie along the north-south axis of the park through which a trail would pass and further investigation of these areas will be necessary before trail planning can continue to Duthie Hill Park.

Vegetation

A wide variety of vegetation is found within the study area, all of which is typical of Puget Lowlands second-growth forests. Douglas fir, hemlock, and western red cedar are the predominant conifers and are found in stands throughout the site. Black cottonwood, big leaf maple, and red alder dominate the deciduous trees, while vine maple, salmonberry, red elderberry, Oregon grape, and salal are found in the understory. Groundcover varies from a rare carpet of moss near one wetland to swordfern along drier hillsides. Skunk cabbage is found at a number of wetland areas. Trillium and other low-growing northwest plants are found in pockets along the

forest floor. Mosses, lichens, and mushrooms are found throughout the site as a result of the moist conditions, low level of sunlight, and abundance of decaying vegetation. A moderate snag component exists within some of the older stands.

Invasive plants are found at different spots throughout the site where birds have left seeds, the most obvious of which are holly seedlings. These will continue to grow unless manually removed. Of particular concern will be the potential for non-native, invasive plants to become established along the western edge of the park where it borders the Issaquah Highlands development. According to the Temporary Erosion and Sedimentation Control Plan (TESCP) for the Issaquah Highlands development, contractors building homes in this area will be responsible for monitoring edge conditions for two years after final acceptance by the City of Issaquah. This transitional zone should also be monitored by County staff as well as Park users for invasive plants as well as for trees and shrubs suffering from exposure at the edge of clearing. King County Parks staff will have to work with the City of Issaquah in monitoring and dealing with problem trees along the Park's edge.

Along the proposed south-to-central trail, interpretive material could be installed that would identify native plants and the dynamics of plant communities. Shade-tolerant plant species will be encouraged throughout the site, especially in wetland areas. Increasing stands of conifers where appropriate will result in additional year-round canopy for water retention and wildlife cover. Large logs already felled in wetlands areas will be retained to maintain amphibian habitat.

Additional vegetation will be planted within the site for structure and diversity. Mid-story trees and shrubs such as yew, cascara, huckleberry, salmonberry, and elderberry could be planted where appropriate in accordance with the forest management plan developed in conjunction with the DNR.

Clearing for a trail will have to avoid major trees and snags that provide habitat and forage for birds. Clearing of mid-story vegetation and groundcover will have to be performed in a way that minimizes disturbance of soils.

Wildlife

As would be expected in such expansive vegetation with numerous small streams present, the site is home to a variety of wildlife. Black bear, coyote, mule deer, barred owls, raccoon, mountain beaver, and pileated woodpecker, Pacific tree frog, red-legged frogs, and Pacific giant salamander are known to live in the area. Based on field investigation and available literature, approximately 80 bird species are expected to use the site at different times of the year. The majority of these are passerines (perching birds), such as swallows, chickadees, finches, and sparrows. Eleven species of raptors are expected to nest or forage on the site. Waterfowl populations are likely limited due to the lack of open water.

Up to 38 species of mammals may occupy the site. The most common and abundant of these are small mammals, such as shrews, deer mice, and coast moles. Squirrels and chipmunks have been observed by local residents in the area, as well as cougar, bobcat, and elk. Although no threatened, endangered, or sensitive species have been documented on the site, the U.S. Fish and Wildlife Service acknowledges that three species may potentially occur here, including bald eagle, northern spotted owl, and marbled murrelet. The presence of great-horned owls, however, makes it unlikely that spotted owls would be found. Any suitable nesting habitat within 50 miles of saltwater supports the potential for marbled murrelets. Eagles typically have a five-mile range from their nests and they have been documented at Lake Sammamish State Park, roughly two miles west of Grand Ridge. Pileated woodpecker and great blue heron, both state priority species, have been documented on the site by local residents and through field investigations, although no nests have been seen.

Wildlife corridors are acknowledged as very important within the site as well as off site in undeveloped lands and are generally thought to follow wetlands and stream corridors. However, the EIS for the 1995 Grand Ridge project states that the only indications of regularly traveled routes were along the transmission line easements. (Appendix F)

Trail planning will include considerations for wildlife corridors, especially in the vicinity of small streams and through buffer zones. Warnings should be posted about the presence of cougars and black bears. Interpretive signs could present details of animal and bird life in the Park. Pets should be required to be on leashes.

Fisheries

Canyon Creek leaves the Grand Ridge area site to flow northeast to Patterson Creek, which in turn joins the Snoqualmie River. Salmonid populations in the river include chinook, coho, pink, and chum salmon, steelhead, sea-run cutthroat trout, and several resident trout species. The onsite portion of the Canyon Creek basin includes the only streams within the park that support anadromous salmonids, namely Canyon Creek, Kody Creek, and the lower reaches of four small, unnamed tributaries (numbers 07.0382Bd, 07.0302Bc, 07.0382Bb, 07.0382Ba, and 07.0382A). Canyon Creek is rated Class 2 with salmonids and provides excellent fish habitat, with a riparian zone primarily composed of mature second-growth forest. Over 30 percent of the onsite reach consists of well-distributed pool habitat with abundant large woody debris.

