Soos Creek Regional Park and Trail Site Management Guidelines

March 2013

King County Parks Your Big Backyard

King County

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King County Parks Your Big Backyard

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FIGURES

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Site Management Guidelines

Part 1. Executive Summary

Site Description

Soos Creek Regional Trail and Park ("Park" or "Soos Creek Park") is 770 acre regional "multiuse" park managed by the King County Parks and Recreation Division, Department of Natural Resources and Parks. The Park is comprised of over 80 tax parcels, ranging in size from less than half an acre to almost 65 acres and stretches about ten miles from Highway 169 (SE Renton Maple Valley Road) near the Cedar River adjacent to the City of Renton to the Lake Meridian area. Two other King County local multiuse parks—Boulevard Lane and Renton Parks are located adjacent to (west and north of respectively) Soos Creek Park and lie within the City of Renton. (See Appendix A, Map 1, Vicinity Map). The Soos Creek Park and other county park ownership in the vicinity serve as an "urban separator" between the Cities of Renton, Kent and Covington and urban incorporated King County (although some areas of the Park are located within those cities).

Soos Creek Park lies within two watersheds— the Cedar River Watershed (Lower Cedar River Basin) and the Green River Watershed (Soos Creek Basin). (See Appendix A, Maps 1 and 2 through 8). The Park lies within a stream, wetland, and floodplain corridor and has a number of important ecological attributes, including anadromous fish habitat, one of largest wetland systems in the county, a bog, and habitat for myriad wildlife species indigenous to the Pacific Northwest. Some of the fish species are listed by the federal Endangered Species Act, and habitat for many of the fish and wildlife species that use the park is protected by the County's Critical Areas Ordinance as Wildlife Habitat Conservation Areas.

About six miles of paved regional trail for non-motorized use is located within the Park from SE 192nd Street to Lake Meridian. A separate soft surface trail for equestrians exists along some portions of the trail (from just south of SE 208th to Lake Meridian). The trail traverses extensive riparian and wetlands on elevated decking and wanders through upland forests and open meadows contained within the Park. Future plans call for the trail to connect to Cedar River Regional Trail to the north and to the Green River Regional Trail to the south. Formal trailhead locations are located in four different areas along the trail. (See Appendix A, Maps 2 through 8 for locations of the parking lots). A connection to the unpaved nine mile-long Lake Youngs Trail can be made along the SE 216th Street corridor. .

In addition to parking, the Gary Grant Park portion of the Soos Creek Regional Park (located at SE 208th Street and 135th Avenue SE) provides picnic areas and shelters, restroom facilities, benches, play equipment and open play areas.

Acquisitions of properties that comprise the Soos Creek Park first occurred in the early 1970's primarily to create a connected band of local park sites to serve as a "greenbelt" of protected lands that could also provide recreation opportunities through a regional trail system. Acquisition of lands continues today facilitate the development of the Soos Creek Regional Trail system. allow for the conservation and restoration of fish and wildlife habitat and further buffer the urban growth boundary.

Management Objectives and Recommendations

Guidance Directing Management of Soos Creek Regional Park/Trail

The management goals for Soos Creek Park are driven by a number of different key strategic planning and policy documents including the 2012 King County Comprehensive Plan, the 2010 King County Open

Space Plan, the 2010 King County Strategic Plan and the Salmon Recovery Plans for WRIA 8 and 9. A summary of those various policies in included in Appendix E.

Management Goals for Soos Creek Regional Park/Trail:

- Conserve and enhance the site's ecological value,
- Expand and maintain the regional trail network for recreation and mobility by multiple non-motorized users and to increase connectivity to local trails and other open space sites.
- Retain county ownership and management of regional open space system assets.
- Accommodate and facilitate appropriate passive and minimal active recreation use while minimizing impact to ecological resources.
- Engage the pubic in planning, development and stewardship activities.
- To ensure mutual benefits, coordinate planning, acquisition and development with county and other agencies staff as well as other organizations and stakeholders.
- Employ adaptive management.

Objectives for Implementing Management Goals:

- Maintain ecological integrity of the site through the protection and restoration of natural processes, structure and functions.
- Provide for safe and enjoyable recreation opportunities that are compatible with the ecological value of site and are consistent with King County Park rules.
- Manage the site within the ecological and human context of the surrounding landscape.
- Collaborate with other jurisdictions, the community and other stakeholders in management of the site.

The objectives and recommendations in this section are derived from the analysis included in the text of this management plan and designed to support the Parks' management goals. These recommendations will be reviewed and revised within five to ten years, or more frequently as new land is acquired and when new information from site monitoring programs and other initiative indicates a need for a change in management strategies.

Management Recommendations

Based on the assessment and analysis of this park, a number of recommendations were developed. These recommendations pertain to protecting and enhancing natural resources; improving recreational and educational opportunities; data collection; and monitoring and maintaining the park. These are described in more detail in Part 6 of this document.

1. **Land/Resource Conservation.** Acquisition of properties and/or conservation easements on lands adjacent to or near the park should be pursued to maintain the ecological value and wildlife habitat function that the park provides as well as facilitate the expansion of the Regional Trail.

2. **Invasive Species Control.** Presence of invasive species within the park is a primary concern. The control or removal of larger infestations of non-native invasive species should be prioritized based upon their location: if they are in areas of greater sensitivity (e.g., hydric soils) or higher

ecological value (e.g., wetlands), they should be addressed before areas with lower site sensitivity (e.g., upland soils) or lower ecological value (e.g., highly disturbed roadside area).

3. **Native Mixed Species Plantings.** Restoration plantings should be conducted along with weed control and eradication projects as well as other restoration efforts. Examples of planting programs that would benefit the park include plantings in areas where non-native invasive species would preclude native shrub and tree regeneration (RCG infestations; Himalayan blackberry infestations), plantings of native shrubs in the BPA and other powerline corridors, and throughout the park in areas lacking in native vegetation.

4. **Climate Change Actions.** The King County Comprehensive Plan specifies that King County can increase resiliency and adapt to climate change through "Comprehensive approaches to conserving biodiversity that may make habitats more resilient to climate change impacts." The restoration efforts within Soos Creek Park should consider the potential impacts of climate change.

5. **Forest Stewardship.** A study is recommended to determine upland and riparian locations where natural forest regeneration is not occurring. Results from such a study would be used to identify and prioritize sites for vegetation under-planting to promote healthy forest structure.

6. **Soos Creek Stream Survey.** A stream survey of mainstem Soos Creek and major tributaries should be conducted to provide data describing habitat features, geomorphic and hydrologic processes, and other information to illustrate stream and wetland functions, as well as where processes are currently being hindered.

7. **Fish Surveys.** New anadromous fish spawner surveys should be conducted to identify the current distribution of steelhead, chinook, coho, and other salmonids in the Soos Creek system.

8. **Culvert Inspection.** To determine if replacement is necessary. the Lloyd Creek culverts at 140th Ave SE should be examined by a hydrologist and fish biologist.

9. **Bridge Inspection**. To reduce flooding over the road, replacement of the bridge where Soos Creek flows beneath 148th Ave SE (bridge #3108).is recommended.

10. **Trail Assessment/Abandonment**. Informal trails currently located at the north end of the park should be either developed appropriately or abandoned. Sections of the equestrian trail located within critical areas or their buffers should be studied to determine impacts and if rerouting or other improvements should be carried out. Older pedestrian trail segments within wetlands and built on fill that were permitted and constructed under less stringent code requirements should be examined to determine if reconstruction on pilings or other methods to restore the hydrology of the wetland system is warranted.

11. **Water Monitoring Program**. A water use and water level monitoring program should be established; additional water flow data should be gathered to provide more certainty about long-term flow trends in this basin.

12. **Amphibian egg mass surveys** are recommended in order to determine amphibian species currently present in the wetlands so that appropriate management recommendations regarding these species may be formulated.

13. **Bird Surveys.** Annual bird surveys should be conducted and used to track trends in bird use of this stream and wetland corridor.

14. **Bog Monitoring.** Monitoring the bog near the headwaters of Soos Creek to track the growth or loss of plant material over time is recommended. This information combined with thorough hydrologic information could help provide a better understanding of the effects of urbanization on this bog.

15. **Wetland Assessments.** Soos Creek and any associated wetlands should be examined upstream of park property to determine if any instream or wetland processes are being hindered for any reason.

16. **Encroachment Inspections.** Parks staff should conduct site visits and assess aerial photos of the park to determine if adjacent landowners are using Park land for private use without permission.

17. **Regional Designation.** Soos Creek Park/Trail site has been classified as a regional facility (regional park and regional trail) and should be retained by King County. The priority is to keep the park "intact" as managed as comprehensive unit to acknowledge importance of a consistent management vision and a landscape level approach to management.

18. **Regional Trail Development/Connectivity.** Continue efforts to achieve trail connectivity between the Soos Creek Trail and the various segments of the Regional Trail System in the vicinity (including but not limited to, the Cedar, Green-to-Cedar and Green River Regional Trails). Continue with trail use studies to determine type and level of use and assess the need for additional access points and parking to serve both park and trail users.

19. **Collaborate with the community, user groups, adjacent landowners and other stakeholders to manage of the Park.** Continue support of, and coordination with, the various stakeholder groups and the public at large to implement the site management guidelines' recommendations and in overall stewardship of the Park. Enhance and increase information available to the public about the Park.

20. **Maintain, manage and steward the Park according to the task list provided in Appendix G.**

Part 2. General Property Information

Size/Location

Soos Creek Regional Trail and Park ("Park") is comprised of over 80 tax parcels, ranging in size from less than half an acre to almost 65 acres and contains approximately 770 acres in total. The Park stretches

almost ten continuous miles from Highway 169 (SE Renton Maple Valley Road) near the Cedar River adjacent to the City of Renton to the Lake Meridian area within the Cities of Kent and Covington. Soos Creek Park lies within two watersheds— the Cedar River Watershed (Lower Cedar River Basin) and the Green River Watershed (Soos Creek Basin). (See Appendix A, Maps 1 and 2 through 8).

Two King County local multiuse parks—Boulevard Lane (30 acres) and Renton Park (19 acres) are located adjacent to (west and north of, respectively) Soos Creek Park within the City of Renton.

Facilities

Approximately six miles of King County owned paved surface regional trail for non-motorized use is located within the Park from SE 192nd Street to Lake Meridian. Although most of the trail meets ADA standards, there are some areas of steep grade. A separate soft surface trail for equestrians exists along some portions of the trail. On the north, the separate, dedicated equestrian trail begins at SE 216th Street (although some riders begin use of the trail just south of SE 208th Street). South of SE 224th Street the trail is located on the shoulder of the main paved trail, continuing for about ½ mile. Around SE 231st Street, the dedicated separated equestrian trail begins again and weaves in and out of the main trail corridor; it uses the shoulder to the regional trails' terminus at SE 266th Street in the Lake Meridian area. .

Formal trailhead locations are as follows:

- SE 192nd Street and 124th Avenue SE: Paved lot with parking for 15 vehicles (including one ADA) and two motorcycles, and sanican restroom facilities);
- SE 208th Street just east of 135th Avenue SE: Paved lot with parking for 40 vehicles (including 2 ADA). See also Gary Grant Park description below for description of other recreation amenities);
- SE 249th Street and 148th Avenue SE: Gravel lot with parking for about 30 vehicles, sanican restroom facilities and picnic tables. Depending on the number of other vehicles, about 4-5 horse trailers can be accommodated here.
- SE 266th Street & 148th Avenue SE: Paved lot with parking for 31 vehicles (including 4 ADA) and sanican restroom facilities. Depending on the number of other vehicles, about 1-3 horse trailers can be accommodated in this location.

(See Appendix A, Maps 2 through 8 for locations of the parking lots).

In addition to parking, the Gary Grant Park portion of the Soos Creek Regional Park (located at SE 208th Street and 135th Avenue SE) provides picnic areas and shelters, restroom facilities, benches, play equipment, viewpoints and open play areas. .

The Soos Creek Regional Trail traverses extensive riparian and wetlands on elevated decking and wanders through upland forests and open meadows. A connection to the unpaved nine mile-long Lake Youngs Trail can be made along the SE 216th Street corridor. Future plans call for the trail to connect to Cedar River Regional trail to the north and to the Green River Regional Trail to the south.

Zoning/Urban Separator

Lands surrounding Soos Creek Park are largely developed at urban densities; those to the west of the Park are more urbanized. The Park is located within three cities—Renton, Covington and Kent as well as within unincorporated King County, where most of the park parcels and the land surrounding it are within the Urban Growth Area (UGA) and zoning ranges from 1 to 24 dwelling units allowed per acre. All Rural lands within the Park are zoned RA-5, which allows one dwelling unit per 5 acres. (See

Appendix G, Zoning Parcel Table). Because the Park is located between cities and along the urban growth boundary it serves as an "urban separator".

Park Classification/Wildlife Habitat Network

Soos Creek Park is classified as a "regional" park; the King County Open Space Plan calls for parks that are large in size, have unique features, high ecological value, are important as part of a larger system and/or that are destinations for users from multiple jurisdictions to be classified as regional facilities. The Park is also considered a "multi-use"site; parks in this category have areas of environmental value, but also may accommodate extensive public access and active and/or passive recreation opportunities. (See Appendix E, Policies). A Comprehensive Plan designated Wildlife Habitat Network (WHN) is located within the Park (See Map 19 in Appendix A). These habitat networks are contiguous vegetated corridors that connect larger areas of wildlife habitat with critical areas and their buffers, priority habitats, trails, open space to facilitate wildlife movement, and to reduce habitat fragmentation and species isolation

Part 3. Acquisition Funding Sources and Deed Restrictions

Acquisition Summary

Acquisitions of properties that comprise the Soos Creek Park first occurred in the early 1970's primarily to create a connected band of local park sites that created open space to serve as a "greenbelt" of protected lands that could also provide recreation opportunities through a regional trail system. Acquisition of lands continues today primarily to facilitate the development of the regional trail system, allow for the conservation and restoration of fish and wildlife habitat and enhance the size and quality of the urban separator function. Appendix G contains a table that provides the best available information about funding sources used to acquire property within the Park. In addition, the following information provides an overview of the purpose and restrictions associated with those funding sources.

Real Estate Excise Tax (REET)

REET is levied on the sale of all real estate in unincorporated King County. Originally, REET funds could be used only for the acquisition of property and capital improvements for King County parks. In 2002, the law was changed to allow REET funds to be used for maintenance of Parks and Natural Lands as well. King County code 4.32.012 reads as follows:

> "There is hereby levied and there shall be collected by King County on each sale of real property situated in unincorporated King County an additional tax equal to one quarter of one percent of the selling price. The proceeds of the tax imposed by this section shall be credited to the real estate excise tax, number 2 fund and may only be used for the planning, construction, reconstruction, repair, rehabilitation or improvement of parks located in or providing a benefit and open to residents of the unincorporated area of King County".

Conservation Futures Tax Levy (CFT)

RCW 84.34.230 authorizes Washington counties to place a CFT levy on all taxable property within their jurisdiction to acquire open space land or rights to future development King County Code Section 26.12 addresses Conservation Futures. King County Ordinances stipulate that CFT funded property is restricted to passive-use recreation and excludes non-motorized use, except as is necessary for maintenance or staging areas, including entrance roads and parking to provide public access. A maximum of 15% of the total surface area of the proposed acquisition project area may be developed with non-vegetative impervious surfaces. Trail surfaces are not included in the calculation of this restriction."

Property acquired with this funding source cannot be transferred or conveyed unless it is continue to be used for the purposes contemplated by CFT or other equivalent lands/facilities are acquired as replacement lands.

Forward Thrust

Forward Thrust was a major King County works program with bond proposals encompassing transportation, community, housing, water issues, and other publicly financed capital improvements. In 1968, voters approved Proposition 6 for the purchase, creation and improvement of parks throughout King County. Resolution 34571 defined public park and recreation facilities as "any land, interest in land and facilities thereon within the County set aside for public park, recreational, greenbelt, arboretum, historic, scenic, viewpoint, aesthetic, ornamental or natural resource preservation purposes." The Resolution outlined how funds were allocated to specific projects. Property acquired with this funding source must continue to be used for the purposes contemplated by Resolution 34571 and may not be transferred or conveyed unless it is used for the purposes contemplated by Resolution 34571 or other equivalent lands/ facilities are acquired as replacement.

From 1970 to 1974 more than $2 million of Forward Thrust funding was spent acquiring about 400 acres of the Soos Creek Park/Trail. In addition, over the next several years over $3 million was allocated annually for construction.

King County Park Levy (Prop. 2, King County Ordinance 15760)

Properties acquired under Prop 2, must meet the definition of "open space" in RCW 84.34.020. Habitat preservation/salmon recovery, farmland preservation, forest preservation, urban/rural buffering, and passive recreation are among the legitimate permitted purposes on sites acquired with these funds.

1989 Open Space Bond

King County voters approved the Open Space Bond in 1989, as authorized by King County Ordinance 9071. Funds were intended for "the acquisition, development, renovation and improvement of public green spaces, green belts, open space, parks and trails." Specific goals included preserving wildlife, enhancing scenic vistas, providing access to water, provide open spaces in urban areas, and providing trail connections from cities to regional trails, and trails within suburban cities. This funding source prohibits both active recreation and motorized recreation and requires that the property may not be transferred or conveyed unless it is continued to be used for the same purpose or other equivalent lands and facilities are acquired.