The East Fork of Issaquah Creek flows west to Issaquah Creek, discharging into Lake Sammamish, which in turn drains to Lake Washington through the Sammamish River. The East Fork supports significant runs of coho, chinook, and sockeye salmon, and the mainstem supports winter steelhead as well. The only onsite fish-bearing stream in this basin is Samdog Creek, rated Class 2 with salmonids, and it supports resident cutthroat trout. While no fish have been documented in the uppermost reach, resident cutthroat trout were found in the lower onsite reach. All other onsite East Fork tributaries contain impassable cascades that act as barriers to anadromous fish migration and most are intermittent.

The North Fork of Issaquah Creek also has impassable cascades downstream that prevent anadromous salmonids from reaching the onsite portion of the basin. Alligator Creek, which flows in part through Grand Ridge Park, is rated Class 2 with salmonids, and supports resident cutthroat trout. Fish populations here are thought to be limited by extremely low summer flows.

Several small streams will have to be crossed in the building of a low-impact trail through the south-to-central portion of the site and additional small streams will have to be crossed when the trail is extended further north. Because of the nature of the topography, with steep slopes preventing the presence of migrating fish, none of the reaches to be crossed are thought to have salmonids present. However, preserving water quality within the Park site will be important to protecting fish habitat downstream.

Land Use

Historic Use

Early inhabitants of the region were Native American groups from the Sammamish and Snoqualmie tribes who used the area for gathering roots, plants, and berries, as well as for hunting game. What is now the I-90 corridor served in earlier centuries as a trade route connecting tribes living in the mountains and east of the Cascades with those living in the Puget Lowlands to the west. However, as Europeans moved into the area in the late 19th century, much of the land was bought for logging and mining purposes, and local tribes were either moved to reservations or withdrew from the immediate area.

Beginning in the late 1800s and continuing through the early 1900s, the site was logged for its timber. Coal mining activities occurred during the same time along the slopes of the southwestern corner, and this area is included in the Sensitive Areas Map Folio as a coal mine hazard area. Aside from earlier forestry and mining activities, the area has seen little activity.

Residential development in the Issaquah area that began in earnest after the 1970s made this area more accessible and therefore more popular with recreationists. Already by that time trails had been created along the upper ridge, from the former Black Nugget Ranch across the site to connect with the BPA powerline trail, and these became increasingly frequented by hikers, equestrians, and bicyclists. With improvements to I-90 in the late 1980s, further attention was focused along the highway's corridor and King County Parks joined other organizations such as Mountains-to-Sound Greenway, Issaquah Alps Trail Club, and King County DNR to preserve wildlife habitat and forested lands in the area. In 1993 the Metropolitan King County Council amended its Regional Trail Plan to include a soft-surface equestrian trail through what is now Grand Ridge Park because of the site's traditional use by horseback riders.

Current Use

Some of the site's existing trails were developed by local users and one east-west trail was created as part of a telephone company's surveying route. An old railroad grade along the southern edge of the park was originally created by Northern Pacific Railroad and now serves as a conduit for buried fiber optic telecommunications cable. Along the western portion of the site is the BPA easement, where a trail has traditionally been used by equestrians, but as this use is prohibited in urban areas, horses will no longer be allowed. In the steeply rising southwest corner of the park, topographic variations present challenges to mountain bicyclists who have created trails in this area to meet their needs in recent years.

User-made trails once existed within the Issaquah Highlands site but have been largely discontinued because of clearing and grading activities as well as trespassing issues.

Equestrians have tended to use trails established years ago by riders from the Black Nugget Ranch, along the BPA line, and across the site on the east-west segment created by the phone company. Horseback riders have helped to create other trails and have worked to maintain them. Hikers have shared the paths made by equestrians for recreational purposes such as photography and wildlife observation. All three user groups support continuing trail use on the site.

Part III – TRAIL CORRIDOR CONSIDERATIONS

A private consulting team was hired to identify a potential route for a north/south trail corridor through the park, beginning off the Issaquah-Fall City Road and ending roughly half-way through the site where a connection could be made to an existing trail that continues south. Using USGS topographic quadrangle maps and GIS maps, the team attempted to locate a preliminary “paper route” that would climb up to the ridge beginning at an elevation of roughly 400 feet, avoiding major sensitive areas as it rose to meet the existing trail near the former Black Nugget Ranch at an elevation of about 900 feet. Higher-quality wetland and stream areas were avoided to the extent possible to minimize the number of crossings. This trail corridor was flagged in the field and county staff walked the route to determine first hand the ground conditions as well as the experience the trail could provide. However, because of steep gradients and numerous wetlands through which this northern segment would pass, as well as the lack of parking along the Park’s northern edge, the current recommendation is that further studies are needed before a trail route can be planned through this northern area. Trail access to the Grand Ridge is possible from the south and southwest where parking is available and where some trail segments already exist.

Preliminary Trail Description

The City of Issaquah will build a public park adjacent to the BPA powerline, just above the steep hills that border I-90, and will provide parking for 20 cars for visitors to the Grand Ridge Park. An existing trail in this area essentially begins as part of the BPA powerline trail and skirts the lower contours of the hills, crosses an unnamed creek, and makes a connection down to the trail along the former railroad gradient. Before construction activities began on Issaquah Highlands, trails here were more extensive, including a portion that climbs steeply towards the Ridge that has been popular with bicyclists. Some segments of trail in this area are causing erosion and should be closed off. While parts of the lower trail should be preserved, a new trail segment should be designed in this area that would climb to the ridge from the new parking lot, following the upper contours of the hillside. (See **Figure 5 – Proposed Trail Plan**)

Once on the more level ground of the upper ridge, a trail would have an easy climb through the corridor that separates the urban and rural side of the Issaquah Highlands development. Just before crossing the road connecting the two residential areas, the trail would have to cross a small wetland complex. From there it would continue to climb and could potentially include some length of old trail that passes east of the highest ridge, although some realignment may be necessary to prevent intrusion into the rural side of Issaquah Highlands property. This existing trail that originally began at the former Black Nugget Ranch should be used to the extent possible. Just south of the former ranch property line a new trail should be laid out to the west, creating a loop around the central ridge because of the current lack of options for continuing the trail further north. This loop would reconnect to the trail that begins at the Central Park parking lot and would allow visitors to complete a circuit before returning to their starting point.

Access to the trail would also be possible from the High Point parking lot near I-90 and the trail that follows the old railroad gradient west to the southwestern corner of the site. The existing trail along the lower contours of the southern edge should be upgraded and rerouted to include switchbacks to protect the steep slopes from erosion and small stream corridors from any possibility of degradation.

Near the center of the ridge there will be an unpaved maintenance road to a water tower serving the Issaquah Highlands development and access to the Park from the west will be possible at this point, although no parking within the residential development will be provided. A connection from this road to the loop trail should be planned. As this will be one of only three access points for Issaquah Highlands residents, it will be important to make an entry here that will appropriately guide visitors into the site. Steps should be taken to prevent creation of “desire” paths from the development into the Park.

Another access point from Issaquah Highlands will be at the road that crosses between the urban and rural sides of the development, although no parking will be allowed here. Entry into the Park will be possible from the road and although a small wetland complex exists in the vicinity, a trail connection should be made for local residents. A third entry point from Issaquah Highland residents will be from the southeast corner of the urban side of the development where a trail segment already exists.

Future Trail Considerations

Although there has been no tradition of trail use in the northern portion of Grand Ridge Park, continuation of a trail segment north from the center of the Park to the Issaquah-Fall City Road and on to Duthie Hill Park should take place. A trail extending the full length of the Park has long been envisioned by King County Parks as part of its regional trail system. An appropriate route will have to be found that avoids sensitive areas to the extent possible and a site for parking, especially for horse trailers, will have to be secured in the vicinity of Duthie Hill Park. A connection should be made to the proposed East Plateau Trail when the Grand Ridge Trail is extended to this northern end.

Consideration should be given to creation of a new trail along the southern edge of the ridge that would allow trail users a better connection from the Ridge to the High Point parking lot. Further studies of conditions along this edge should be undertaken and a route planned that would meet USFS standards while protecting the soils and vegetation along this steep slope.

Trail connections to the McCormick property and other open space parcels to the east will depend on plans made by the DNR for public use of these holdings. The full potential of these publicly owned lands to the east to serve recreationists with passive, low-impact uses along prescribed trails has yet to be explored.

Part IV - SITE MANAGEMENT RECOMMENDATIONS

Planning Elements and Recommendations

Given the likelihood of a greatly increased number of users, this Park will need well-defined entry points and trail corridors to protect its natural systems. A low-impact four-foot wide trail can be planned in the southern-to-central portion of the site with few constraints and can be built by volunteers guided by King County Parks staff. In this area a route can follow existing trails, although a new segment along the upper contours from the Central Park parking area to the ridge is recommended. The new segment will have to meet USFS standards and will have to be built in a way that promotes good drainage and prevents erosion. A loop around the central ridge is recommended because it would ensure that visitors can return to their starting points along an approved trail route. Consideration should be given to seasonal use of all trails in order to protect sensitive soils and prevent erosion along the site's steep hillsides.

Site Improvements

Some existing trails on the property have been discontinued because of development on Issaquah Highlands property. Old trail segments that connected with these discontinued portions should be blocked and planted with native vegetation to prevent their further use. Where existing trails along the southern property edge show evidence of erosion, reconstruction should take place and/or new trails created in more appropriate locations. The trail passing into the former Black Nugget Ranch should be discontinued in the vicinity of the property line and replanted by the King County Parks staff with assistance from volunteers and stakeholders.