Dedications and Donations

A few of the parcels within the Park were acquired through development dedications, county interdepartmental transfers and through the Transfer of Development Rights (TDR) Program. Through TDR, landowners are able to certify their land as "sending sites" and remove their property's development potential (development rights or DRs) and then transfer the DRs to another property or sell them to a third party. When the DRs are removed, a restrictive conservation easement is provided to the County, limiting future development. Some of the parcels within the Park were donated after the landowner removed the DRs by certifying the properties through TDR.

Part 4. Ecological Resources

Soos Creek Park occupies about 800 acres within a stream, wetland, and floodplain corridor nearly 10 miles long. The park has a number of important ecological attributes, including anadromous fish habitat, one of largest wetland systems in the county, a bog, and habitat for myriad wildlife species indigenous to the Pacific Northwest. Some of the fish species are listed by the federal Endangered Species Act, and

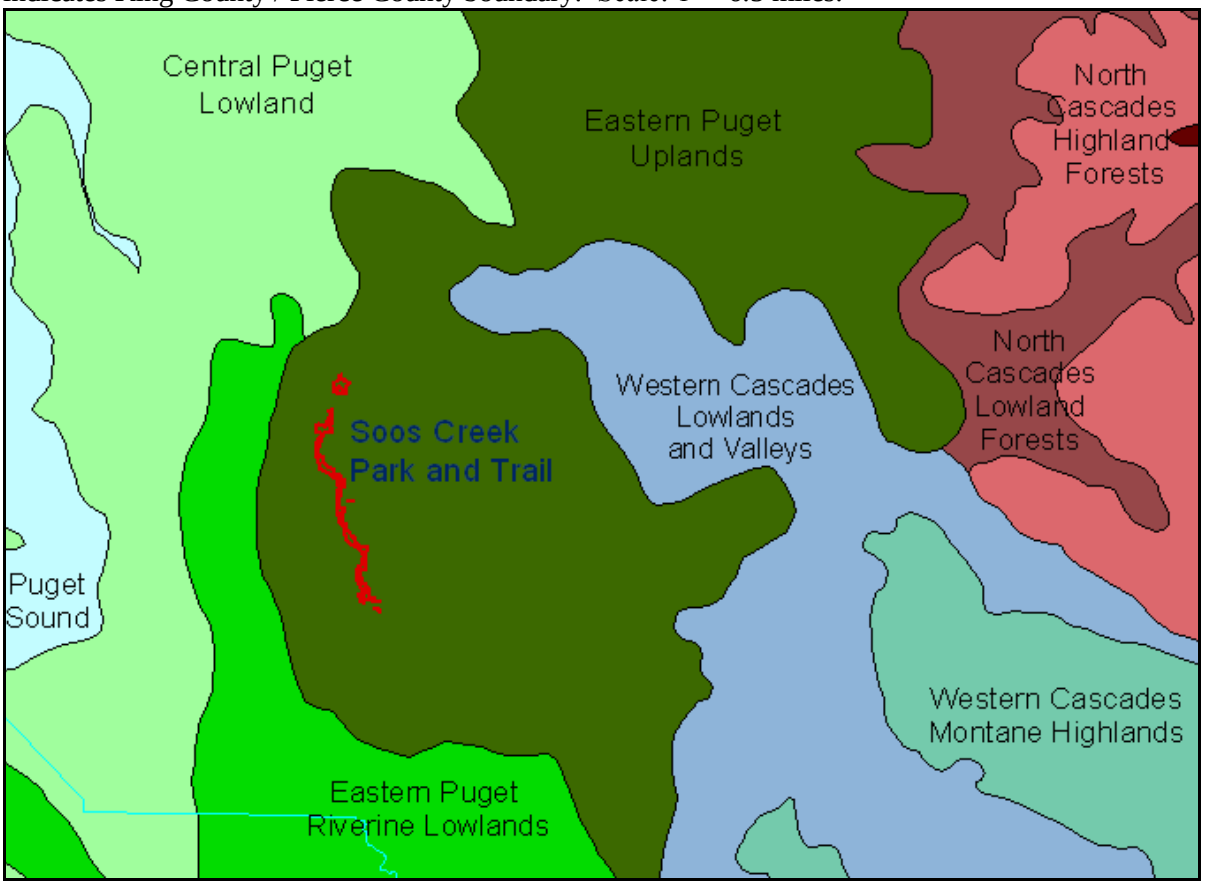
habitat for many of the fish and wildlife species that use the park is protected by the County's Critical Areas Ordinance as Wildlife Habitat Conservation Areas.

This section describes the natural resources and ecological processes present at Soos Creek Park. Analysis of this information is provided in Section 6. Field work was conducted in Spring 2009, and data obtained during field work are combined with current aerial images and soils and wetland data to provide information for this assessment. Field observations were mostly limited to those areas accessible by trails, bridge crossings, and roads. Additionally, much of the information presented in a prior ecological analysis (del Moral et al. 1974) is still relevant, and when appropriate, that information is included in the synopses presented below.

Ecoregion

The park is entirely within the Eastern Puget Uplands Ecoregion of the Puget Lowland Region[1] (Figure 1). This ecoregion was formed in large part by glaciers during the last ice age and is a zone of transition

Figure 1. Ecoregions in the vicinity of Soos Creek Park, which is indicated in red. Light blue line indicates King County / Pierce County boundary. Scale: 1"= 6.5 miles.



between Puget Lowland and Cascadian vegetation associations. The Soos Creek basin area is "covered by small ridges and rounded hills that were formed by continental glaciation" (King County 1986).

[1] Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources (Omernik 1995).

Topography, Soils, and Geologic Hazard Areas

Soos Creek Park ranges in elevation from 60 to 540 feet above sea level. The lowest elevations are found at the Cedar River at the north end of the park. The highest elevations are found at about the middle of the park in the hills that rise up on either side of the Soos Creek Valley. The park area is generally flat with low rolling hills as a result of glaciers repeatedly moving over and scraping the surface.

The soil types present in the Soos Creek Park area are dominated by Seattle Muck, Alderwood Gravelly Sandy Loam, Everett Gravelly Sandy Loam, and Norma Sandy Loam[2] (Table 1; Map 8 in Appendix A). Seattle Muck and the Norma Sandy Loam are considered hydric soils[3], as are other soils in the park (Table 1). Because hydric soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation, they are often associated with wetlands. And in fact, the majority of the stream corridor is composed of forested and emergent wetlands. Map 12A in Appendix A illustrates both soil types and which of the soils in the park and surrounding area are hydric.

Table 1. Predominant soil types present within the boundaries of the Soos Creek Park and Regional Trail. Urban areas and soil types present in less than an acre are not included.

soil type	acres	hydric?	Suitable for path?	Suitable for picnic area[T1]?
Seattle Muck	224.64	Yes	Very Limited	Very Limited
Alderwood Gravelly Sandy Loam	173.51	Most[T2]	Somewhat Limited if slope > 30%	Very Limited
Everett Gravelly Sandy Loam	129.24	No	Somewhat Limited if slope > 30%	Somewhat to Very Limited
Norma Sandy Loam	106.59	Yes	Very Limited	Very Limited
Bellingham Silt Loam	75.61	Yes	Very Limited	Very Limited
Alderwood – Kitsap	47.76	No	Very Limited (slope)	Very Limited
Shalcar Muck	11.97	Yes	Very Limited	Very Limited
Puyallup Fine Sandy Loam	9.19	Yes	Not Limited	Not Limited
Snohomish Silt Loam	8.70	Yes	Very Limited	Very Limited
Arents, Alderwood Material	5.48	No	Not Limited	Very Limited

[T1]"'Picnic areas' are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, Ksat, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, Ksat, and toxic substances in the soil." (NRCS Soils Catalog, Current)

[T2]118 acres out of the 174 are hydric. The difference depends on the slope: from 0 to 15 percent slope, these are hydric soils, but greater than 15 percent and they are not.

According to NRCS data, most soils in the area are not suitable for paths/trails or picnic areas either because they are hydric or because the slope is too steep (Table 1). Therefore, almost none of the park area is considered suitable for picnic areas. The only location that is considered suitable for picnic areas is

[2] The University of Washington, in cooperation with King County Roads Department (Archaeology), Natural Resources Conservation Service (NRCS), United States Geological Survey (USGS), Washington Department of Natural Resources (DNR), and the University of Washington Soils Lab (http://soilslab.cfr.washington.edu) developed a spatial database for soil in Western Washington counties; the data is available as Uuw_soils.shp in King County's GIS.

[3] Hydric soils are defined by the National Technical Committee for Hydric Soils of the NRCS as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Soil Survey Staff 1999). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation. It is the combination of hydric soil, hydrophytic vegetation, and hydrology properties that define wetlands as described in the National Food Security Act Manual (Soil Conservation Service 1994) and the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987).

near the mouth of Molasses Creek along the Cedar River (where a make-shift picnic area has been set up by locals).

Soils of differing type and slope vary in their suitability for different uses, based upon criteria such as slope, wetness, how sandy an area is, or how often it floods (see Table 1 for how suitability is defined in this context). Table 1 indicates whether the predominant soil types in the Soos Creek Park area are suitable for constructed paths/trails and picnic areas (not including camp areas), as well as whether the soil type is considered hydric. Map 9 in Appendix A illustrates the soil suitability throughout the park for trails.

King County regulates development on geologic hazard areas including landslide, seismic, and erosion hazard areas, all of which are based in part or fully on soils (see Map 10 in Appendix A). Landslide hazard areas include a variety of geologic features that together present hazards to development both above and below the landslide. Such hazards include slope failures, large-scale block failures, debris flows, rock falls, rapid undercutting by stream erosion or wave action, and snow avalanches. A landslide hazard area covers the northern-most property at the mouth of Molasses Creek and also a smaller area about mid-way through the Soos Creek portion of the park. Other landslide hazard areas are present intermittently on the periphery of Soos Creek Park along much of its length (Map 10A in Appendix A). Erosion hazard areas cover portions of the park that are steeply sloped – usually the outer edges of the park property.

Seismic hazard areas in King County are those areas where the foundation soils may be subject to liquefaction (loss of strength and bearing capacity) or lateral spreading during an earthquake. The seismic area corresponds quite well with the wetlands in the Soos Creek corridor and the upper end of Molasses Creek. This overlap of critical areas is logical, because it is the wetland soils that are susceptible to liquefaction and therefore doubly unsuitable for construction.

Erosion hazard areas are defined in the Critical Areas Ordinance to include those areas thought to be underlain by soils that are subject to severe erosion when exposed. These areas are mapped by King County and depicted on Map 10. Erosion is also a natural process in stream systems that, among other things, provide new spawning gravel for salmonids.

Hydrology and Vegetation

Soos Creek Park lies within parts of approximately 17 separate catchments[6] in 2 basins[6], which themselves are in 2 different watersheds[4] (Figure 2). The 2 basins are the Lower Cedar River basin within the Cedar River Watershed and the Soos Creek Basin within the Green River Watershed. In the Soos Creek Basin, over half the land is mapped as wetland. And similarly, of the 793 acres currently comprising the park, 370 acres are mapped as wetland[5] (Map11 in Appendix A).

Through much of the park, the riparian wetlands that comprise the Soos Creek corridor mirror the 100-year floodplain, a hazard area mapped in the CAO (see Title 21A.24.38 in the King County Critical Areas

Ordinance for more information on King County's regulated critical areas[6]). Additionally, approximately two-thirds of the park is within a critical aquifer recharge area, or CARA[7]. Areas susceptible to

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[4] *Watershed.* A major drainage system. The land area that drains water, sediment, and dissolved materials into a single body of water such as a river, lake, or estuary. Large watersheds may be composed of several basins.

Basin. The area of land that drains water, sediment, and dissolved materials to a common outlet such as a major stream or smaller lake or estuary. More than one basin can make up a watershed, and basins may be composed of smaller catchments.

Catchment. Smallest basin division in watershed hierarchy. The land area that drains small tributaries in most instances. Several catchments may make up a basin.

[5] Mapped by the National Wetland Inventory. Boundaries of wetlands not verified.

[6] http://www.kingcounty.gov/property/permits/codes/CAO.aspx

groundwater contamination (ASGWC) is one of several criteria that were used in mapping the CARA. ASGWC is a scientific assessment of three items – depth to water, geology, and soil type. CARA is King County code that applies only to unincorporated areas, whereas ASGWC is mapped for the entire county as areas ranked high, medium, or low. ASGWC is mapped along with other geologic hazard areas in Map 10, Appendix A.

The potential natural vegetation for this Eastern Puget Uplands Ecoregion is western hemlock, western redcedar, and some Douglas-fir. Under natural conditions, these are the species we would expect to dominate the upland forest. Of the 423 acres of the park mapped as upland, 140 acres are located in the Cedar Basin at the north end of the park.

In order to examine this area thoroughly and present the report's findings in an organized and understandable fashion, the discussion will be divided into the four groupings delineated in Table 2 below (corresponding map is displayed in Figure 3 and in Appendix, Map 13, Reach Groupings Overview). The groupings are arranged from north to south, and the discussions that follow will be in the same order.

Table 2. Soos Creek Trail Park map groupings.

Grouping Name	Location	acreage of park property
Molasses Creek	SE Renton-Maple Valley Rd to SE Petrovitsky Rd.	150
Soos Creek Headwaters	SE Petrovitsky Rd to SE 208th St.	240
Middle Soos Reach	SE 208th St to SE 240th St	183
Meridian Valley Reach	SE 240th St to Hwy 18	220

The discussion in this Hydrology and Vegetation section includes both hydrologic features as well as vegetation communities.

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[7] 21A.24.313 Critical aquifer recharge areas – categories. Critical aquifer recharge areas are categorized as follows:

A. Category I critical aquifer recharge areas include those mapped areas that King County has determined are:
   1. Highly susceptible to groundwater contamination and that are located within a sole source aquifer or a wellhead protection area; or
   2. In an area where hydrogeologic mapping or a numerical flow transport model in a Washington department of health approved wellhead protection plan demonstrate that the area is within the one year time of travel to a wellhead for a Group A water system;

B. Category II critical aquifer recharge areas include those mapped areas that King County has determined:
   1. Have a medium susceptibility to ground water contamination and are located in a sole source aquifer or a wellhead protection area; or
   2. Are highly susceptible to groundwater contamination and are not located in a sole source aquifer or wellhead protection area; and

C. Category III critical aquifer recharge areas include those mapped areas that King County has determined have low susceptibility to groundwater contamination and are located over an aquifer underlying an island that is surrounded by saltwater. (Ord. 16267 § 50, 2008: Ord. 15051 § 174, 2004).

Figure 2. Catchment and basin boundaries in the vicinity of Soos Creek Park.