An effort should be made by Parks staff, along with volunteers, to assure recruitment of large downed logs in wetland areas to maintain amphibian habitat. To encourage diversity of wildlife, the addition of young conifers will provide effective thermal cover for larger mammals and by planting mid-story trees and shrubs such as huckleberry, salmonberry, and elderberry, more forage will be provided for the site's large and small animals. A forest management plan will be created in conjunction with management plans for the McCormick/Mitchell Hill lands to the east.

Of great importance will be the treatment of the western edge of the site, where it borders the Issaquah Highlands development, and enforcing boundary lines to reduce illegal encroachments and dumping should be stressed. Removal of native vegetation and exposure of soil during the construction of this development could result in erosion and native vegetation near the clearing limits may be vulnerable to increased exposure to the elements (sun and wind). King County staff will monitor this edge in conjunction with City of Issaquah staff to assure that contractors comply with standards set in the Issaquah Highlands' TЕСP and to watch for the presence of "danger trees" that may require removal. Many of the landscaped portions of the developed areas of Issaquah Highlands will likely be planted with non-native species. Each of these conditions increases the risk of encroachment by invasive plant species into the Park and monitoring/maintenance will be required.

Pets will also have access into the Grand Ridge site from this development. King County Parks staff will work with volunteer user groups to monitor for the presence of small animals from this community. Signs will be posted at all entry points that pets in the Park must be kept on leashes. Warnings regarding the presence of wildlife should be posted.

Coordination with Other Agencies

Coordination with King County DNR will be important with regard to connections into the McCormick/Mitchell Hill property. Areas important for wildlife will require special consideration of habitat and migration corridors. If trails are to be continuous throughout these forested parcels to the east, they will have to be designed to compatible standards and coordinated with King County trails. Working with DNR staff, King

County Parks staff will establish forest management practices. The intent will be to maintain biodiversity and to maintain the healthy vegetation that controls runoff, maintains water temperature in streams, prevents erosion, and contributes to downstream water quality.

Coordination with Issaquah Highlands staff and City of Issaquah Parks Department staff will play an important part in overall planning and maintenance of the Park, especially along the edges of new development. Where the proposed trail meets a connection point with the Issaquah Highlands development, site conditions should be monitored for any misuse or degradation. Specific details related to public access along the water tower access road should be spelled out, especially with regard to parking, trail etiquette, and pets on leashes.

Communication will be established with WSDOT with regard to Park visitors' use of the High Point parking lot and any future expansion of parking in that area.

Part V - SITE-WIDE ISSUES

Trail Design and Building

A four-foot wide low-impact trail should be planned and built in the south-to-central portion of the Park to connect with and augment existing trail segments. When parking can be made available in the area of Duthie Hill Park and when any permits (if required) are secured to cross wetland areas, the Grand Ridge trail should be continued the full north-south length of the site.

Revegetation/Habitat Restoration

Old trail segments no longer usable should be decommissioned and replanted with native conifers, with erosion-control structures installed as necessary. Survival of restoration plantings should be monitored and provided necessary maintenance, watering, and/or replacement.

Boundary Delineation – Survey/Signage/Fencing

Boundary delineation surveying should be performed where needed. Signage throughout the site will be to King County standards. Signs should include interpretive material highlighting special site features.

Access

Access to approved trails should be provided only for non-motorized bicycles, hikers, and horses. The WSDOT parking lot at High Point will provide limited parking and an entry for users at the southern portion of the park. KC Parks will coordinate further parking studies in this area with WSDOT. Access will also be provided at the City of Issaquah's Central Park. From three points in the Issaquah Highlands development, pedestrian and bicycle access will be available. No provision for parking horse trailers is being made at this time. When the trail is extended to the Issaquah-Fall City Road and when facilities are planned for Duthie Hill Park, space for parking horse trailers should be included because it is the only area where this need can be met. At some point in the future, non-motorized access may be possible from the different points in the publicly owned lands to the east.

Park Resource and Maintenance/Staff

King County Parks Resource and Maintenance staff will work with stakeholders and groups of volunteers to support monitoring and site clean up. The number of Park Ambassadors should be increased and encouraged to participate in the care of the park. The land management, maintenance, security, and coordination of the care of this park is under the jurisdiction of Local 6 of the Service Employees International Union (SEIU), to which Park System staff belong.

Site Safety

Site safety will be monitored by King County Parks staff with the support from volunteers and stakeholders. The objective will be to notify the County of any misuse of the trails, use of fire arms, hunting, illegal dumping, or other actions not appropriate to recreational use of the site. Corrective actions will be taken with an emphasis on voluntary compliance. Trail etiquette signs will be posted.