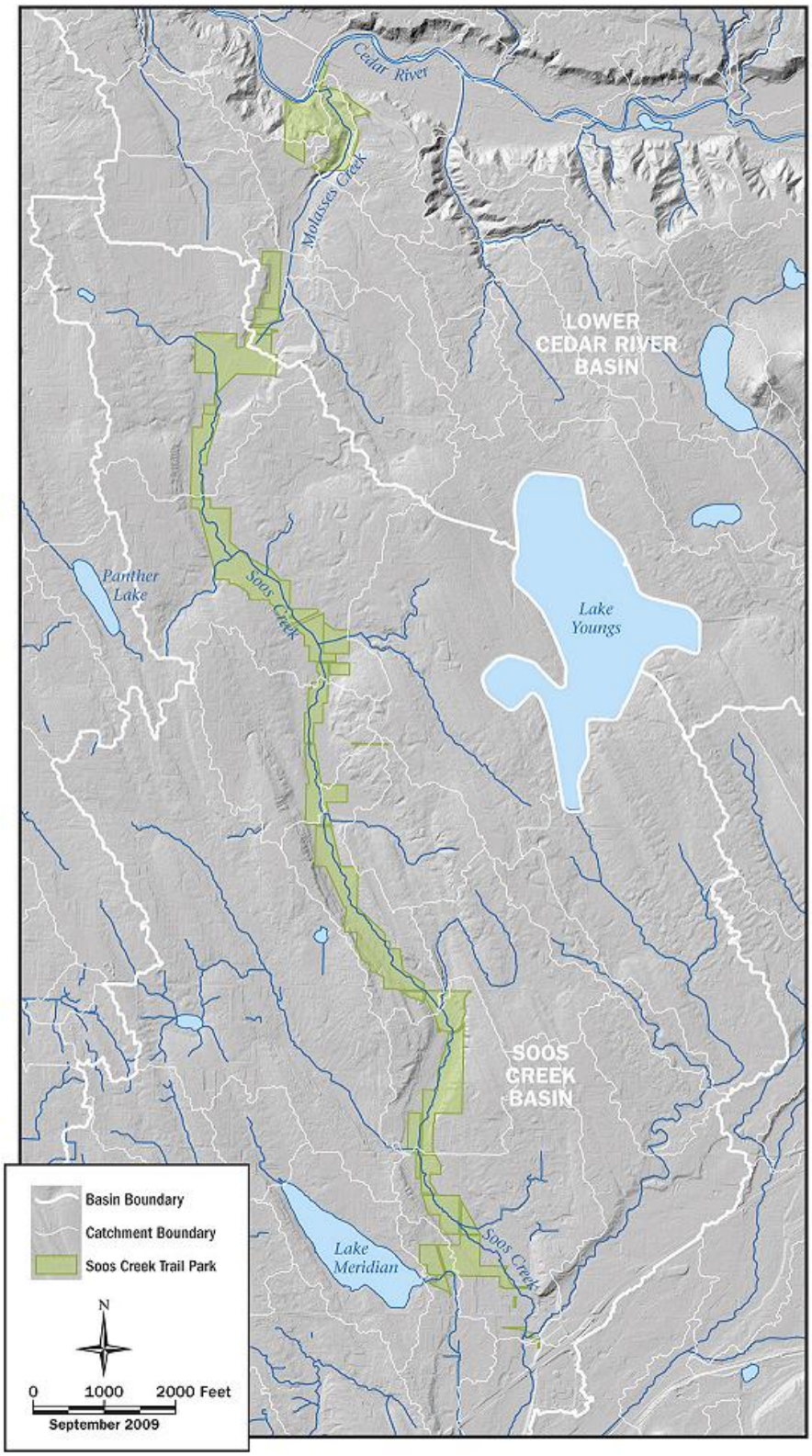
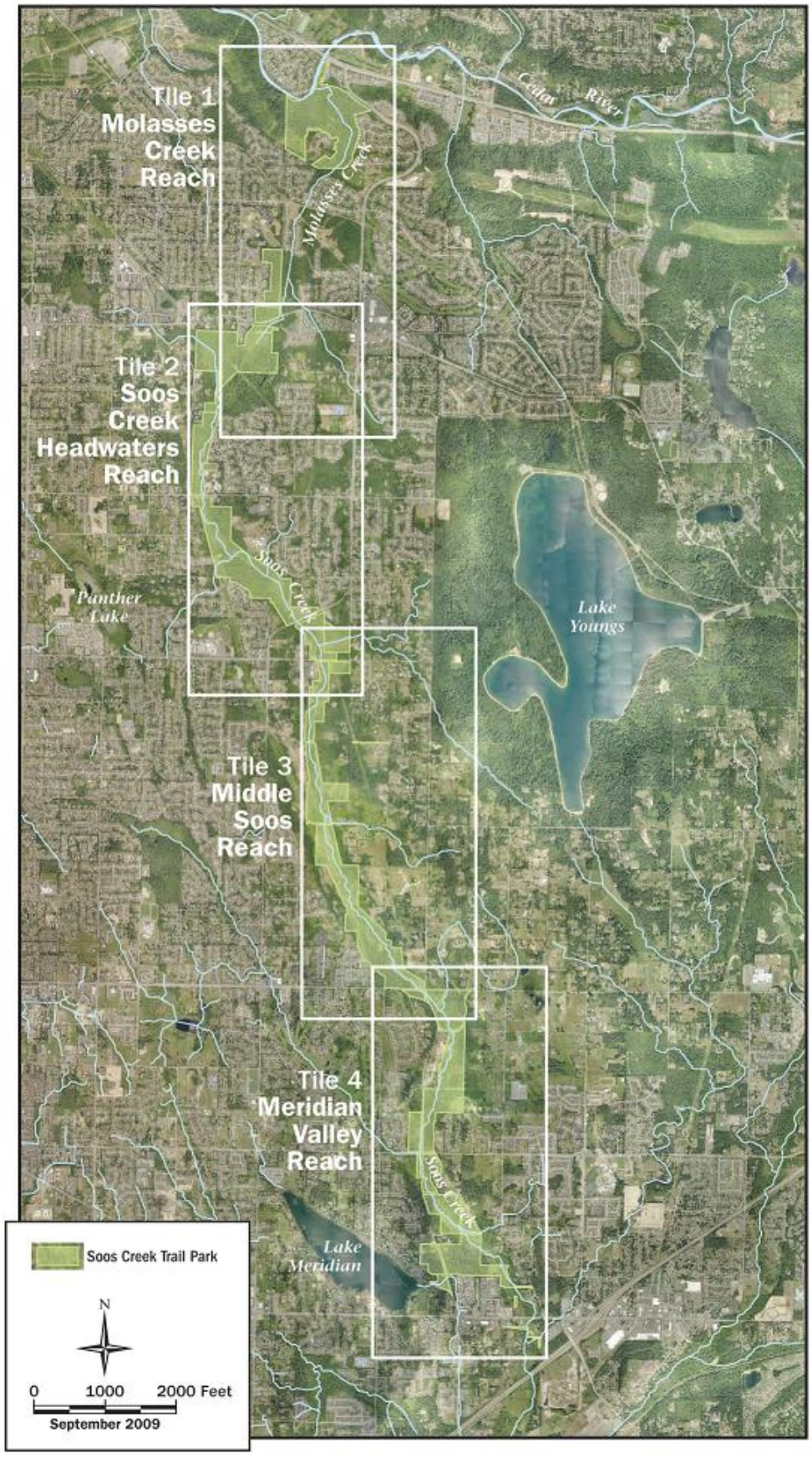


Figure 3. Groupings of properties comprising Soos Creek Park. These four groups are used to facilitate discussion in this report. (See also Map 13 in Appendix A).



Lower Cedar River Basin – Molasses Creek

The area of Soos Creek Park referred herein as "Molasses Creek" is at the north end of Soos Creek Park and lies within the Lower Cedar River Basin in the Cedar River Watershed (Figure 4). A tributary to Molasses Creek flows from the southern end of this basin in the park northward and meets Molasses Creek north of Petrovitsky Rd. Molasses Creek continues all the way to the Cedar River at the northern terminus of the park. Molasses Creek and its tributary are the only mapped streams present in this area of the park.

Within the Cedar River basin, properties comprising Soos Creek Park occupy parts of five catchments (Figure 3). Therefore, natural watershed processes as well as human impacts from five separate catchments, or sub-basins, may directly affect the park in this area.

The park topography is flat through the upstream properties in this section. Near the headwaters within park property, the Molasses Creek tributary flows at 400 feet in elevation and drops only 20 feet by the time it confluences with Molasses Creek north of Petrovitsky Rd. The headwaters of both Molasses Creek and its tributary, with their low gradients, comprise the majority of the wetlands associated with this stream system. Scrub-shrub and forested wetlands are located around the headwaters of the tributary. Willows and reed canarygrass are in the wetland on the south side of Petrovitsky Rd. They are surrounded by red alder and salmonberry. On the north side of the road, willows, western redcedar, red alder, elderberry, and vine maple are in the wetland and are surrounded by a big-leaf maple-mixed conifer forest. Snags and broken-top trees are present in the forested wetland.

Downstream of the confluence of the two streams, Molasses Creek runs through a green space in a development then is piped beneath City of Seattle property (Map 18). The creek eventually emerges from the underground piping to flow through private forested property about 2/10 of a mile upstream of park property. The creek enters a canyon at this location in the Highlands at Fairwood Development. It flows through a powerline corridor whose dominant vegetation is Scotch broom. Molasses Creek drops about 200 feet over the next half mile in the park, and then flattens out near the mouth to an elevation of 80 feet at its confluence with the Cedar River. The forest in this stretch of the park is a mixed conifer-hardwood and includes big-leaf maple, cottonwood, Douglas-fir, and western redcedar.

Shortly before Molasses Creek enters the Cedar River, it flows through culverts under two separate old roads. The larger of the two roads has a culvert with a diameter of approximately eight feet. The road is approximately 15-20 ft. above the culvert, over a large amount of fill that appears to be made of concrete blocks (See Figure 5). Some restoration planting has occurred here in the recent past, as evidenced by newly installed redcedars and dogwoods. The second road is currently a soft trail. The two culverts under this trail are old and made out of concrete. After the stream emerges from the culverts, it flows down a series of steps before it reaches the Cedar River (Figure 6). Old river facilities (levee riprap) line the bank of the Cedar in this location (Map 18).

The one other large non-wetland riparian area in all of Soos Creek Park is the riparian zone along the Cedar River, also in the northern-most property. Red alder, bigleaf maple, and western redcedar are the dominant tree species. As mentioned, the majority of the land in this property is protected by a levee along the Cedar River. The levee was originally installed here to attempt to stop landslides. Landslides have occurred in the past, as evidenced by the bare walls of mud where large chunks of land have fallen away. The flat area at the base of these steep walls is forested in young red alder and salmonberry – the type of vegetation that tends to regrow in areas disturbed by events such as landslides. The riprap that forms the old levee has invasive knotweed growing from it. An informal walking trail runs alongside the river through this corridor.

Figure 4. The Molasses Creek portion of Soos Creek Park, including notable features. (See also Map 14 in Appendix A).

Several stormwater facilities are in this basin in the vicinity of park property, including one pond that is in the development that is surrounded by the northern-most property.

Coho are known to spawn in Molasses Creek to approximately SE Fairwood Blvd., which corresponds roughly to where the creek is piped beneath the surface. Sockeye also spawn in this creek, though they are unable to make it very far upstream because of the increasingly steep gradient; they are reported to be present up to about RM 0.3, to an elevation of 165 ft. Resident cutthroat use Molasses Creek past Petrovitsky Rd., but are not known to occur in the smaller headwater tributary that runs through park property.

Figure 5. Culvert and fill above Molasses Creek, near confluence with Cedar River.

Figure 6. Molasses Creek just above its confluence with the Cedar River. These steps, or weirs, were installed prior to County ownership.

Soos Creek Basin

South of Molasses Creek and the Lower Cedar River Basin, the remainder of Soos Creek Park lies within the Soos Creek Basin. The Soos Creek Basin is located in Water Resource Inventory 9 (WRIA 9) and drains into the Middle Green River at River Mile 33.7. The basin covers an area of approximately 70 square miles and is located southeast of Renton and east of Kent. There are 25 tributaries to Soos Creek totaling over 60 linear miles. The four main tributaries to Soos Creek are Covington Creek, Jenkins Creek, Little Soos Creek, and Soosette Creek; of these tributaries, only Little Soos Creek flows through Soos Creek Park (and this at its very southern tip). Lakes that are part of this drainage system have a combined surface acreage of roughly 1,370 acres and include Lake Youngs (a domestic water supply for the City of Seattle), Shadow Lake, Lake Meridian, Lake Sawyer, and Morton, Pipe/Lucerne, and Wilderness lakes.[8]

Soos Creek flows for 15 miles from its headwaters to its mouth, and approximately 8.4 miles are within Soos Creek Park. Its elevation at the headwaters is 400 feet above mean sea level, and the elevation at northern end of park property, east and downstream of the headwaters by about 6/10 of a mile, is 380 feet. Little Soos Creek, at the southern terminus of the park, enters Soos Creek at approximately RM 6.6, where the stream elevation is 300 feet. Therefore, this stream system has a very low gradient, which drops only 100 feet over the 8.4 miles in the park. This gradient equates to a 0.00225 percent slope, which is nearly flat. This nearly flat gradient forms a long wetland corridor, which is present throughout the park along Soos Creek. Nearly the entire riparian corridor along Soos Creek within the park is forested, scrub-

[8] Information in this paragraph obtained from this web page: http://green.kingcounty.gov/wlr/waterres/streamsdata/watershedinfo.aspx?locator=A320

shrub, or emergent wetland. Wetlands comprise approximately 56 percent of the park in this basin. The wetlands generally correspond to the floodplain, which also encompasses hydric soils in the area. Upland areas are present along the periphery of the Soos Creek stream/wetland corridor within park boundaries. According to a 1974 ecological analysis of the park area, "Waterflow increases tenfold from north to south due to additional inflows from feeder creeks and springs" (del Moral et al. 1974).

The area surrounding Soos Creek Park is largely urbanized, especially on the west side of the park corridor. The land surrounding the park is mostly within the Urban Growth Area. Zoning here is R-4, R-6, R-18, and R-24 (4, 6, 18, or 24 dwelling units allowed per acre, respectively). Loss of wetlands to fill and development, especially in the headwater tributary areas of the basin, has been identified as a problem in this basin (King County 1990).

A report entitled *Ecological Survey and Analysis* by del Moral et al. (1974) includes information on plant communities that was compiled from a rigorous field protocol. It's been 35 years since the report was written, and the information remains applicable:

> The site is a complex of heavily disturbed, moderately disturbed, chronically disturbed, and recovering vegetation. This is evidenced by the following statistics. Of the 113 taxa recognized at least 39 are non-natives and several more are natives characteristic of disturbed places.

The remainder of this section describes hydrologic features and vegetation communities in the three reaches of Soos Creek.

Soos Creek Headwaters

The area of Soos Creek Park referred to herein as "Soos Creek Headwaters" (Figure 7) includes the northern-most reach of Soos Creek that is within park property. General trends reported in the 1990 Soos Creek Basin Plan (King County 1990) are presumed to still be applicable and include higher flows in the more densely developed, western parts of the basin. Flows in the Soos Creek Headwaters are attenuated by the wetlands along the Soos Creek corridor.

Soos Creek originates in a wetland located in an urbanized area approximately 0.64 RM to the northwest of the park. The northern-most park parcel in the Soos Creek basin contains the only sphagnum peat bog in the park. The Labrador tea / Douglas spirea dominated bog is discussed at length below. The forested wetland surrounding the bog is primarily composed of willow species and spirea. A road leads into this property from SE 182nd St. to a powerline tower and powerline right-of-way. A red-tailed hawk nest sits at the top of the tower. East of the tower, upland forest includes stands of Douglas-fir and stands of western redcedar.

The creek flows south beneath SE 192nd St. The northern terminus of the Soos Creek trail is in this reach and is located at SE 192nd St. The trail is raised on pilings (Figure 8), as it is surrounded by wetland. Much of the wetland in this location is covered in reed canarygrass. Willow and cottonwood are growing at the periphery of the reed canarygrass.

Figure 7 . Soos Creek Headwaters reach. (See also Map 15 in Appendix A).

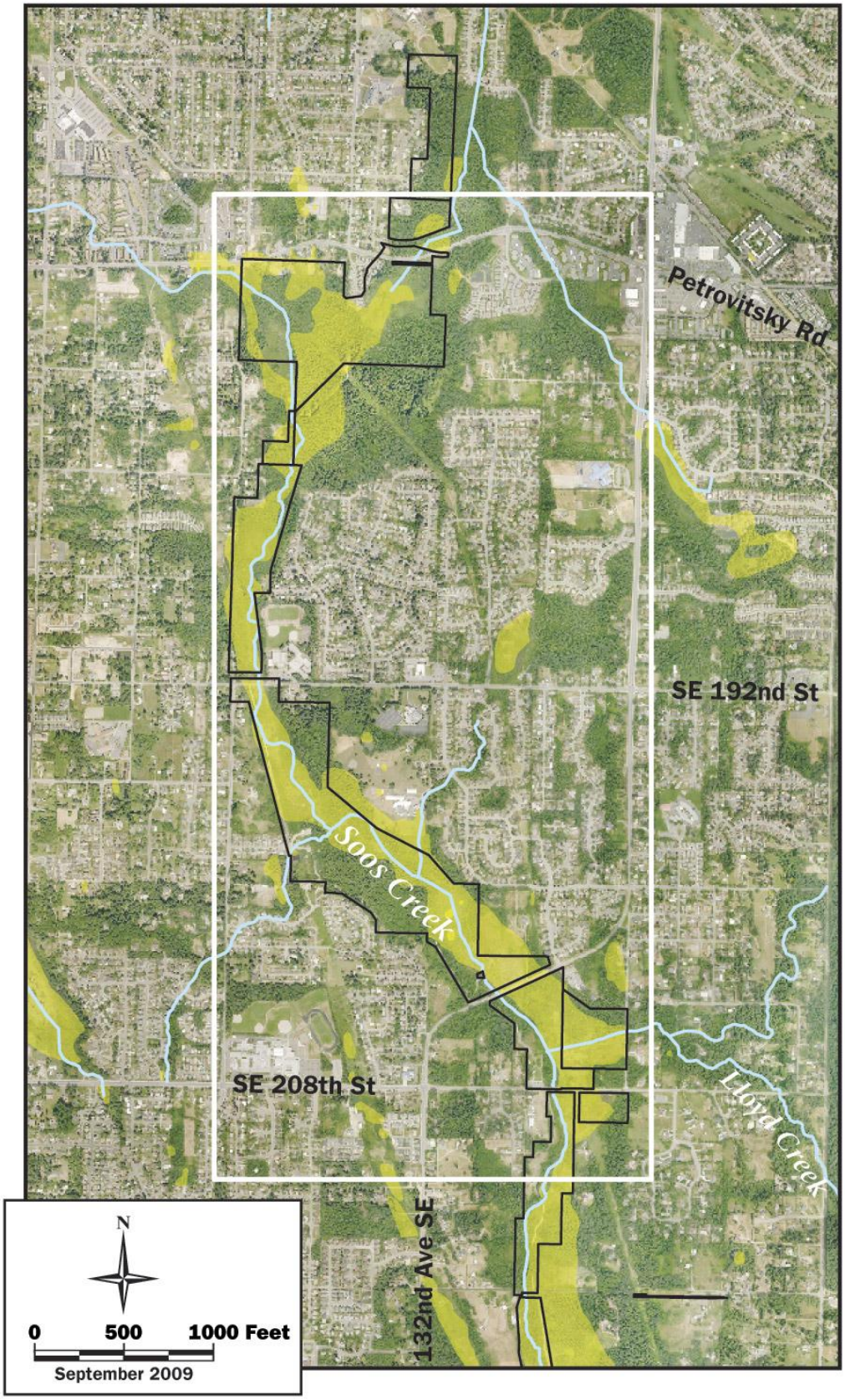


Figure 8. Newer portions of Soos Creek trail that are constructed in wetlands are built on pilings so the trail does not disrupt the natural hydrology in the wetland.

Unnamed tributary #090097 flows from the west and meets Soos Creek inside park property in willow-dominated forested wetland. Before this tributary enters the park boundary, it flows through a small wetland system that includes a forest/scrub-shrub wetland with a large amount of large down wood and a small open water pond (Figure 9). The pond abuts the trail, and yellow-flag iris, an invasive species, were seen in this pond. This area is within another powerline right-of-way, and the power lines pass directly over the open water pond and adjacent area.

As the trail moves south, it parallels the park boundary in this area, and housing developments are immediately outside the park boundary to the southwest. This forested trail location is not mapped as wetland by National Wetland Inventory; however, it does appear to be wetland based upon vegetation present, including skunk cabbage and sedges. Soos Creek flows down through a forest/scrub-shrub wetland rich in large down wood from red alder, including both logs and snags (Figure 10). The wetland in this area features open water areas and channels. Emergent vegetation including cattails and skunk cabbage are present, as is reed canarygrass along the roadside.

Soos Creek passes under SE 204th Way and the creek and trail enter upland forest. A parking lot and trailhead are located just south of here at SE 208th St. The park property in this location has facilities including restrooms and picnic areas, as well as a small pier that overlooks the creek. Some restoration planting has occurred in this area of the park; however, most of this trailhead and picnic area are mowed and maintained for active recreational use.

Figure 9. Yellow-flag iris is mixed in with cattails in this open-water pond near the Soos Creek Trail.

Figure 10. This forested wetland located north of SE 204th Way has a large amount of alder snags and logs. Reed canarygrass also grows in this wetland.

Lloyd Creek enters Soos Creek between SE 208th St. and SE 204th Way. The area around the mouth of Lloyd Creek is wet meadow/old pasture. A dense thicket of blackberries separates the wet meadow from alder stands north and south of the creek. Further upstream, two culverts are in place beneath 140th Ave SE which are intended to pass Lloyd Creek. However, one of the two culverts is entirely filled with sediment (Figure 11). Garbage, including old tires and a refrigerator, has been dumped in the stream downstream of the crossing, in park property. This road demarcates park property. Lloyd Creek and a tributary flow through a forested buffer just upstream of 140th Ave SE, and beyond that, the creek has its headwaters in the protected forested area around Lake Youngs.

King County (1990) indicated a water quality alert area in the vicinity of the confluence of Lloyd Creek with Soos Creek. "Surface water quality in areas with pervious soils and shallow groundwater…could be threatened if onsite septic systems are sited too near streams and wetlands" (King County 1990). This area of shallow groundwater in proximity to streams or riparian wetlands with coarse-grained soil is located between SE 204th Way and SE 208th St. (see Map 18).

Figure 11. Lloyd Creek at 140th Ave SE; left culvert is completely filled with sediment.

Sphagnum Bog

The sphagnum bog, which is approximately 16 acres, is a significant ecological feature and one of the most sensitive habitat areas in the park. Because it is located near the headwaters, a relatively small part of the basin drains to it. However, the area that does drain into it is developed. Therefore, chemicals from roads and yards could be draining into the bog. The catchment containing the bog is approximately 1,061 acres, and of that area, about 600 acres drain to the wetland containing the bog.

The Sensitive Areas Ordinance Wetlands Folio calls this bog a unique and outstanding wetland[9]. The wetland complex that includes the sphagnum bog and southwards along the Soos Creek corridor are identified by the Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species Information System as Soos Creek wetlands priority habitat. The sphagnum peat bog is the most sensitive habitat type in the park area. Sphagnum moss wetlands are unique plant communities composed of up to 25 feet or more of acidic peat deposits that build up over very long periods of time (hundreds to thousands of years). The physical and chemical characteristics of bogs result in plant and animal communities that demonstrate special adaptations to low nutrient levels, waterlogged conditions, and acidic waters. In King County (and across the Pacific Northwest) bogs are rare vegetation communities and of limited distribution and are very susceptible to impacts from development. Changes in hydrologic flow, water pollutants, and sediment deposition, as well as physical damage from foot traffic, can cause alterations to a bog to the extent that it may change into another more common plant community, such as a scrub-shrub spirea-dominated wetland.

The bog was surveyed in 1981 as part of the King County Wetlands Inventory (King County 1991), and it was revisited again in 1997 as part of the King County Bog Inventory (King County 2002). In 1981, the surveyors noted that the "bog area is drying up." When the bog was visited 16 years later in 1997, the general condition of the sphagnum was described thusly: "areas are lush, thick, healthy; some areas only OK," and the water table was described as being high and the "sphagnum watery." They went on to note that "At the time of the site visit, the southern portion of the bog was inundated with sheet flow while the northern portion was above the flood water elevation" and this northern portion was "fairly dry without standing water." Very likely, the level of water in the bog fluctuates annually and seasonally. And in fact, the National Wetlands Inventory identifies this bog as a palustrine scrub-shrub wetland, seasonally flooded. Although sphagnum bogs are able to withstand some water level fluctuations (Kulzer et al. 2001), extreme or recurring fluctuations will increase decomposition rates and thereby alter the water chemistry and potentially kill the sphagnum.

The present set of circumstances continues to support the sphagnum moss community (Figure 11), and it is unknown whether the live sphagnum mat is decreasing or increasing. The 1997 King County Bog Inventory noted "no significant changes" in vegetation communities from a 1981 survey to a 1997 survey. It is uncertain how extensive their investigation was and whether it would document changes that were not grossly apparent. They did categorize the bog mat as "healthy," and it may be assumed that if no parts of the mat were observed dead or dying, that the mat is continuing to thrive. A comparison of 1936 and 2009 aerial photos seems to indicate the Labrador tea / Sphagnum moss area is shrinking, and more shrubs and trees are moving in.

The dominant shrub species present is Labrador tea. Bog laurel, spirea, and are also present. Herb species include bracken fern and sedges. These species grow on top of a layer of living sphagnum moss as well as non-sphagnum mosses. Some crabapple trees grow around the periphery of the bog with a few in the middle. One Sitka spruce is present as well as some cascara. Western hemlock and Sitka spruce are also growing throughout much of the bog area to the north of the lake. No open water component is present at the bog site, and neither 1936 photos nor historic USGS quadrangle maps indicate the presence of open water. The bog transitions briefly to shrub-scrub wetland at its periphery then quickly transitions to forested wetlands beyond the shrub component.

[9] SAO Wetland rating of 1A/B/C/D, where 1 = Unique/outstanding wetland; A = Presence of species recognized by the federal government or State of Washington as endangered, threatened, or sensitive or outstanding potential habitat for those species; B = Wetlands with a near equal proportion of open water to vegetative cover in dispersed patches in combination with a high diversity or mix of wetland subclasses; C = Wetlands greater than 10 acres in size and having 3 or more wetland classes, one of which is open water; D = The presence of plant associations of infrequent occurrence. These include estuaries and bogs.

Figure 12. Sphagnum moss in the bog near the headwaters.

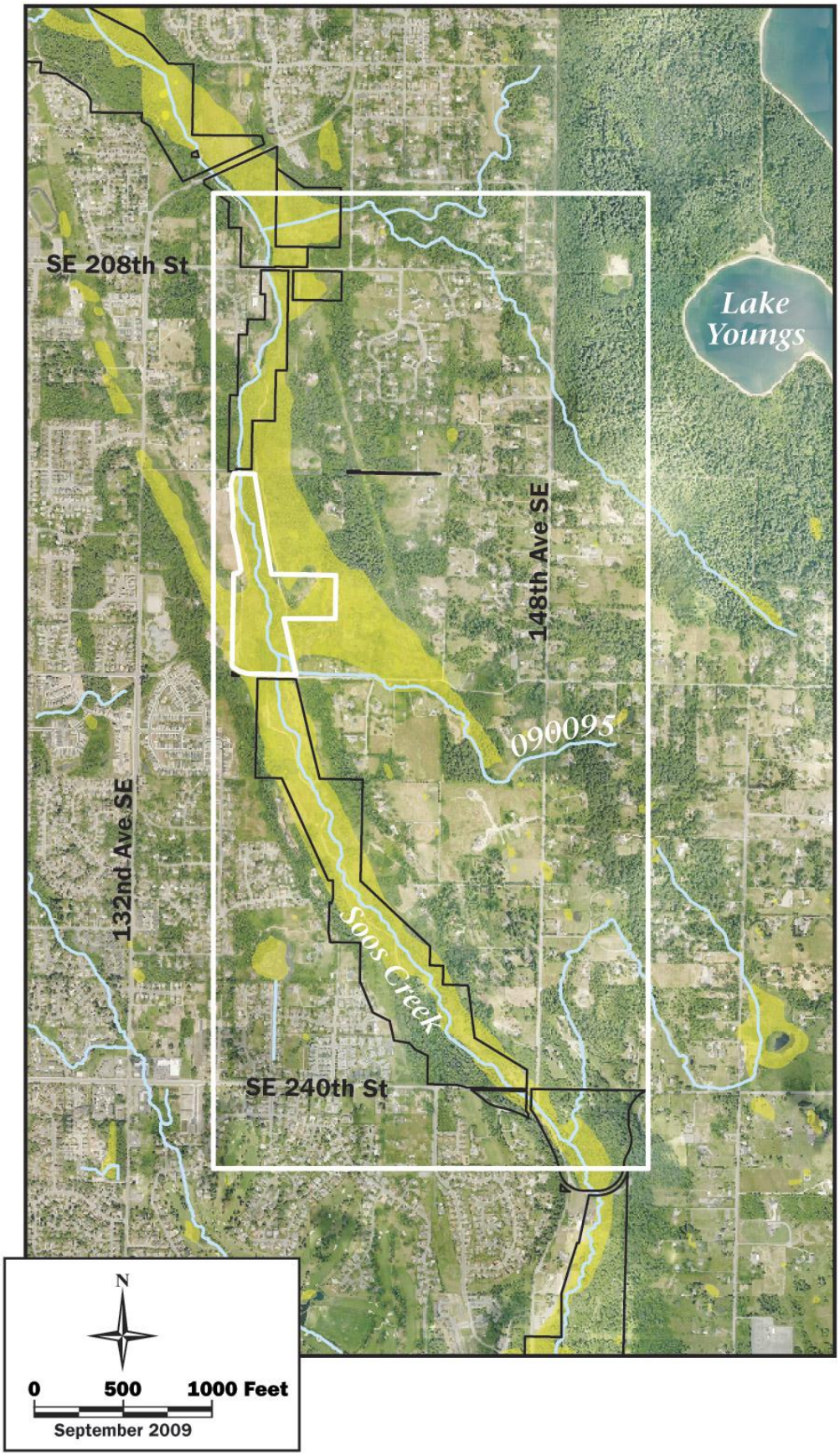
Middle Soos Reach

The area of Soos Creek Park flowing between SE 208th St. down to SE 240th St is referred to herein as the "Middle Soos Reach" (Figure 13). Only one unnamed tributary (#090095) enters the park in this reach; it enters Soos Creek from the east at SE 224th St.

After crossing beneath SE 208th St., Soos Creek enters an area with both a red alder-dominated forest and old wet pasture. The pasture, which lies to the east of the stream, has been planted with spruce trees, and also has reed canarygrass, cattails, skunk cabbage, and rushes. As the trail moves south, it enters an upland area near a privately held horse farm. Within the park, there are horse tie-ups and parts of the equestrian trail begin here in an area that is mowed and free of trees and shrubs. The creek crosses beneath the trail just south of the horse tie-up area. Vegetation in the wetland at this location is predominantly spirea, and reed canarygrass is also present at the crossing. The spirea forms a large field south of the crossing, and skunk cabbage is densely present in one area as well. Beyond the spirea, forested wetland on the west side of the trail includes large willow, red alder, red osier dogwood, and cottonwoods. Large down wood is present in the creek here at the crossing and north of SE 216th St.

South of SE 216th St., Soos Creek flows through willow forest between an equestrian trail to the west and the pedestrian trail to the east. Large patches of spirea grow along the pedestrian trail alternating with patches of willow.

Figure 13. Middle Soos Reach. (See also Map16 in Appendix A).



Unnamed tributary #090097 enters Soos Creek just north of SE 224th St. and west of the pedestrian trail in a very wet area. Northwestern salamander egg masses were observed in this part of the wetland, as well as small unidentified salmonids. East of the trail, reed canarygrass covers the ground, and some bird nesting boxes and bat roosting boxes have been installed (Figure 14).

South of SE 224th St., the stream enters an emergent wetland with cattails, rushes, and grasses growing, as well as snowberry and some reed canarygrass. The Bonneville powerline corridor traverses this area again directly west of the stream corridor and encompasses the trail. Consequently, the vegetation along this segment of the trail is quite disturbed and includes a high proportion of non-native plants such as Himalayan blackberry and non-native roses. Both the pedestrian/bike trail and the equestrian trail weave along this entire reach area, often crossing the stream-wetland complex, and other times running north-south through the wetlands and upland areas (Map 9 in Appendix A).

Figure 14. Bat boxes in reed canarygrass wetland near confluence of unnamed tributary 090097 and Soos Creek.

The stream/wetland corridor just west of 148th Ave SE is another forested/scrub-shrub wetland with large amounts of red alder and red alder large down wood. Douglas spirea, salmonberry, and skunk cabbage are also growing in this wetland located at the very bottom of the Middle Soos Reach.

General trends reported in the Soos Creek Basin Plan (King County 1990) are presumed to still be applicable and include higher flows in the more densely developed, western parts of the basin. As with the Soos Creek Headwaters reach, flows in the Middle Soos reach are attenuated by the wetlands along the Soos Creek corridor. Additionally, the Basin Plan reports relatively few erosion problems in the Soos Creek Basin, especially relative to its size: "Problems that the basin does have typically reflect recent hydrologic changes that have increased the amount of water or sediment (or both) in the streams, amplifying the rate or the intensity of natural river processes." However, a sedimentation problem was

identified in the Basin Plan in the channel of Soos Creek between RM 7.2 and 10.4 (between approximately SE 216th St. and SE 264th St.; see Map 18). This length of the reach corresponds to SE 216th St. downstream to approximately SE 264th Street. It is unknown how significant this problem is, as no other references to it have been found in more recent site conditions reports.

Meridian Valley Reach

The area of Soos Creek Park referred to herein as the "Meridian Valley Reach" (Figure 15) comprises the southern-most portion of the park and includes the park from SE 240th St. downstream to State Route 18. One unnamed tributary (#090094) flows through large sweeping meanders before it confluences with Soos Creek on its left bank south of SE 240th St. Meridian Valley Creek enters Soos Creek from the west immediately south of SE 256th St. A second unnamed tributary enters from the east after flowing through a residential area and crossing 156th Ave SE near SE 263rd Pl. A tributary draining from Lake Meridian to Soos Creek crosses a small portion of the park in the southwest corner, but it does not meet Soos Creek till far south of park property. Little Soos Creek joins (Big) Soos Creek between SE 272nd St. and State Route 18. The confluence is directly south of the park on private property.

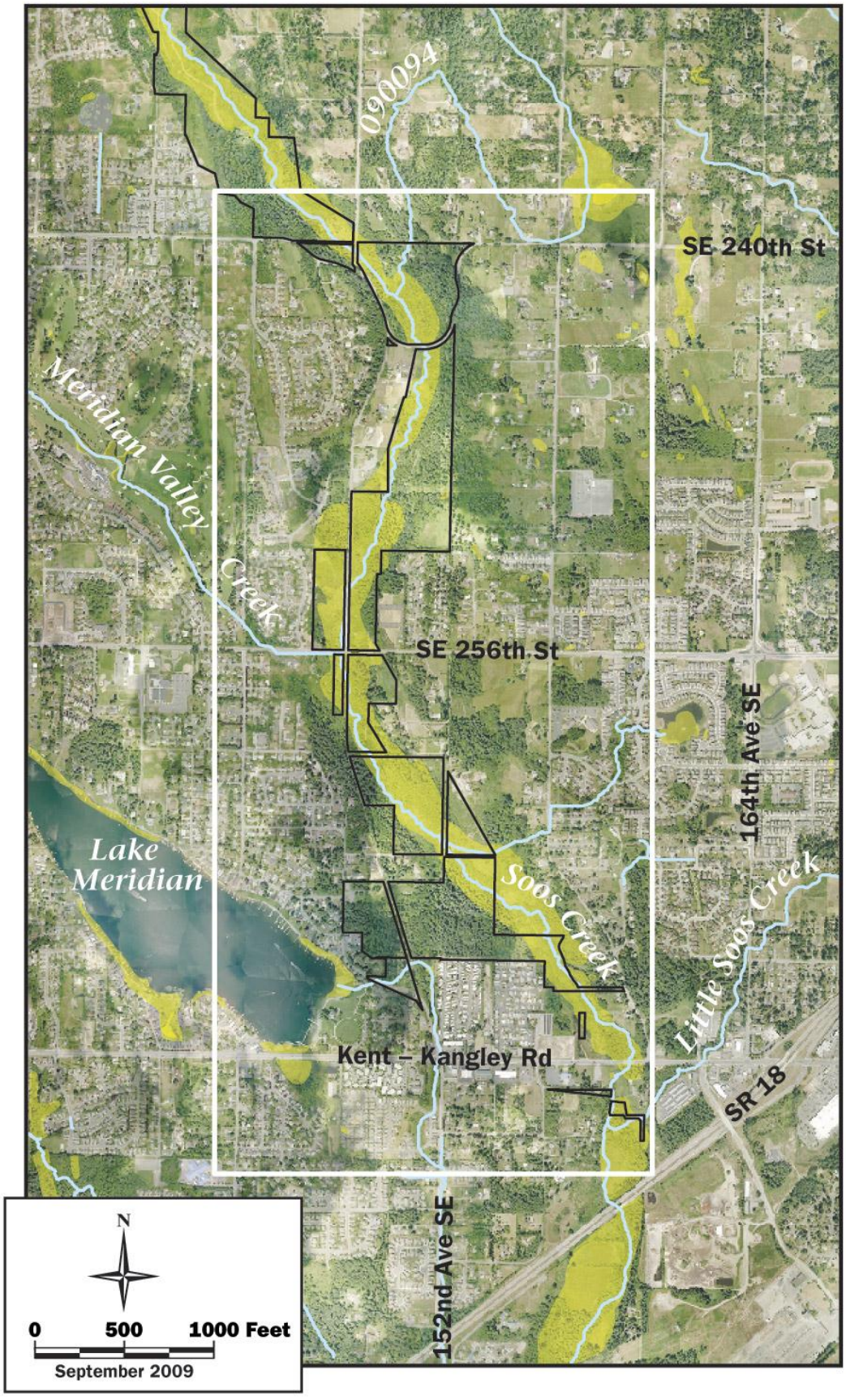
Just south of SE 240th St., the pedestrian trail crosses 148th Ave SE. East of 148th Ave. SE, the trail runs adjacent to a small pond where yellow-flag iris was observed, as were cattails and sedges. The forested area in this vicinity is thickly vegetated in salmonberry, red alder, twinberry, and red-flowering currant. East of the pond, unnamed tributary #090094 flows southward, under the trail, and confluences with Soos Creek just downstream of the trail. The trail then turns southward, crosses 152nd Ave. SE, and in this section it is built on a large amount of fill. The forest in the trail corridor retains some old snags and remnant western redcedar and Douglas-fir exceeding 30 inches diameter at breast height. Upland forest is mature (80 years old or older) and composed of Douglas-fir and bigleaf maple.