Special Management Areas:

Highly erodable slopes, wetlands, and small streams crossed by the proposed low-impact trail should be further assessed during the design of the trail's route to determine best management practices to protect them. Trees along the western edge of the property, where clearing for development has altered growing conditions, should

be monitored for any changes that would reduce their viability. Segments of former trails where erosion has occurred should be monitored after replanting to assure that healthy seedlings repair those sites.

Recommended Monitoring

To assess the long-term health of Grand Ridge Park over time, the following activities are recommended:

- Monitor for establishment and spread of non-native and invasive plant species, using existing KC Parks and KCDNR monitoring and removal programs. Monitor disturbed areas for weed establishment and remove as feasible. Monitor the condition of trees adjacent to developed areas.
- Monitor for any length of trail showing signs of erosion, including discontinued/replanted areas.
- Use KC Parks/DNR monitoring projects for long-term collection of resource data on fish, amphibians, native plants, and other wildlife species on site. Special attention to wetlands and streams may provide better information on the distribution and abundance of amphibian species and the sensitivities of their habitat.
- Monitor human use of the site, using King County Park staff, volunteers, and other stakeholders to assure that adaptive management techniques result in effective outcomes.

Community Development

- Establish partnerships with neighbors, local landowners, civic and environmental organizations, and local schools to promote the educational value of the Park.
- Create a forum where volunteers and stakeholders can meet regularly to address Park-related issues.
- Use existing Parks/DNR programs to formulate a consistent data collection and training program and then track and interpret results.
- Create a list and description of volunteer projects that could supplement existing site information. This list will be added to the work plan of the site managers that is published in the Maintenance and Facilities division. Potential volunteer projects could include monitoring for amphibian species; inventory of wildlife species, including birds; invasive plant removal; and litter/dumping clean up; and maintaining the Park ambassador program.

Funding and Implementation

Implementation of recommendations will be funded by annual KC Parks Capital Improvement (CIP) funds, DNR, and other applicable funding resources. Additional funding could be sought from grant-giving agencies. Implementation of work will be managed by King County Department of Construction and Facilities Management (DCFM) for KC Parks. KC Parks will oversee volunteer activities and site management.

Highest Priority

- Create alignment for low-impact four-foot wide trail beginning from the southwestern edge of the site, using a trail head at Central Park, and following the upper contours to connect with existing trail segments where possible. Create loop around the Park's central ridge to allow visitors to return to their starting point.
- Use existing onsite trail segments where possible and groom them to USFS standards using volunteer labor guided by King County staff.
- Enhance entry points from Issaquah Highlands with trail connections and signage.
- Close off unapproved sections of trail that pass onto private property as well as those portions where erosion is occurring, replanting or creating barriers as necessary.
- Provide staff for resource protection and monitoring during the construction of Issaquah Highlands Property development and construction of trails.

- Create signage designating the new park and listing rules related to pets and appropriate trail etiquette. Include interpretive signs where appropriate.
- Coordinate volunteer user groups in site improvement and monitoring activities.

Secondary Priorities

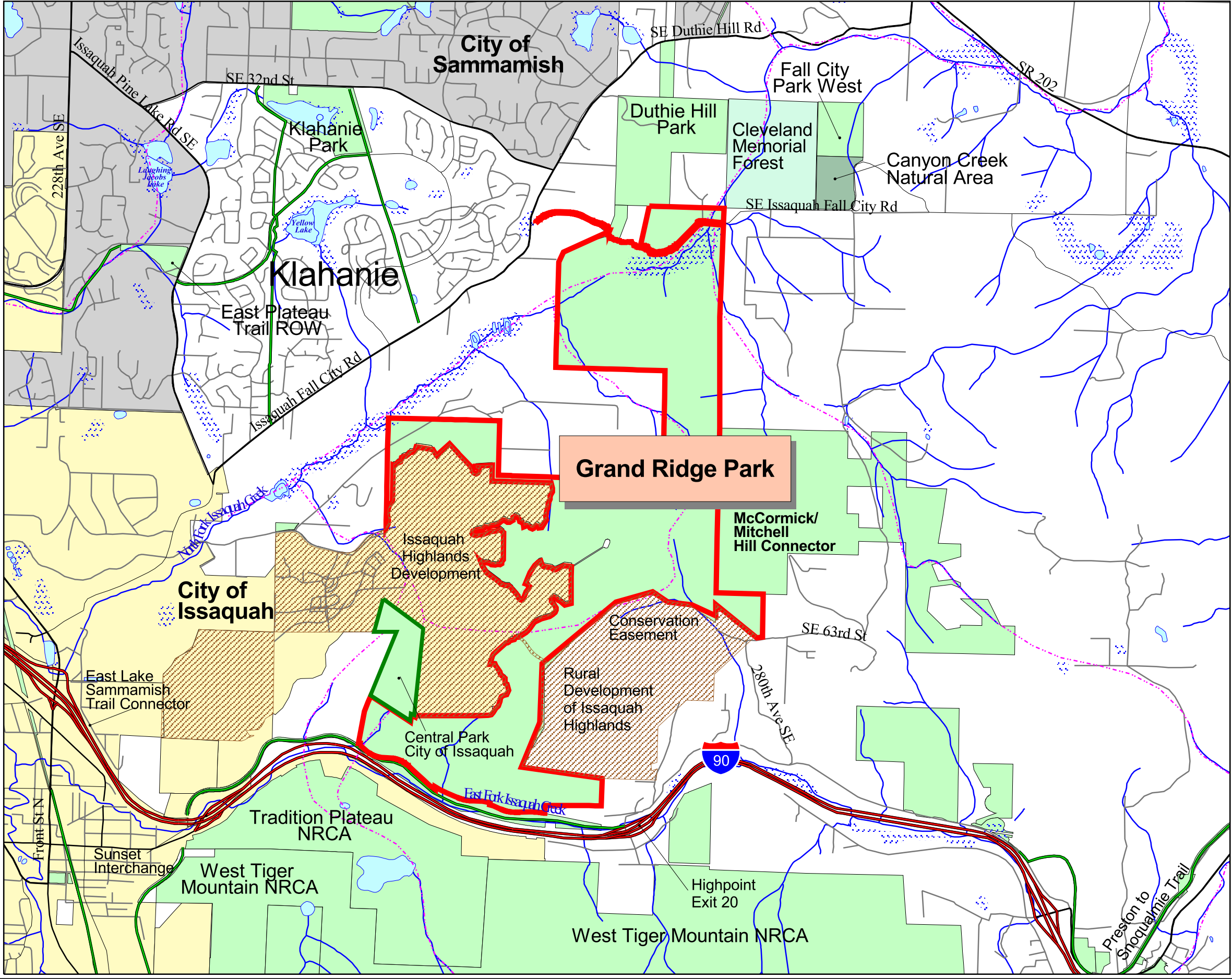
- Explore potential for continuation of trail route north from the ridge to the Issaquah-Fall City Road as well as potential for parking (including horse trailers) in Duthie Hill Park
- Design new trail route to descend from the upper ridge to the southeast, with a connection to the High Point parking lot.
- Explore potential to create more parking in the High Point area with WSDOT.
- Work with KCDNR to create connections to trails on Mitchell Hill/McCormick properties.
- Work with appropriate agencies and stakeholders in creation of a forest management plan for Grand Ridge.

Resources

Background information in this plan was collected during a field assessment that included flagging a potential north/south trail corridor. A second source of information was the Environmental Impact Statement (EIS) for the original Grand Ridge development, completed in 1995 when “Grand Ridge” referred to the entire site, including the developed section now called Issaquah Highlands. The *McCormick/Hooker Forest Plan*, prepared in August of 1999 by King County resource professionals, also provided background data, as did the King County *Sensitive Areas Map Folio*. Three volunteer trail interest groups contributed to the inventory of existing trails. All other information was gathered through interagency cooperation, research, and field visits. Collectively this data forms the basis for resource management and public use information.

Figure 1

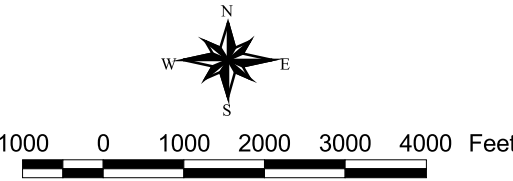
Grand Ridge Park Site Management Plan *Region / Location*



- King County Parks
- Canyon Creek Natural Area
- Cleveland Memorial Forest
- City of Issaquah - Central Park
- City of Issaquah
- City of Sammamish
- Issaquah Highlands Development
- Unincorporated King County

- Regional Trails
- Wildlife Habitat Corridors
- Highway
- Streets

- Hydrologic features:
- Marsh, wetland, swamp or bog
 - Lake or pond
 - Rivers, streams, tributaries