A King County maintenance facility is located west of this part of the stream corridor (is this marked on any of Connie's maps that I could refer to?), and a trailhead leads from a parking lot at the facility, across Soos Creek, and joins the main trail on the east side of stream corridor. Western pearlshell mussels have been reported in Soos Creek at the trail crossing near the maintenance facility (see Biodiversity section below), and beavers are active in the wetland/creek in this location. The wetland forest in this vicinity is dominated by willow and red alder. A large amount of reed canarygrass is in the wetland here.

Just south of the trailhead intersection, a narrow powerline corridor cuts through a swath of forest east of the trail. Where the powerlines are above the wetland/stream corridor, the vegetation is heavily infested with reed canarygrass, and a small open-water pond is present. It is likely the pond was formed as a result of clearing for the powerlines. East of the trail and south of the powerline swath, the upland forest is on a steep slope that has several seeps coming down from it; the upland vegetation under the powerlines is dominated by Himalayan blackberry. Water occasionally pools next to the trail where it cannot permeate the fill. Culverts have been installed beneath the trail in this area. Despite the culverts, the water coming down from the hillside is accumulating adjacent to the trail, some wetland vegetation is growing here (such as skunk cabbage), and it is likely the hydrology of this area has been altered from trail construction.

In the forest just south of the maintenance facility and west of the trail, a great blue heron rookery is largely hidden from view of trail users. This rookery is relatively new; the herons relocated their rookery here from a nearby forest and emergent wetland near the intersection of SE 256th St. and 148th Ave. SE. Further south, the trail continues through a forest of western redcedar, red alder, vine maple, and salmonberry until it reaches the major powerline corridor. The vegetation in the area of the powerline right-of-way reflects a highly degraded site. At the time of viewing, all vegetation had recently been mowed to a height of 2 feet. Predominant vegetation was Himalayan blackberry and skunk cabbage.

Figure 15. Meridian Valley Reach. (See also Map 17 in Appendix A).



South of SE 256th St., the pedestrian and horse trails traverse the powerline right-of-way, which is full of spirea, Himalayan blackberry, and reed canarygrass. The trails then enter a Douglas-fir stand. The trees in this location are covered in English ivy. Meridian Valley Creek enters Soos Creek from the west in this location. From the early 1900s to 2006, the creek occupied a ditch along SE 256th St. The creek has been de-channelized by the City of Kent, and relocated to a restored channel that crosses park property before it confluences with Soos Creek beneath a narrow powerline corridor. Coho are known to spawn in Meridian Valley Creek. It is unknown if other anadromous salmonids have begun using the stream since the channel restoration work was completed.

Downstream of the Meridian Valley Creek confluence, Soos Creek crosses beneath the pedestrian trail and flows southward through scrub-shrub wetland and into the main powerline right-of-way, where it flows almost exclusively until it passes beneath SE 272nd St. Park ownership becomes patchy in this area due east of the outlet of Lake Meridian. The pedestrian trail terminates at a trailhead near 148th Ave SE and SE 266th Street. The Park south and east of the trailhead is upland forest, and a small section of the outlet stream for Meridian Lake flows through a corner of park property.

General trends reported in the Soos Creek Basin Plan (King County 1990) are presumed to still be applicable and include higher flows in the more densely developed, western parts of the basin. Meridian Valley Creek has a high rate of flow relative to the area being drained (because of development in the area). The wetland corridor provides some attenuation of flows in this reach (King County 1990).

As mentioned in the Middle Soos Reach section above, a problem area was identified in the Soos Creek Basin Plan (King County 1990) as sedimentation in the channel of Soos Creek between RM 7.2 and 10.4 (between approximately SE 216th St. and SE 264th St.; see Map 18). This length of the creek corresponds to the Middle Soos and Meridian Valley reaches from SE 216th St. downstream to approximately SE 264th Street. It is unknown how significant a problem this area is. No other references to it have been found in more recent site conditions reports.

Finally, the Basin Plan (King County 1990) describes a "groundwater concern area" covering the lower two-thirds of this reach of Soos Creek, between SE 249th St. and State Route 18 (Map 18). Under normal circumstances, before pollutants reach groundwater their toxicity is "reduced by interaction with soil particles, dilution of the surface water, or chemical reduction of pollutants. The effectiveness of these processes varies from site to site…" (King County 1990). The groundwater concern area in this reach is identified as an area where minimal reduction of groundwater contaminants or pollutants is likely to occur. In other words, homes in this area still using septic systems could be contributing nutrients (nitrogen and phosphorus) and fecal bacteria to the shallow groundwater and eventually to Soos Creek, Green River and Puget Sound.

County ownership at the south end of the current park near the mouth of Little Soos Creek is somewhat piecemeal. However, state-owned lands provide contiguity of protected land along the stream corridor to SE 272nd Street. Much of the creek corridor remains privately owned north of State Route 18 and south of SE 272nd St (see Map 25 in Appendix A). One parcel is owned by City of Covington, and southern-most two small King County Soos Creek Park parcels are here. The remaining privately held parcels in this immediate area are residential with some agricultural use, and most of the land cover is palustrine forested and scrub-shrub wetland.

Aquatic Habitat

Creeks were not walked as part of the field work for this SMG. Observations of the creeks made during field work for this SMG were from road and trail crossings or from along the Soos Creek Trail. Information is drawn from other reports, including the 1986 Basin Reconnaissance Program report (King County 1986), the 1990 Soos Creek Basin Plan (King County 1990), the 2000 Habitat Limiting Factors

Report (Kerwin and Nelson 2000), and a 1974 Ecological Survey and Site Analysis (del Moral et al. 1974).

Molasses Creek

Molasses Creek flows off County property until it reaches the Highlands at Fairwood development. Prior to reaching County property, it flows through back yards (Figure 16) and is piped underground beneath City of Seattle water utility property before it emerges in a greenway at the Fairwood West development. It then flows north into the Bonneville powerline right-of-way, where it enters park property. Once in park property, it flows down a gradient averaging about 6 percent. It flows through a shrubby area before entering forest. The surrounding upland forest includes cottonwood, bigleaf maple, and Douglas-fir. These trees should be able to supply large down wood to the stream. However, without a stream survey, it is not possible to know the current instream condition. At the old road crossing near the Cedar River, the substrate of Molasses Creek is medium and small cobbles and pebbles.

Figure 16. One section of Molasses Creek on privately held property in between the County-owned parcels.

Soos Creek

The 8 miles of Soos Creek that flow through the park are unconfined, have a gradient between 0.1 and 1 percent, and flow through extensive wetland complexes. These stream flows are generally small[10], with little erosive energy (Kerwin and Nelson 2000), and the channel, which is characteristic of a palustrine channel type, is described as alternating between "sections of good gravel and sections of swampy

[10] Approximately 20 to 30 cfs daily average below the south end of the park, so flows would be even lower further upstream in the park. This estimate is based on USGS flow data from 1985 and 1986 at USGS 12110000 Big Soos Creek above Jenkins Creek near Auburn, WA. No flow have been recorded for Soos Creek above this location.

channel splits with mud bottoms" (Williams et al. 1975). These flow-through wetlands and palustrine stream channel are described in the Basin Plan (King County 1990):

> The pool : riffle ratio in upper reaches is almost the opposite of the lower reaches, varying between 80:20 and 50:50. Riffles and spawning gravels are dispersed and occur as patches rather than extended beds.
>
> These gravels and pools are permanent features of Big Soos Creek between RM 6.8 and RM 7.9 and from RM 10 to RM 10.3. As in many of the headwater areas of this basin, the upper reaches of Soos Creek often are dry in late summer due to water loss through pervious gravels and evaporation.

Consequently, the known extent of steelhead spawning corresponds with this lower section of gravels (between RM 6.8 and 7.9).

The Soos Creek Basin Plan (King County 1990) identified areas in Soos Creek where riffles and spawning gravels are dispersed and occur as patches rather than extended beds. One of these reaches of gravel patchiness was identified from approximately river mile 6.8 to 7.9 (Map 18). These river miles corresponds to just downstream of the trail crossing of Soos Creek below the Meridian Valley Creek confluence down to just below SE 272nd St. The second of these reaches of gravel patchiness in the park was identified from approximately river mile 10 to 10.3 (Map 18), a segment of the creek running through the powerline right-of-way.

Although no large wood studies have been performed to date, it is assumed the Soos Creek system is lacking in large down wood (Kerwin and Nelson 2000). Some of the forested wetlands have a relatively high number of snags and logs as described above; however, most of this material is red alder, a deciduous species. Alder decays faster than conifer species, which would have been present in the system historically and grown larger in size than does red alder. At least one section of Soos Creek in the park (south of SE 192nd St. in the power line ROW) is little more than a water channel through a field of reed canarygrass (Figure 17), and no large instream wood or habitat complexity is present in that section. Other sections of the creek flow through scrub-shrub wetlands (Figure 18), which also would not provide large wood for the stream.

Although benthic invertebrate data have been collected on Soos Creek to help characterize the water quality and health of the stream, all data collection points are downstream of the park system. A summary of the data collection methods and results are presented in Appendix D.

Figure 17. Soos Creek just south of SE 192nd St.

Figure 18. Soos Creek flowing through shrubby riparian wetland.

Biodiversity

Biodiversity refers not only to plants and animals but also to their habitats and the interactions among species and habitats. "Protection of biodiversity in all its forms and across all landscapes is critical to continued prosperity and quality of life in King County….With the impending effects of climate change, maintaining biodiversity will be critical to the resilience of resource-based activities and to many social and ecological systems" (King County 2008). Maintaining and improving the health and resiliency of systems such as the Soos Creek riparian-wetland corridor will become more important to our regional biodiversity as development and the impacts of climate change continue.

As has been described, Soos Creek Park is largely composed of a riparian wetland corridor running through an urban and urbanizing area. It is well documented that wetland and riparian areas support far greater biodiversity than upland areas of corresponding size. WDFW's riparian literature review (Knutson and Naef 1997) includes this summary:

> Approximately 85% of Washington's terrestrial vertebrate species use riparian habitat for essential life activities (Thomas et al. 1979, Brown 1985). Riparian areas provide more niches and thus higher species diversity, than any other habitat type (Oakley et al. 1985). Many researchers note high bird diversity and abundance in riparian areas (Bottorf 1974, Stevens et al. 1977, Hehnke and Stone 1978, Knopf 1985, Knight 1988). Wildlife density may also be very high in riparian areas; as many as 1,500 birds/100 ac were found in riparian forests along the Columbia River (Tabor 1976). Small mammals are more diverse and abundant in riparian compared to upland habitats (Doyle 1990). Amphibians reach densities of three per square meter in small streams and seeps in the Pacific Northwest (Bury et al. 1991).

Current (and historic) regulations tend to focus on individual species rather than biodiversity, which may be more difficult to regulate than individual fish and wildlife species. Friends of Soos Creek Park and del Moral et al. (1974) have documented birds, mammals, amphibians, and reptiles in the Soos Creek portion of the park. Their findings as well as data from other sources are presented in this section.

Fish

Molasses Creek

Coho are documented[11] to spawn in Molasses Creek as far upstream as past Fairwood Blvd., which is beyond the property line of the northern-most property in Soos Creek Park. Sockeye are documented to spawn about half-way through this northern-most parcel, to approximately where the gradient steepens. Cutthroat are documented in Molasses Creek past the confluence with the tributary that has its headwaters in the park, but their distribution is not documented in this tributary. It is, however, possible that cutthroat is present in the tributary to Molasses Creek that has its headwaters in the park.

Soos Creek Basin

Coho and chum were historically present in Soos Creek all the way to the headwaters, according to the WDFW WRIA Catalog of Streams (Williams 1975). Data on fish presence (Kerwin and Nelson 2000) document several anadromous fish species present in Soos Creek and some of its tributaries, including winter steelhead, chinook, coho, and resident cutthroat trout (see Map 19 in Appendix A). Winter steelhead presence has been documented in Soos Creek upstream to SE 256th St., in the southern portion

[11] WDFW (2006) "Presence Documented (synonyms include "Known" and "Currently Occupied"). Aquatic habitat that is documented to be presently utilized by fish (based on reliable published sources, survey notes, firsthand sightings, etc.). This includes habitat used by any like history stage for any length of time. This designation is applied to all stream sections downstream of a documented sighting to the next documented habitat section (or to marine waters), unless otherwise indicated by a formal review group.)."

of the park. Chinook distribution in Soos Creek is documented as far upstream as about midway between SE 272nd St. and SE 264th St. Chinook distribution further upstream is presumed[12] as far as SE 204th Way. Coho (and cutthroat trout) presence is documented as far as SE 204th Way. Coho are also documented to use Lloyd Creek nearly as far as SE 216th St. as well as unnamed tributary 090095 for approximately 0.5 river miles. Cutthroat trout presence is not documented beyond SE 204th Way; however, it is possible they are present further upstream than this road. Coho are known to spawn in Meridian Valley Creek, which enters Soos Creek from the west near SE 256th St.

Warmwater fish species in Soos Creek largemouth bass and pumpkinseed (Kerwin and Nelson 2000; del Moral et al. 1974). These fish are both non-native species that prey on native salmon. The extent to which they may impact salmon runs in Soos Creek is unknown.

Non-salmonid native fish species observed in Soos Creek include western brook lamprey, largescale sucker, redside shiner, threespine stickleback, and prickly sculpin (del Moral et al. 1974). More recent information was not found.

Birds

Friends of Soos Creek Park conduct regular bird surveys in the park along the trail. Members of this group have documented 120 bird species in the park. These species may be year-round residents, breeding season only, over-wintering only, migrants, or accidentals. A vertebrate survey was conducted in 1974 (del Moral et al. 1974) and yielded 108 bird species that were observed, reported, or likely to occur in the Park. This high number of species (high species richness) is partially accounted for by the presence of wetlands and riparian areas, which provide habitat for a larger number of animal species than corresponding upland areas (see above). Additionally, those species that adapt well to the presence of humans should thrive in this corridor. Examples of these species include the mallard duck and spotted towhee (Figure 19) and the sharp-shinned hawk (Figure 20).

Several of the bird species breeding in the Park are protected by King County regulations (see "King County Regulated Wildlife species" below). These species include great blue heron and red-tailed hawk (Map 19 in Appendix A). A comprehensive list of bird species seen to date in the Soos Creek portion of the park is in Appendix B.

Mammals

Mammal observations have been reported by Friends of Soos Creek and are also recorded in del Moral et al. (1974). Thirty mammal species have been documented in Soos Creek Park, and another seven were listed as possibly using the park. As with the bird species, this number of mammal species accounts for about half of the species potentially found in King County – and those numbers include marine mammals. Also as with birds, this high number of mammals represents high richness of mammal species in the Park. A comprehensive list of mammal species seen to date in the Soos Creek portion of the park is presented in Appendix C.

[12] WDFW (2006) "Presence Presumed (synonyms include "Suitable Habitat"). Aquatic habitat lacking reliable documentation of fish use where, based on the available data and best biological judgment, fish are presumed to occur. For migratory fish, such habitat will extend upstream to the end of the stream OR to the first known natural barrier (including sustained 12% stream gradient or small stream size). Best biological judgment includes consideration of suitable (species specific) habitat availability, life history strategies, proximity and connectivity to adjacent documented habitat sections or logical extrapolation of range from similar systems."

Figure 19. Left and center: Mallard nest well hidden in bog vegetation. Right: Spotted Towhee nest hidden on the ground in upland area above bog.

Figure 20. A juvenile Sharp-shinned Hawk observed directly above the trail during field work.

Amphibians and Reptiles

Pacific tree frogs, northwestern garter snakes, and the invasive American bullfrogs are all recently documented as present in the park. del Moral et al. (1974) reported these species in addition to western toads and red-legged frogs, which he noted as the most frequently encountered amphibian. Amphibian species that were not encountered as part of the 1974 surveys but which were presumed to be present

include Northwestern salamander, long-toed salamander, rough-skinned newt, and Ensatina. Northwestern garter snakes and common garter snakes were encountered during the 1974 surveys, and western terrestrial garter snake and northern alligator lizard were expected but not encountered (meaning, it was reasonable at the time to expect they were also using the park area).

Surveys focused on amphibians and reptiles (e.g., aquatic funnel trapping, egg mass surveys) would have to be employed to verify the presence of species never recorded or not recorded in 35 years.