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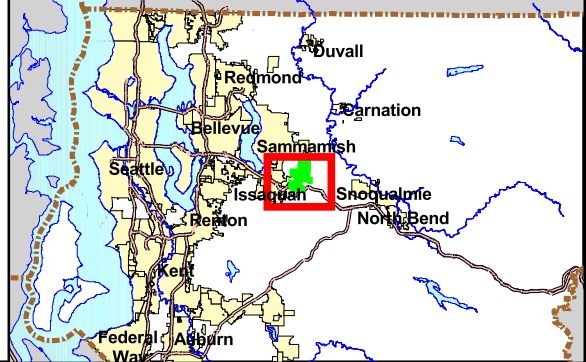
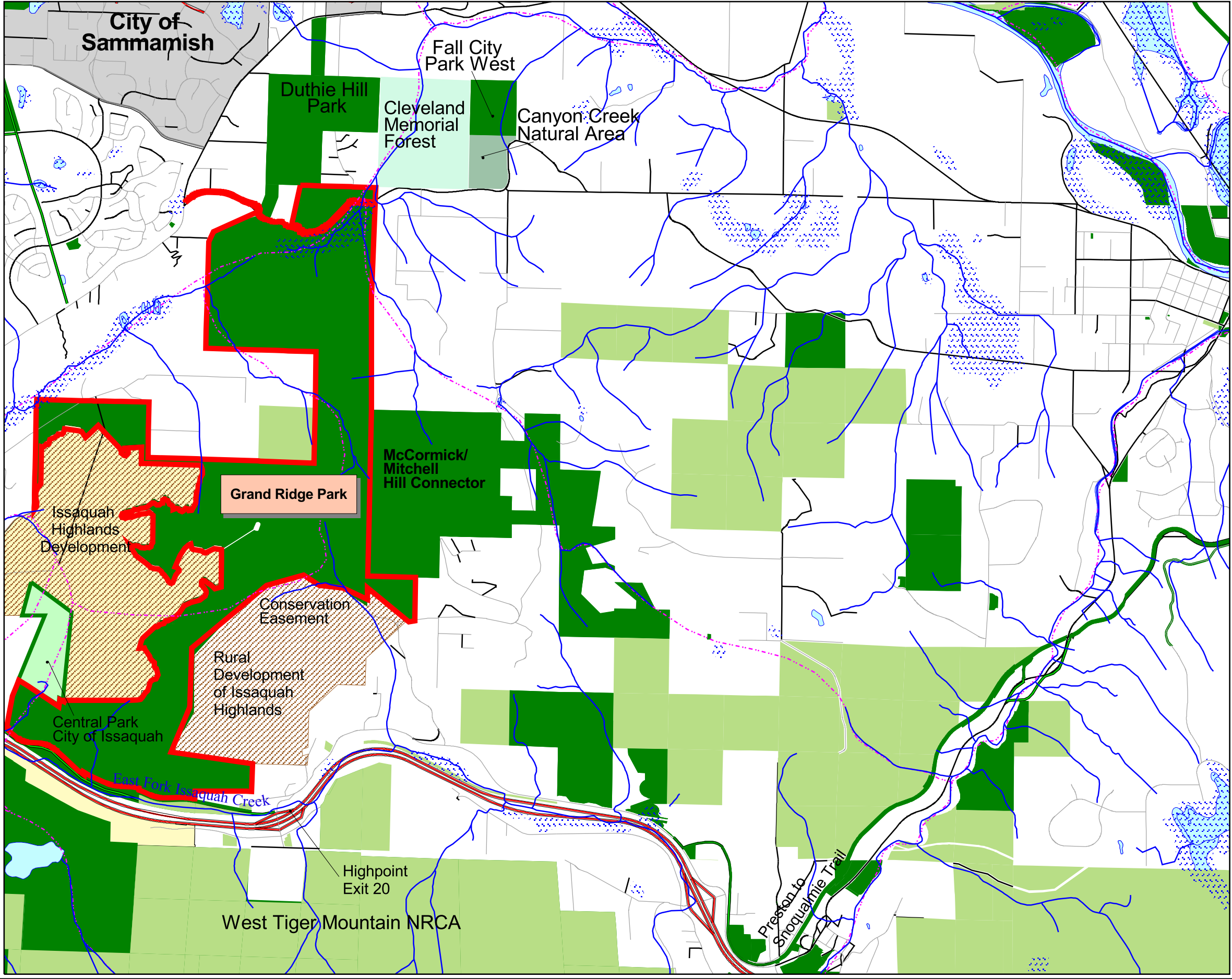


Figure 2

Grand Ridge Park Site Management Plan *Publicly Held Land*



- King County Ownership
- Washington State DNR Ownership
- Canyon Creek Natural Area
- Cleveland Memorial Forest
- City of Issaquah - Central Park
- City of Issaquah
- City of Sammamish
- Issaquah Highlands Development
- Unincorporated King County