King County Regulated Wildlife Species

The Washington State Growth Management Act requires the designation and protection of critical areas, which include wildlife habitat conservation areas as defined in the 2012 King County Comprehensive Plan. Wildlife resources in King County are regulated through the King County Critical Areas Ordinance (CAO; King County Code Section 21A.24). In particular, the CAO requires the protection of breeding sites for ten terrestrial species that are included in state or federal threatened, endangered, sensitive, and candidate species lists or is a King County Species of Local Importance. The ten species were chosen because from the species on the lists, they were deemed most commonly encountered, easily detected, or listed as federally threatened or endangered. The status of each of these ten species is described below.

Great Blue Heron

The great blue heron is designated a Species of Local Importance in the 2008 King County Comp Plan. Nest site characteristics for this species vary widely with vegetation and topography. Preston and Beane (1993) note that "common characteristics of all sites include an unobstructed access to nests from above and a commanding view of the adjacent environment." Nest sites are often tall and in open areas and often close to water. A great blue heron rookery is present inside the park (Map 19 in Appendix A).

Bald Eagle

Breeding bald eagles in Washington primarily consume live or dead marine and fresh-water fishes and also waterfowl and seabirds. Secondary food sources include mammals, mollusks, and crustaceans (Retfalvi 1970; Knight et al. 1990; Watson et al. 1991; Watson and Pierce 1998). Bald eagles have been observed at the park; however, no nests are known within the park proper. The nearest known nest is only about 150 west of park property along the Cedar River (PHS data) (Map 19 in Appendix A). Other nests are located as nearby as a half mile west of the park, east of Panther Lake. The park could be used occasionally for feeding.

Vaux's Swift

Vaux's swift is designated as a state candidate species in Washington. They have been observed on numerous occasions flying over the park (Miles, J., pers. comm.), and are presumably feeding there. Vaux's Swifts are positively associated with old-growth forest (Bull and Hohmann 1993) and may be the only diurnal bird that depends on old-growth for its continued survival (Manuwal 1991). Nest sites are likely to be the critical limiting resource for this species, which are colony nesters (Manuwal 1991). Only large-diameter hollow trees can accommodate swifts (Bull and Blumton 1997), and as such, suitable roost trees are most likely to occur in old-growth stands (Bull 1991). It is possible these swifts nest on park property, as a small number of remnant large snags were observed in the riparian area along the trail in the Meridian Valley reach.

Red-Tailed Hawk

The red-tailed hawk is designated a Species of Local Importance in the 2008 King County Comp Plan. Red-tailed hawks have been observed hunting over the park. Nest site characteristics for this species vary widely with vegetation and topography. Preston and Beane (1993) note that "common characteristics of all sites include an unobstructed access to nests from above and a commanding view of the adjacent

environment." In western Washington, the nest is usually in the tallest hardwood tree in a stand and is often in black cottonwood or red alder. Nest sites are frequently in open areas and often close to water. This is a common species, and it is entirely possible several red-tailed hawks are nesting in the park. One nest was identified at the north end of the park on top of a powerline pole (Map 19 in Appendix A).

Peregrine Falcon

A peregrine falcon has been observed flying over Soos Creek Park. However, for nesting, peregrine falcons require cliffs or cliff-like buildings, so they are not expected to be nesting in the park. In fact, they are not known to be nesting in the region, which is not geologically suited to form tall cliffs.

Osprey

Osprey nest in tall snags that are often located near water. The nearest recorded osprey nest is located approximately 3.5 miles west or north of the park (near either Lake Sammamish or the Duwamish River). Osprey typically hunt in bodies of water larger than Soos Creek, so osprey seen here would likely be passing through and not feeding. Although unrecorded, it is possible osprey could be nesting near Lake Youngs to the east.

Townsend's Big-eared Bat

Unidentified bat species have been observed in the park and may have been Townsend's big-eared bats. It is possible Townsend's big-eared bats could forage near or in the park. However, these bats require caves or mines for breeding habitat.

Marbled Murrelet, Spotted Owl, Northern Goshawk

Marbled murrelets, spotted owls, and northern goshawks are not expected to breed on site. These three species have specific habitat requirements that are not present at Soos Creek Park. Marbled murrelets and spotted owls both require old-growth forest for nesting. Northern Goshawks inhabit mature coniferous forests, often on moderate slopes, especially at mid- to high elevations.

Other King County Regulated Species

The CAO requires the protection of all remaining state or federally listed threatened, endangered, and sensitive species. The CAO also states that habitat should be protected for remaining candidate species and King County Species of Local Importance (specified in Comp Plan Policy E-487). A number of species from both of these lists are found within the park. For example, some of the Species of Local Importance known to occur in the park include the western pearlshell mussel (Map 19 in Appendix A), band-tailed pigeon, belted kingfisher, hairy woodpecker, hooded merganser, olive-sided flycatcher, purple finch, ruffed grouse, wood duck, mink, Douglas squirrel, and Townsend chipmunk. State candidate[13] species listed as of June 1, 2009, found in the park include the pileated woodpecker, merlin (a small falcon), and western toad.

Plants

As part of the ecological survey conducted by del Moral et al. (1974) in the Soos Creek Basin, a vegetation survey was completed. Twelve vegetation types were established based on moisture, disturbance, successional status, and physiognomic characteristics. Twelve survey locations were selected

[13] State Candidate Species is defined in WDFW Policy M-6001 to include fish and wildlife species that WDFW will review for possible listing as State Endangered, Threatened, or Sensitive. A species will be considered for designation as a State Candidate if sufficient evidence suggests that its status may meet the listing criteria defined for State Endangered, Threatened, or Sensitive.

based on accessibility and "the absence of no trespassing signs" (del Moral et al. 1974). The surveys revealed 113 taxa of vascular plants, at least 39 of which were non-natives. No plants were encountered that were endangered or considered rare. Notes were made of species that either occur in restricted habitats or have distinctive features. Some of these species are listed in Table 3.

Table 3. Plant species of note encountered during 1974 ecological survey.

Species	Of interest because…
Betula papyrifera (paper birch)	It is not usually found in this area (was possibly planted) and occurs only in wet soil bordering the creek.
Blechnam spicant (deer fern)	It is uncommon at this low elevation. It can serve as an indicator of the least disturbed forests in the drainage.
Corylus cornuta (hazelnut)	It is fairly widespread but restricted to less disturbed habitats on well-drained soil.
Habanaria dilatata (white bog orchid)	It is restricted to boggy soils and extremely sensitive to trampling and being picked.

Invasive Species

In 2008 a noxious weeds survey of County lands was conducted for the King County Noxious Weeds Group (ESA Adolfson 2008[14]). The report and accompanying data included percent of invasive species presence in mapped habitat types (see Map 20 in Appendix A). Additionally, observations by staff conducting field work for this SMG were recorded and combined with species point data the Noxious Weeds Group have compiled in past surveys, and all data are included on Map 21 in Appendix A. Species locations on Map 20 are therefore a combined set using two data sources, and some of the infestations have presumably already been controlled.

The highest percent of invasive species presence is in the area of Molasses Creek, within the 500-ft-wide Bonneville powerline right-of-way (Figure 21). This area is heavily infested with Scotch broom. Bonneville powerline rights-of-way runs through much of Soos Creek Park (Map 20 in Appendix A), and with little exception, all percent of invasive species presence greater than 5 percent occurs within these powerline corridors. These areas are especially problematic because they must be mowed so the utility can maintain the power lines; the mowing causes constant disturbance and thus creates a welcoming environment for invasive plants. The remaining areas of the park have patches of 0 to 0.4 percent ("weed presence not significant") and patches with 3 to 5 percent ("low weed presence").

[14] See CLIPS report and map data: http://www.kingcounty.gov/environment/animalsAndPlants/noxious-weeds/brochures-reports/reports.aspx#CLIPSReport

Figure 21. BPA corridor at the north end of Soos Creek Park. Scotch broom is the predominant plant species here. Also in photo: stormwater facility with a Mallard duck.

Part 5. Analysis

This section is intended to integrate site-specific information, public access considerations, and the larger landscape considerations described in the conservation principles section of the *Handbook*. This section presents the analysis from which site management recommendations will be made.

Ecological Processes, Structure, and Function

Hydrology and Soils

Stormwater falling on non-impervious surfaces in the Soos Creek drainage basin is expected to infiltrate the organic layer and encounter an impermeable clay layer at a depth of 20 - 70 cm. On level terrain, which generally includes the creek bed, this impermeable layer of clay just below the surface has led to a build-up of peat and muck soils (del Moral et al. 1974).

Trails. The soils present and the wetland system that has formed because of the flat topography and clay layer directly affect the suitability of the park for human uses such as trails. Soft trails, such as the horse trails in the park, can be sources of sediment in the creek system. Additionally, horses can compact soils and be an agent of weed seed transportation. The del Moral (1974) Ecological Survey and Site Analysis states that soils in the park were not suitable for trails in most areas: "Equestrian trails are not feasible on any soils in the proposed park except the Everett," which only occurs in a small area (Map 9 in Appendix A). Hydrologic processes may be hindered by the older pedestrian/bike trail that is built on fill. The del Moral et al. (1974) report says, "Trail construction on these soils, depending upon the use and surface of the trail, would probably require extensive drainage and ballast….Extensive ballasting of trail corridors could restrict the subsurface flow of water which feeds the creek." Because trails were installed in these areas on fill, it is possible that subsurface flow of water is currently restricted. However, the older sections have culverts placed in them to facilitate the movement of water. Newer trails constructed more recently have been built on raised pilings, so the hydrology of the wetland remains unrestricted.

Wetlands. The wetland system, especially in the more northern, upstream part of the park, is effective at attenuating peak rates of runoff that could otherwise cause greater water level fluctuations and flooding (Kerwin and Nelson 2000). The Basin Reconnaissance report (King County 1986) describes three reasons why, despite development, the "degree and amount of channel erosion, slope failures, and other forms of geologic and hydraulic damage are far less than might be expected." The three reasons are (1) a very effective natural retention and detention system provided by the network of wetlands, (2) the soils in the upland areas generally have a high infiltrative capacity, and (3) development was in its early stages (based upon zoning and projected land use for the City of Kent and King County) at the time the report was written. As the basin continues to be developed and the amount of impervious surface increases, retaining these and other properly functioning wetlands will be increasingly important.

Floodplain. King County regulates flood hazard areas as a critical area. The "100-year floodplain" is delineated using base flood elevations (Reference K.C.C. 21A.06.080 for definition) and a wide variety of flood hazard data (Reference CAO Section 49 for definition) for a flood having a one percent chance of being equaled or exceeded in any given year. The mapped 100-year floodplain within Soos Creek Park generally corresponds with the wetlands present in the park, but the mapped floodplain is actually narrower and fits almost entirely within the boundaries of the park.

No obvious evidence of flooding was observed by del Moral et al. (1974) during their soils and hydrologic investigations. They did note that a threat is present, particularly in the area between SE 208th St. and SE 224th St.

Geologic Hazards. King County regulates development on geologic hazard areas including erosion, landslide, and seismic hazard areas, all of which are based in part or fully on soil classification (see Map 10 in Appendix A). Erosion and landslide hazard areas are present intermittently on the periphery of Soos Creek Park along much of its length (Map 10 in Appendix A). The seismic hazard area corresponds quite

well with the wetlands in the Soos Creek corridor. This overlap of critical areas makes sense, because it is the wetland soils that are susceptible to liquefaction and therefore doubly unsuitable for construction. .

Soos Creek Wetlands

As mentioned previously, Soos Creek is a valuable wetland system for both hydrologic and habitat functions. As this area of King County continues to become more developed, this wetland corridor will become more important for fish and wildlife over time as other patches of habitat in the region will be presumably lost to development. Scrub-shrub and forested wetlands provide nesting and feeding opportunities for many bird species as well as small woody trees and branches for beaver forage. Forested wetlands are very important because they provide a mix of mature and larger live and dead trees interspersed by water and seasonally flooded soil. Consequently, they provide nesting and hibernation sites for birds (e.g., woodpeckers, herons, owls) and mammals. Scrub-shrub and emergent wetlands provide opportunities for amphibians such as the red-legged frog and northwestern salamander to lay eggs. Other wildlife species that may use these wetlands for cover, feeding, resting and perhaps breeding include muskrat, mink, weasel, otter, shrew; birds such as ducks, grebes, bitterns, and rails; and other amphibians and reptiles including garter snake species.

Large down wood and snags found in wetland systems provide a large array of habitat functions, including:

- Cover (predation refuge) for fish (particularly needed if wetlands and stream are shallow)
- Oviposition (egg-laying location) and attachment substrate for aquatic invertebrates and amphibians
- Elevated substrates for conifer regeneration (spruce/hemlock)
- Microsites for diverse invertebrate communities and fungi (e.g., nests for ants and termites)
- Providing organic material and nutrient cycling processes
- Carbon sequestration to help regulate climate change
- Fungi “inoculation” sites for decomposition, soil building, invertebrates
- Refuge, foraging habitat, runways, and hibernation, aestivation (like hibernation but occurs in hot or dry weather), & basking sites for amphibians and small mammals
- Hunting perches for piscivorous (fish-eating) birds
- Invertebrate food production sites for birds, amphibians, and small mammals

Sphagnum Bog

The bog is currently accessible only by intensive bushwhacking or cutting across private property (or both) and therefore appears protected from the physical damage of excessive wanderers and hikers. As discussed above, the health of the sphagnum moss is critical to bog stability, yet its status is unknown. A monitoring program using standard scientific protocol, could help determine the rates of growth or loss and the physical condition of the sphagnum bog and its dependent and associated plant and animal communities. A simple photographic analysis could yield trend information on the size of the bog. Such basic information can help in providing management guidance for the area.

Forest Structure

The wildlife habitat quality of second-growth forest generally increases with increases in structural complexity and plant species diversity. Structural diversity is measured by (1) a variety of ages of individual species; (2) the presence of tree, shrub, and forb layers; and (3) the presence of large wood in the form of snags and logs. Patches of upland forest in the park frequently lack structural diversity because as second-growth forest, one species of tree may have been planted all at the same time after logging. Often these types of forests grow thickly, and little regeneration occurs in the dark interior. The simplest way to foster structural diversity is to underplant seedlings of native trees and possibly shrubs within the current forest. Additionally, selective thinning or snag creation via girdling can help increase light to the forest floor.

Over time, the upland and riparian forests will continue to mature, and when some of the larger trees begin to die, they may form large hollow cavity trees that species such as Vaux's swifts could use for nesting. To speed the process, select trees may be girded or felled to created snags and logs, respectively. This method of increasing the amount of large wood within a forest will be limited by the size of trees available in the forest, which may not yet be of ideal size.

Habitat Connectivity

Riparian Corridors. The Soos Creek stream and wetland system provides a long, natural corridor for wildlife movement in an area that has become heavily urbanized. Riparian areas provide protective cover and connectivity throughout watersheds and thus function as wildlife travel corridors (Thomas et al. 1979, Forman and Godron 1986, Noss 1993). In a Washington Department of Fish and Wildlife (WDFW) literature review on riparian areas (Knutson and Naef 1997), the authors discuss the function and value of riparian areas as corridors. The following information is taken from that literature review. Important uses and functions of riparian corridors include:

- Mobile species such as marten, bobcat, cougar, deer, and great blue heron frequently have established daily travel routes that parallel streams (de Vos and Guenther 1952, Thomas et al. 1979, Eisenhawer and Reimchen 1990, Noss 1993).
- Species that tend to migrate seasonally, such as bald eagle, often follow riparian corridors to and from wintering and breeding grounds (Thomas et al. 1979, Stalmaster 1980).
- Smaller or less mobile animals that use both aquatic and upland areas travel through riparian areas to access them (Noss 1993).
- Riparian corridors allow long-distance range shifts of species, such as in species' responses to climate change (Noss 1993).
- Riparian corridors help maintain the health of species' gene pools and prevent isolation and perhaps extirpation of subpopulations (Harris 1988).
- In highly developed landscapes, riparian corridors may provide essential connections between isolated natural areas (Carleton and Taylor 1983, Blake 1986).
- Riparian areas also function as habitat islands, or small reserves, wherein wildlife species can find permanent or temporary refuge in a largely hostile landscape (MacArthur and Wilson 1967, Brode and Bury 1984, Simberloff and Cox 1987, Nixon et al. 1991).

The width of a riparian corridor intended as fish and wildlife habitat is critical (Noss 1993). WDFW's riparian literature review (Knutson and Naef 1997) summarizes the importance of corridor width:

> A corridor that is too narrow may impose greater detriments than advantages on sensitive wildlife. Narrow corridors are entirely edge habitats and attract a large number of predatory, parasitic, and opportunistic species (e.g., great horned owl, brown-headed cowbird, European starlings). Competition and high mortality rates of sensitive species may therefore result (Wilcove et al. 1986; Henein and Merriam 1990).

Regulated Corridors. In addition to the riparian wetland corridor, there are other corridors in the area. The 2004 King County Critical Areas Ordinance[15] codifies and protects a Wildlife Habitat Network (WHN) throughout the county. The WHN, which is mapped in the King County Comprehensive Plan[16] (King County 2012), is composed of contiguous vegetated corridors that are intended to link larger blocks of wildlife habitat with critical areas and their buffers, priority habitats, trails, open space, and other areas to provide for wildlife movement and to alleviate habitat fragmentation and species isolation. The WHN is mapped through much of the Soos Creek Park corridor (Map 19 in Appendix A). It connects the Soos Creek wetland/riparian corridor with Lake Youngs to the east and from there to the Cedar River. The network is not mapped all the way down Soos Creek to the Green River.

[15] http://www.kingcounty.gov/property/permits/codes/CAO.aspx
[16] http://www.kingcounty.gov/property/permits/codes/growth/CompPlan/2012Adopted.aspx#complete

Powerlines. Another system of corridors that intersects Soos Creek Park is the powerline rights-of-way. These rights-of-way, in their current state, may function as travel corridors for some species, such as deer and elk. The lack of cover, however, will deter use by other animals and they may be barriers to movement for smaller mammals and amphibians. If managed with native plants and no herbicides, these locations could contribute to native biodiversity.

Trails. Trails promote connectivity within the park for both humans and wildlife. This park was established to provide a regional trail system. However, the regional park property and some other adjacent publicly owned lands help ensure that some areas of wildlife habitat will remain undeveloped in perpetuity (See Map 25). Currently, Soos Creek Park does not extend contiguously north to the Cedar River, nor does it extend south to the Green River. It is noteworthy that trail extensions are planned for the long-term to connect Soos Creek Park to the Cedar and Green rivers; however, these extensions are primarily intended to support a regional trail. If the goals of acquisitions and land conservation were to include optimally supporting wildlife habitat and function, the resulting property acquisitions would likely be different and result in a different pathway. Furthermore, if future trails are in fully developed locations (such as on roadways), they may support no wildlife habitat value.

Wildlife Usage

Corridors. Because Soos Creek Trail Park supports recreational trail use as well as provides valuable wildlife habitat, any management actions that facilitate the increased resilience of wildlife populations from human activities will generally be beneficial to wildlife. Ideally, wildlife corridors would not be narrower than 600 feet, because invasive species and nest predators are less likely to travel a distance of 300 feet from an edge (Lidicker and Koenig 1996). At the least, corridors of native vegetation should not be narrower than 330 feet, because microclimate is affected up to about 165 feet from an edge (Lidicker and Koenig 1996). In some locations, the current ownership of Soos Creek Park is as narrow as 300 ft. These locations have the pedestrian and horse trails running through them. Therefore, these narrow parts of the park may be high priorities for acquisition of additional undeveloped properties to ensure the vegetated corridor remains wider than 330 feet in perpetuity. Examples of this scenario is north and south sides of SE 216th St. as well as in the vicinity of SE 192nd St. Unfortunately, both sides of the park in this second location have been developed, so this part of the park will remain a constriction to wildlife movement. Additionally, the park in this location is entirely powerline corridor. Therefore, restoration of the powerline corridor to native vegetation in this location would enhance the habitat value for wildlife.

Fish. The most recent available steelhead and chinook distribution information was obtained over 10 years ago. New spawner surveys would provide an updated set of distribution maps. These maps, combined with data from new instream habitat surveys, could be used to identify and prioritize locations for instream restoration projects.

Amphibians. Older lists of amphibians observed in the park (found in del Moral et al. 1974) indicate the presence of western toad, Pacific tree frog, red-legged frog, and American bullfrog. However, more recent observations only include the tree frog and bullfrog. Despite lack of observations, it is possible that species not currently known to be in the Park are actually present and breeding. The western toad was historically described as common in Soos Creek Park (del Moral et al. 1974). Further, the Pacific giant salamander is reported in the Soos Creek Basin Plan (King County 1990) to be found in the basin, but it is not specified where in the basin. Consequently, a scientifically defensible, species-appropriate monitoring program to document the presence of these and other amphibian species would be helpful in creating management recommendations.

Birds. Two hundred twenty-one bird species may be seen in King County annually (cite Biodiversity report and web site). Approximately 120 bird species have been reported in Soos Creek Park. Even though these 120 species are not all seen annually, it is striking that about half of King County's entire bird assemblage may be seen at some point at Soos Creek Park. Despite being surrounded by a high degree of development, this wetland corridor continues to provide valuable wildlife habitat. Annual bird surveys to track trends would help illuminate the continued value of this corridor for wildlife species.

Climate Change Adaptation and Resiliency

The changing climate and its effects create an even greater level of uncertainty than already would exist about how best to manage an area for the conservation of biodiversity. Impacts to Soos Creek Park will likely include increased water temperatures, reduced base flows and increased peak flows of the creek, increased erosion with increased peak flows, and decreased forest cover in upland and riparian areas as a result of changing water regimes (National Wildlife Federation 2009).

Like development, fragmentation, pollution, and invasive species, climate change is another stressor that fish and wildlife populations will be forced to try to adapt to. Therefore, when the other stressors are attenuated through restoration and conservation efforts, animal populations may better adapt to the impacts of climate change. Managing for ecological function and biological diversity is synonymous with creating resiliency, as healthy and diverse ecosystems are better able to withstand or bounce back from some impacts of climate change (National Wildlife Federation 2009). Reducing the spread of invasive species should help increase resilience of wildlife populations. Improving and ensuring habitat connectivity is potentially one of the most important approaches to fostering resiliency, as connectivity helps facilitate population range shifts and adaptive migrations – often into areas outside their historic or current ranges.

Additional methods to increase resiliency and adaptation may include improving soil health by the use of soil amendments and planting of trees to increase carbon sequestration. More complex methods may involve integrated approaches to enhance sustainable agriculture and development in the basin[17].

Invasive Plant Species

Invasive plant species, especially when they grow into a large monoculture, have the ability to severely restrict ecological processes, including blocking fish passage, killing trees, and out-competing native biodiversity. Invasive plants were observed most commonly in the most heavily disturbed areas on site, many of which are upland. Examples include powerline rights-of-way (Scotch broom) and trailside (Himalayan blackberry, multiflora rose, tansy ragwort). They are also present within some of the open-water wetland areas (yellow-flag iris) and emergent wetlands (reed canarygrass). Japanese knotweed grows along the Cedar River in the rip-rap. Other non-native invasive species present in upland areas include English ivy. Some of the infestations are too large to realistically eliminate, such as some of the patches of reed canarygrass; however, restoration work could help bring vegetative diversity and structure back to these locations.

Information Gaps

It is likely that some sections of Soos Creek have not been walked, and others have not been walked since studies in 1974 and 1982. Additionally, it is assumed the system as a whole is lacking in large instream wood. Contemporary stream surveys would provide data describing habitat features, geomorphic and hydrologic processes, and other stream and wetland functions, as well as where processes are currently being hindered. This information could be used to prioritize future habitat restoration efforts.

Hydrologic function is critical to this water-driven park with its bog and diverse wetland habitats. Water quality and quantity data are collected throughout Soos Creek Basin. However, the gages are in large tributaries below the park boundary or in Soos Creek near the mouth. Therefore, any water quality and flow data collected will include inputs from the other large streams in the system, including Jenkins,

[17] IPCC (2002) provides examples: "…appropriate management of agricultural production systems; improved shifting cultivation with sufficient fallow periods, diversification of cropping systems, maintaining continuous ground cover, and nutrient restoration; and agroforestry systems that involve various combinations of woody and herbaceous vegetation with agricultural crops. Such activities could result in multiple agronomic, environmental, and socio-economic benefits, reduce greenhouse gas emissions, and conserve biodiversity."

Covington, and little Soos creeks. Lacking historic hydrologic and water quality data, it is difficult to determine changes and trends that are attributable to development in the drainage basin and if such changes are adequately being naturally or humanly mitigated. Any data collected now would be valuable for future analyses of changes in hydrologic conditions and water quality.

Regarding climate change, how species respond to temperature increases is a large data gap. For example, "How water temperature affects species is not entirely understood, but temperature and species interactions need to be better studied as these interactions are not linear and there may be an unknown threshold" (National Wildlife Federation 2009). Also, changes we might expect to see in vegetative communities are not fully understood. These data gaps are widespread and require large-scale research and investigation; filling in these gaps would presumably enhance our ability to manage Soos Creek Park (and other County lands) to maintain its existing ecology while adapting to a changing climate.

One element for establishing a climate change adaptation strategy is to select conservation goals and targets, and the next element is to assess climate change impacts and vulnerability of conservation targets (National Wildlife Federation 2009). These goals and targets have not been established in either King County or in Soos Creek Park. Therefore, impacts to them and their level of vulnerability cannot be assessed and remains a large information gap.

Landscape and Land Use

The Soos Creek corridor area has experienced dramatic growth over the last few decades, resulting in significant increases in development and changes to the area's zoning. In the 1980's and early 90's much of the land adjacent to the northern portion of the corridor was unincorporated low to medium density residential, with lower densities to the south. Several planning efforts have directed changes to land use in the area--the first Soos Creek Plateau Communities Plan commenced during the fall of 1975, and was adopted in November 1979, initiating some new and emerging planning concepts, including a Rural land use designation. The Soos Creek Community Plan Update was initiated in March 1988 and was adopted in December 1991. Since the mid 1990's the cities of Kent and Renton have annexed large portions of former unincorporated lands and the cities of Maple Valley and Covington have commenced operating and assumed jurisdiction within their territories.

Presently, lands surrounding Soos Creek Regional Park are primarily developed at urban densities; lands west of the Park are more developed. (See Maps 2 to 7). Portions of the Park are located within the cities of Renton, Covington and Kent as well as within unincorporated King County, where most of the Park's parcels and the land surrounding it are within the Urban Growth Area (UGA); there zoning varies from 1 to 24 dwelling units allowed per acre. (See Appendix G, Zoning Parcel Information Table). All Rural lands within the Park are zoned RA-5 (one dwelling unit per 5 acres). Because the Park is located between cities and along the urban growth boundary it serves as an "urban separator"; the King County Comprehensive Plans calls for the protection of these urban corridors and directs that they include and link parks and other lands that contain significant environmentally sensitive features, provide wildlife habitat or critical resource protection, contain defining physical features, or contain historic resources.

Numerous parcels in the Soos Creek Park vicinity are enrolled in a King County current use taxation program. (See Appendix A, Map 22). These programs facilitate the conservation of lands, natural resources and passive recreation opportunities (such as trails) by providing incentives to encourage landowners to voluntarily conserve their land. In return for preserving and managing resources, the land is assessed at a value consistent with its "current use" rather than the "highest and best use.

Public Use

Informal trails are currently present in the northern portion of the park. Where they are located near Molasses Creek, they are located on soils that are not limited in terms of trail building (Map 9 in Appendix A). These trails are in upland forest and if formal trails are built in their place using best management practices, they should not contribute to siltation of Molasses Creek nor cause other sedimentation or erosion problems.

The pedestrian/bike and equestrian regional trails are the primary venue for public use of this park. As mentioned in the "Hydrology" section above, soft trails, such as the horse trails in the park, can be sources of sediment in the creek system. Additionally, horses can compact soils and be an agent of weed seed transportation. The first segments of Regional Trail installed in the park were built on fill, but newer pedestrian trails have been built on raised pilings, so the hydrology of the wetland remains unrestricted (for more information on how the trails impact the park's hydrology, see the "Hydrology" section above).

The sphagnum bog is a relatively rare ecosystem in King County; therefore, any public use of that part of the park should not be allowed if it negatively impacts conservation of the bog. Avoiding the area of the bog entirely for active recreation and maintaining it for its ecological value is advisable.

The Soos Creek Trail is part of a larger network of interconnected regional trails consisting of 175 miles of shared use trails that serve as recreation and mobility corridors. King County envisions that the Soos Creek Regional Trail will make connections to other regional trails such as the Cedar River Trail, the Green-to-Cedar River Trail and the Green River Trail). Initial discussions between King County and the cities of Black Diamond, Maple Valley and Covington have occurred to discuss a preliminary proposed trail corridor that would serve to link Soos Creek Regional Trail to those cities ("Tri-Cities Trail").

Efforts have already been initiated to plan, design and construct an extension of the trail from King County's Boulevard Lane Park that will provide a connection to the Cedar River Trail to the north. (See Appendix A, Map 23). In 2009, King County conducted a preliminary study that identified and compared potential trail corridors related to the extension of the Soos Creek Trail from its current southern terminus at SE 266th Street (near Lake Meridian) to the Green River (King County, 2009). In 2012, a study was done to analyze opportunities and constraints associated with specific geographic areas of the preferred alignment identified in the 2009 study (Parametrix, 2012).

The 2012 Regional Trail Needs Report (in the 2012 King County Comprehensive Plan) includes the following:

- **Priority Category: Trails for which construction is funded and either underway or will be in the near-term**
    - **Soos Creek Trail Phase 5 (192nd - Petro).** This 1.2 mile project would extend paved trail from SE 192nd St to Petrovitsky Road within Soos Creek Valley. Acquisitions and schematic design underway. May include at-grade signalize intersection improvements at NE 192nd at 124th Ave SE and grade-separated crossing at Petrovitsky Rd
    - **Soos Creek Trail Phase 6 (Petro - CRT**). This 1.7 mile project would extend paved trail between Petrovitsky Road and Cedar River Trail near SR-169. Acquisitions and schematic design underway.
- **Priority Category: High priority trails projects awaiting funding**
    - **Soos Creek Trail to Lake Youngs Trail.** This .7 mile project would be a short on-road and off-road link between Soos Creek Trail and Lake Youngs Trail at SE 148th Avenue via SE 216th Street and crossing a powerline corridor. Off-road segment would be soft surface. Trail would require in-road designation and limited improvements through powerline area.
- **Priority Category: Priority trails projects**
    - **Soos Creek Trail Phase 7 (To SR18).** This .8 mile Project would extend paved and soft surface trail from Soos Creek Park gateway near SE 266th Street to Kent-Kangley Road at 156th Pl SE at Kent-Kangley Rd. near SR18

- **Soos Creek Trail Phase 8 (SR18-GRT).** This 4.6 mile project would extend trail as in-road facility (e.g., cycletrack or other in-road) and/or off-road trail from 156th Pl SE at Kent-Kangley Rd to Green Valley Trail near SE Green Valley Rd. Preferred alignment utilizes Soos Creek Valley. Interim alignment uses alternative in-road and off-road segments.

The following provides a summary of other construction phases of the Soos Creek Regional Trail:

- **Phase 1:** Development of two parallel trails (one for equestrians, one for other non-motorized uses) from SE 266th Street on 148th Avenue SE north to SE 249th Street. This phase included construction of the southern parking area (SE 266th Street & 148th Avenue SE) and near the King County Soos Creek Shop property at SE 249th Street and 148th Avenue SE.
- **Phase 2:** Extend paved trail from SE 248th Street north to SE 224thStreet and equestrian trail from SE 248th north to SE 230th.
- **Phase 3:** Extend paved trail from SE 244th Street to SE 208th Street and development of facilities at Gary Grant Park at SE 208th Street (parking lot, shelter, restroom, viewing platform, ponds, landscaping, signage and fencing).
- **Phase 4:** Construct last segment of Soos Creek Trail form SE 208th Street north to SE 192nd Street.

Part 6. Management Goals, Objectives, and Recommendations

Guidance Directing Management of Soos Creek Regional Park/Trail

The management goals for the Soos Creek Regional Park/Trail are driven by a number of different key strategic planning and policy documents including the 2012 King County Comprehensive Plan, the 2010 King County Open Space Plan, the 2010 King County Strategic Plan and the Salmon Recovery Plans for WRIA 8 and 9. A summary of those various policies in included in Appendix E.

Management Goals for Soos Creek Regional Park/Trail

- Conserve and enhance the site's ecological value,
- Expand and maintain the regional trail network for recreation and mobility by multiple non-motorized users and to increase connectivity to local trails and other open space sites.
- Retain county ownership and management of regional open space system assets.
- Accommodate and facilitate appropriate passive and minimal active recreational use while minimizing impact to ecological resources.
- Engage the pubic in planning, development and stewardship activities.
- Coordinate open space planning, acquisition and development with programs and with other agencies and organizations that may provide mutual benefits.

- Employ adaptive management

Objectives for Implementing Management Goals

- Maintain ecological integrity of the site through the protection and restoration of natural processes, structure and functions
- Provide for safe and enjoyable recreation opportunities that are compatible with the ecological value of site and are consistent with King County Park rules
- Manage the site within the ecological and human context of the surrounding landscape.
- Collaborate with other jurisdictions, the community and other stakeholders in management of the site.

The objectives and recommendations in this section are derived from the analysis in the previous section. and are designed to support the Park's management goals. These recommendations will be reviewed and revised within five years, or more frequently as new land is acquired and when new information from site monitoring programs and other initiative indicates a need for a change in management strategies.

Recommendations

Based on the assessment and analysis of this park, a number of recommendations are appropriate and listed in this section. These recommendations pertain to protecting and enhancing natural resources; improving recreational and educational opportunities; data collection; and monitoring and maintaining the park.

1. Land/Resource Conservation. Acquisition of properties and/or conservation easements of private lands adjacent to or near the park should be pursued to maintain the ecological value and wildlife habitat function that the park provides. King County Comprehensive Plan policy (E-415, see Appendix E) specifies that King County "Protect dynamic ecosystem processes, such as headwaters and stream confluences." By acquiring properties adjacent to Soos Creek Park, additional protection of the park's resources can be provided in this actively developing part of King County (See Maps 2 – 7 in Appendix A).

The acquisition strategy for the Park should be coordinated between the Parks and Recreation Division and the Water and Land Resources Division of the King County Department of Natural Resources and Parks as well as with other jurisdiction and stakeholders. The use of King County's Current Use Taxation, Public Benefit Rating System and Timberlands Program to conserve lands and natural resources as well as trail connections should also be utilized. These programs provide incentives to encourage landowners to voluntarily conserve and protect land resources, open space and timber. In return for preserving and managing resources, the land is assessed at a value consistent with its "current use" rather than the "highest and best use. Many parcels in Soos Creek Park vicinity are already enrolled in one of these programs. (See Appendix A, Map 22).