- Regional Trails
- Wildlife Habitat Corridors
- Highway
- Streets

- Hydrologic features:
- Marsh, wetland, swamp or bog
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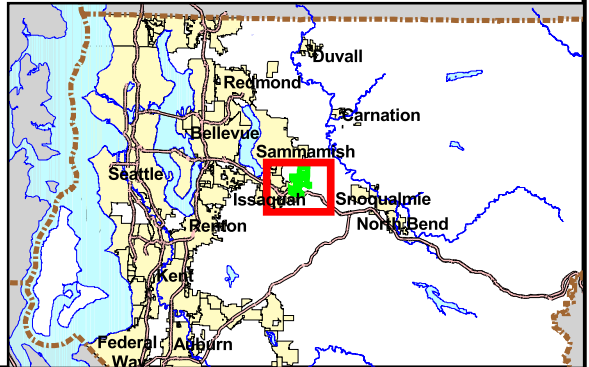
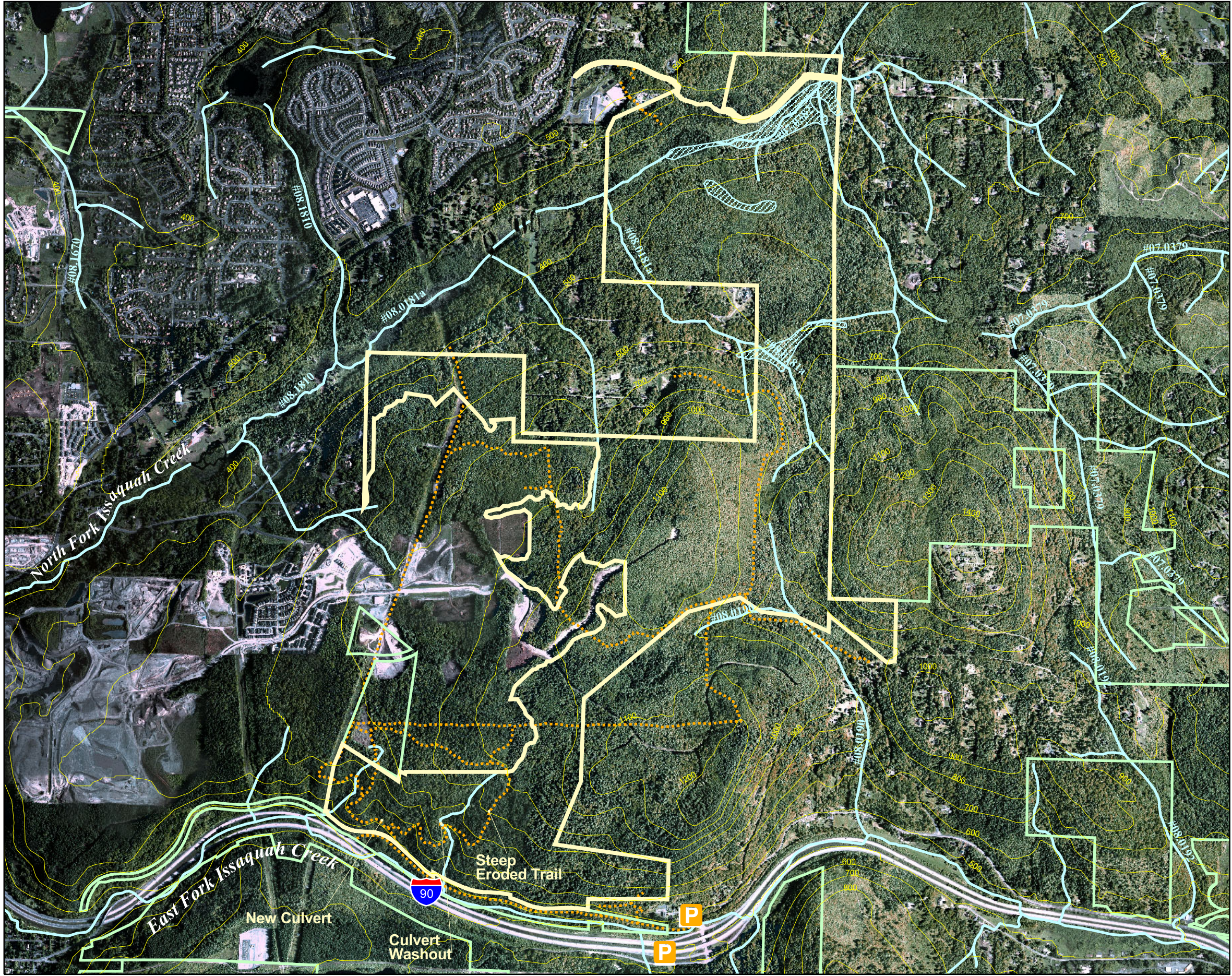
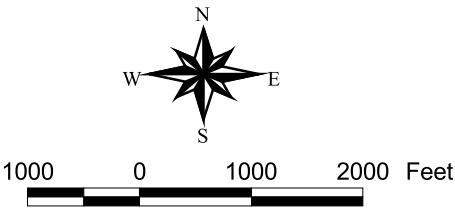


Figure 3

Grand Ridge Park Site Management Plan *Existing Conditions*



- Existing Parking
- Grand Ridge Park
- Other Public Lands
- Known Wetlands
- Existing Trails
- Streams
- 100 ft Contours








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Figure 4

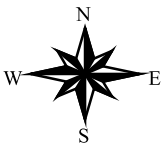
Grand Ridge Park Site Management Plan

Sensitive Areas

-  Existing Parking
-  Grand Ridge Park
-  Other Public Lands
-  100 ft Contours
-  Streams

*King County Sensitive Areas Ordinance
classifications:*

-  Wetlands
 Seismic hazard
 Landslide hazard
 Coalmine hazard
 Erosion hazard



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