The following criteria were used to identify and prioritize the conservation of specific parcels:

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Highest Acquisition Priority (Parcels marked "1" on Map 25)

The parcel has:

1. tributary stream and/or headwaters, or
2. wetlands that are part of the Soos Creek wetland/stream corridor, or
3. predominantly native vegetation throughout;

And the following criteria are true:

4. no development is present on the property
5. the property is adjacent on at least two sides to park property, other potential acquisition parcels, or other publicly owned land,
6. a road does not sever parcel from park or other potential acquisition properties

Lower Acquisition Priority (Parcels marked "2" on Map 25)

One of the following criteria is true (note that some of these parcels may also be good candidates for a conservation easement):

- Parcel is upland and in pasture / non-native vegetation, but otherwise meets criteria 4-6 above
- Parcel has a home or other structure on it whereby the value of the structure is not a significant percentage of the overall acquisition cost, but otherwise meets criteria 1-6 above
- Parcel is adjacent to Soos Creek Park on one side only, but meets all other criteria in list 1-6 above
- Parcel is severed from park by a road, but meets all other criteria in list 1-6 above

Priority for Conservation Easement (Parcels marked "3" on Map 25)

- Parcel has native vegetation on it that abuts the Park or other potential acquisition or easement parcels, and
- Parcel has one or more structures built on it

Further refinement of highest priority areas may be made by consideration of the width of the park corridor. Narrow sections of the park should be considered highest priorities for acquisition of additional undeveloped properties to ensure the vegetated corridor remains wider than 330 to 600 feet in perpetuity. A primary example of this scenario is located on the north and south sides of SE 216th St.

Another high priority area should be those parcels near the headwaters surrounding the bog area. Two properties at the south end of the bog are potential candidates for acquisition or easement, and four properties northwest of the bog have Soos Creek flowing through them and should be candidates for conservation easements.

2. Invasive Species Control. Presence of invasive species within the park is a primary concern. The control or removal of larger infestations of non-native invasive species should be prioritized based upon their location: if they are in areas of greater sensitivity (e.g., hydric soils) or higher ecological value (e.g., wetlands), they should be addressed before areas with lower site sensitivity (e.g., upland soils) or lower ecological value (e.g., highly disturbed roadside area). Maps 20 and 21 show some (not all) of the non-native invasive plant species observed in the park. The following prioritization scheme is recommended for addressing the invasive species infestations in Soos Creek Park.

A. Tansy ragwort was found mostly along the trails, including unimproved trails near Molasses Creek. Tansy ragwort and all regulated noxious weed species are the highest priority for removal because it is required by law.

B. Whenever an invasive species can be eradicated, such as when it is observed in a contained area and before it spreads, it should be. Therefore, after regulated species, address isolated, relatively small infestations first:
   a. Yellow-flag iris in two open-water wetlands
   b. Scotch broom in equestrian tie-up area along trail south of SE 208th St.
   c. English ivy
      - growing up Douglas-fir trees in upland area in Soos Creek basin
      - growing in restoration area along Molasses Creek near trail crossing

C. Treat reed canarygrass (RCG) systematically in different areas in the wetland corridor; treatment area prioritization should be based upon ecological value, level of degradation, and accessibility:

a. General recommended approach is to plant mixed tree and shrub stakes in areas of RCG infestation to improve wetland structure over time.
b. Six areas of infestation were observed in wetlands and wet soils of Soos Creek basin during 2009 field work:
   - SE 192nd Street. The wetlands north and south of SE 192nd St. contain one of the largest RCG infestation observed in the park. The RCG is mixed with other emergent species, shrubs, and trees in the forested wetland north of SE 192nd Street. But south of the road, RCG is the dominant species in two large swaths beneath the power lines. A portion of this wetland is 100 percent RCG, whereas other areas have willows growing among the RCG. However, willow trees were observed to have been mowed, presumably because they are in the powerline corridor. This location marks one of the two narrowest sections of the park corridor, and in the vicinity of SE 192nd St., parcels abutting the park on both sides are developed. Therefore, potential wildlife habitat is restricted to and within the park, which is entirely in the powerline right-of-way here. Because of this constriction of habitat, this location should be a top priority for restoration and maintenance of native vegetation.
   - SE 204th Way. North of the road, an infestation of RCG is located along the roadside in the wetland. This is a forested wetland with open-water and emergent areas with a relatively high degree of vegetation and wood structure. Because of the quality of the wetland, it is a high priority for restoration efforts, which would primarily include installing willow stakes.
   - SE 208th St. Infestations of RCG are present north and south of road in wet meadows that also support *Juncus*, cattails, skunk cabbage, and recently installed Sitka spruce. Weed control efforts at this location should focus on containing the infestation and encouraging the recruitment of shading shrubs and trees by installing willow stakes. Containment may involve controlling the outer edge of the infestation to limit the extent of the RCG by mowing or the use of herbicide. If mowing is used, the infestation will need to be mowed multiple times during season. However, herbicide may be more practicable in this area because of the native plants growing within the RCG.
   - SE 216th St. North of road, this medium-sized infestation is in a grazed area that extends to private property. The RCG is mixed with other grasses as well as sedges, rushes, skunk cabbage, and some alder seedlings. Restoration work at this location would necessarily require cooperation with the adjacent landowner. Restoration efforts in this location should include the addition of willow stakes and encouraging the growth of shade-providing plants.
   - SE 224th St. (1) Soos Creek flows directly through this location, which is very wet. North of the road, a large infestation of RCG covers a very wet meadow. This infestation is nearly 100 percent RCG, yet Soos Creek flows right through it. Therefore, it should be a high priority for restoration planting. The infestation extends to private property so restoration work at this location would necessarily require cooperation with the adjacent landowner.
   - SE 224th St. (2). South of the road, RCG is growing among other emergents adjacent to an open-water wetland. Restoration efforts in this location should include the addition of willow stakes and encouraging the growth of shade-providing plants.
   - King County maintenance trailhead. At the crossing of Soos Creek just past the trailhead, an RCG infestation is present in the otherwise vegetatively complex open-water forested wetland. Recommend planting willow stakes in the RCG.
   - SE 256th St. (1) and 148th Ave SE. The Bonneville powerline corridor crosses the road here in a northwest/southeast direction, and the entire area beneath the powerline is heavily disturbed, including some extensive patches of RCG, as well as Himalayan blackberry and spirea. This area is easily accessible and highly visible and extends to and beyond the Soos Creek stream and wetland area at 148th Ave SE.

Within the wetland, willow stakes should be planted. The upland areas are a lower priority for restoration in terms of their ecological value; however, they should be addressed as part of an Integrated Vegetation Management Plan (see item D below).

- SE 256th St. (2). Further south of the road along the trail, a small amount of RCG is present in the pond where the pedestrian trail crosses Soos Creek. Recommend planting willow stakes in the RCG.

c. Three locations with reed canarygrass infestation were observed in upland areas in the Molasses Creek area. All three areas are close to one another, along an abandoned road, associated with Himalayan blackberry, and in large clearings. Therefore, attention to RCG in this general area would be in concert with a larger restoration effort addressing the blackberry and other invasives. Additionally, because an informal trail runs through this upland area, trail improvement or abandonment (as the case may be) should also be planned in accordance with restoration work here.

d. Consider nominating an RCG-infested area of 5 acres or larger to the Mitigation Reserves Program, a King County program that facilitates habitat mitigation.

e. Relatively small infestations of reed canarygrass that are growing in areas that already have a diversity of native plants should be monitored to ensure they do not overtake the native vegetation.

D. Integrated Vegetation Management Plan Pursue development of an Integrated Vegetation Management Plan with BPA to address Scotch Broom and other invasive species in powerline right-of-way near Molasses Creek. A Vegetation Management Plan would potentially include the use of lower growing shrubs as well as dense native plant installations along the forested areas outside the right-of-way to act as a buffer between the heavily disturbed right-of-way and the upland forest. The Vegetation Management Plan should promote refraining from the mowing of native low-growing trees and shrubs within the powerline right-of-way. (NOTE: It is recognized this recommendation would be challenging to implement due to BPA's stringent corridor vegetation management protocol and the fact that it would require, at a minimum maintenance agreements between BPA and King County).

E. Remove Bohemian knotweed along Cedar River. Note this removal and restoration work will be part of a massive-scale Cedar River program, in which the King County Noxious Weeds group is beginning eradication efforts upstream and working their way downstream[18]. The Soos Creek Park section of the river will be addressed at the appropriate time in sequence with the overall project.

F. Salmonberry responds well to disturbances, especially disturbances from logging activities (Barber 1976). Thick mats of the species can preclude growth of conifers as well as other species (Franklin and Dyrness 1973). It is possible that planting and encouraging the growth of salmonberry in some of the powerline corridors may help return the vegetation community to a more native palette while disallowing the growth of larger trees.

G. Himalayan blackberry was commonly found mostly along trails in highly disturbed, upland locations. These infestations should be controlled. Goats may be employed in areas of heavy

[18] A knotweed removal project on the Cedar River began in 2007. Surveys commenced at Landsburg Dam and proceeded downstream. The first patch of knotweed was found and treated at Big Bend Natural Area. Knotweed was patchy until Dorre Don, where it became solid along the river bank. As of 2009, surveys and treatment have extended as far as Peterson Creek. It is anticipated that with secured funding, the project area will extend one more river mile. Previously controlled areas must also be revisited and sometimes treated again; this re-treating adds a layer of complexity to trying to project how long it will take to treat the remaining part of the river. It is estimated by Weeds staff that a maximum amount of area that could potentially be added every year would be 1 to 1.5 river miles, assuming grant money could be secured.

Himalayan blackberry infestations with little native vegetation. Blackberries can also be controlled by herbicide spraying and mowing. These areas should be planted in native vegetation.

H. A non-native rose species, multiflora rose, was found growing in highly disturbed, upland locations. Treatment for these rose infestations can be managed similarly to control methods for Himalayan blackberry (goats, herbicide spraying, or mowing, and then restoration planting).

I. The entire park should be assessed on a yearly basis to locate and control new infestations so no new areas of invasive species become established during any growing season.

J. Forb species that may be used in restoration plantings are suggested in del Moral et al. (1974) and include:
   - *Asarum caudatum* (wild ginger)
   - *Tiarella unifoliata* (foam flower)
   - Orchid species such as *Habanaria orbiculata*
   - Native plants form the following genera: *Disporum*, *Lilium*, *Tofieldia*, *Corydalis*, *Saxafraga*, *Lupinus*, *Oxalis*, various Umbelliferae, and *Dodecatheon*

   Note that a restoration site may only very rarely be appropriate for the installation of forb species because of the level of disturbance and exposure. These plants are listed in the event a restoration effort does include forb species.

3. Native Mixed Species Plantings. Restoration plantings should be conducted in concert with weed control and eradication projects listed above as well as other restoration efforts. Examples of planting programs that would benefit the park include plantings in areas where non-native invasive species would preclude native shrub and tree regeneration (RCG infestations; Himalayan blackberry infestations), plantings of native shrubs in the BPA and other powerline corridors, and throughout the park in areas lacking in native vegetation.

4. Climate Change Actions. The King County Comprehensive Plan specifies that King County can increase resiliency and adapt to climate change through "Comprehensive approaches to conserving biodiversity that may make habitats more resilient to climate change impacts." The design phase of restoration efforts in Soos Creek Park should always include consideration of the potential impacts of climate change.

5. Forest Stewardship. A study is recommended to determine upland and riparian locations where natural forest regeneration is not occurring. Results from such a study would be used to identify and prioritize sites for vegetation under-planting to promote healthy forest structure. Continue with Forest Landscape Assessment work underway to assess forest conditions and develop forest stewardship planning recommendation to conserve and restore the health and diversity of the forest ecosystem, ecological and hydrologic functions and wildlife habitat for a diversity of species; especially sensitive, threatened, or rare species.

6. Soos Creek Stream Survey. A stream survey of mainstem Soos Creek and major tributaries should be conducted to provide data describing habitat features, geomorphic and hydrologic processes, and other information to illustrate stream and wetland functions, as well as where processes are currently being hindered (including potential barriers to fish migration). This recommendation mirrors a recommendation in the Limiting Factors report (Kerwin and Nelson 2000). Restoration opportunities for stream health and fish passage identified during the aquatic habitat survey should be prioritized and undertaken.

A. A project to map the current locations of large wood and snags in the stream/wetland corridor should be included as part of the aquatic habitat mapping project. Data gathered in this study would be used to help identify and prioritize locations that would benefit from the input of large wood. The total volume of large wood (e.g., logs) should equal or exceed 10 m^3 per hectare and should include small, medium, and large size classes. The number of snags should equal or

exceed 49 per hectare. Information on sizes of wood pieces (length, diameter, and decay class data), recommendations about species composition, and other specifics are found in Azous et al. (1998).

B. Map the extent of pools and riffles in mainstem Soos Creek and its major tributaries within the Park as well as the palustrine wetlands associated with the stream.

7. Fish Surveys. New anadromous fish spawner surveys should be conducted to identify the current distribution of steelhead, chinook, coho, and other salmonids in the Soos Creek system.

8. Culvert Inspection. The Lloyd Creek culverts at 140th Ave SE should be examined by a hydrologist and fish biologist to determine if replacement is necessary.

9. Bridge Inspection. A bridge replacement was recommended in the Soos Creek Basin Plan (King County 1990) where Soos Creek flows beneath 148th Ave SE (bridge #3108). This bridge is still in need of replacement to reduce flooding over the road. The bridge was built in 1971 and it has a 50-year lifespan, which means it would otherwise not be replaced until approximately 2020.

10. Trail Assessment/Abandonment

A. Informal trails currently at the north end of the park should be either developed or abandoned, as appropriate (Map 9 in Appendix A)

B. Because some sections of the horse trail are located within critical areas or their buffers, a study is recommended to determine impacts and if some rerouting or other improvements to the horse trail is warranted.

C. Consider examining older pedestrian trail segments that are within wetlands and built on fill that were permitted and constructed under less stringent code requirements to determine if reconstruction on pilings or other methods to restore the hydrology of the wetland system is warranted.

11. Water Monitoring Program. A water use and water level monitoring program should be established. And, additional water flow data should be gathered to provide more certainty about long-term flow trends in this basin. These recommendations were originally presented in the Limiting Factors report (Kerwin and Nelson 2000).

12. Amphibian egg mass surveys are recommended in the spring in order to determine amphibian species currently present in the Soos Creek Park wetlands so that appropriate management recommendations regarding these species may be formulated.

13. Bird Surveys. Annual bird surveys should be conducted and used to track trends in bird use of this stream and wetland corridor.

14. Bog Monitoring. Monitoring the bog near the headwaters of Soos Creek to track the growth or loss of plant material over time is recommended. This work could be as simple as placing rods in the bog/wetland complex and checking them annually. Tracking the size of the area that remains unforested and therefore likely covered in Labrador tea and sphagnum moss could be accomplished via aerial imagery. This information combined with thorough hydrologic information could help provide a better understanding of the effects of urbanization on this bog.

15. Wetland Assessments. Soos Creek and any associated wetlands should be examined upstream of park property to determine if any instream or wetland processes are being hindered for any reason.

16. Encroachment Inspections. Parks staff should conduct site visits and assess aerial photos of the park to determine if adjacent landowners are using Park land for private use without permission from the County (vehicle storage, landscaping areas, etc.).

17. Regional Designation. Soos Creek Regional Park/Trail site has been classified as a regional facility (regional park and regional trail) and should be retained by King County. The priority is to keep the park

"intact" and managed as a comprehensive unit to acknowledge importance of a consistent management vision and a comprehensive and cohesive landscape level stewardship approach. First priority is that any portions of the Park in urban incorporated King County (including cities) should stay in County ownership. The goal is also to retain county ownership of the two local parks within the corridor (Boulevard Lane and Renton Parks) as well. If those two parks are to be transferred, the agreement facilitating the transfer should include a provision that the parks should be managed consistent with the goals and recommendations contained within this plan.

18. Regional Trail Development/Connectivity. Continue efforts to achieve trail connectivity between the Soos Creek Trail and the various segments of the Regional Trail System in the vicinity (including but not limited to, the Cedar, Green-to-Cedar and Green River Regional Trails). Continue with trail use studies to determine type and level of use and assess the need for additional access points and parking to serve both park and trail users.

19. Collaborate with the community, user groups, adjacent landowners and other stakeholders to manage of the Park.

- Continue support of, and coordination with, the various stakeholder groups (such as Friends of Soos Creek Park, Sierra Club, Middle Green River Coalition, and Rainier Audubon) in implementation of the site management guidelines' recommendations and stewardship of the Park.
- Encourage citizens to serve in the Park Ambassador and Adopt a Park Programs and participate in volunteer trail and restoration events.
- Hold public meetings to inform, and seek input from, the community at key milestones in plan implementation and before major management activities occur on site.
- Enhance the Park's web page to provide information about this site and to provide notification of any major actions or meetings
- Maintain a mailing list to keep interested citizens informed about the site ("Enewsletter"/US mail)
.
- Employing a public process, review the site management plan every 5 -10 years to allow for a current expansion of the planning horizon.

20. Maintain and manage the Park according to the task list provided in Appendix G and ensure that there are sufficient staff, resources and budget to effectively carry out those stewardship tasks. Because the park contains almost 800 acres of open space/natural land, a park area with recreation facilities as well as a regional trail corridor with assorted amenities, a significantly large number and variety of site maintenance tasks are required to appropriately care for the site's ecological resources and park improvements**.**

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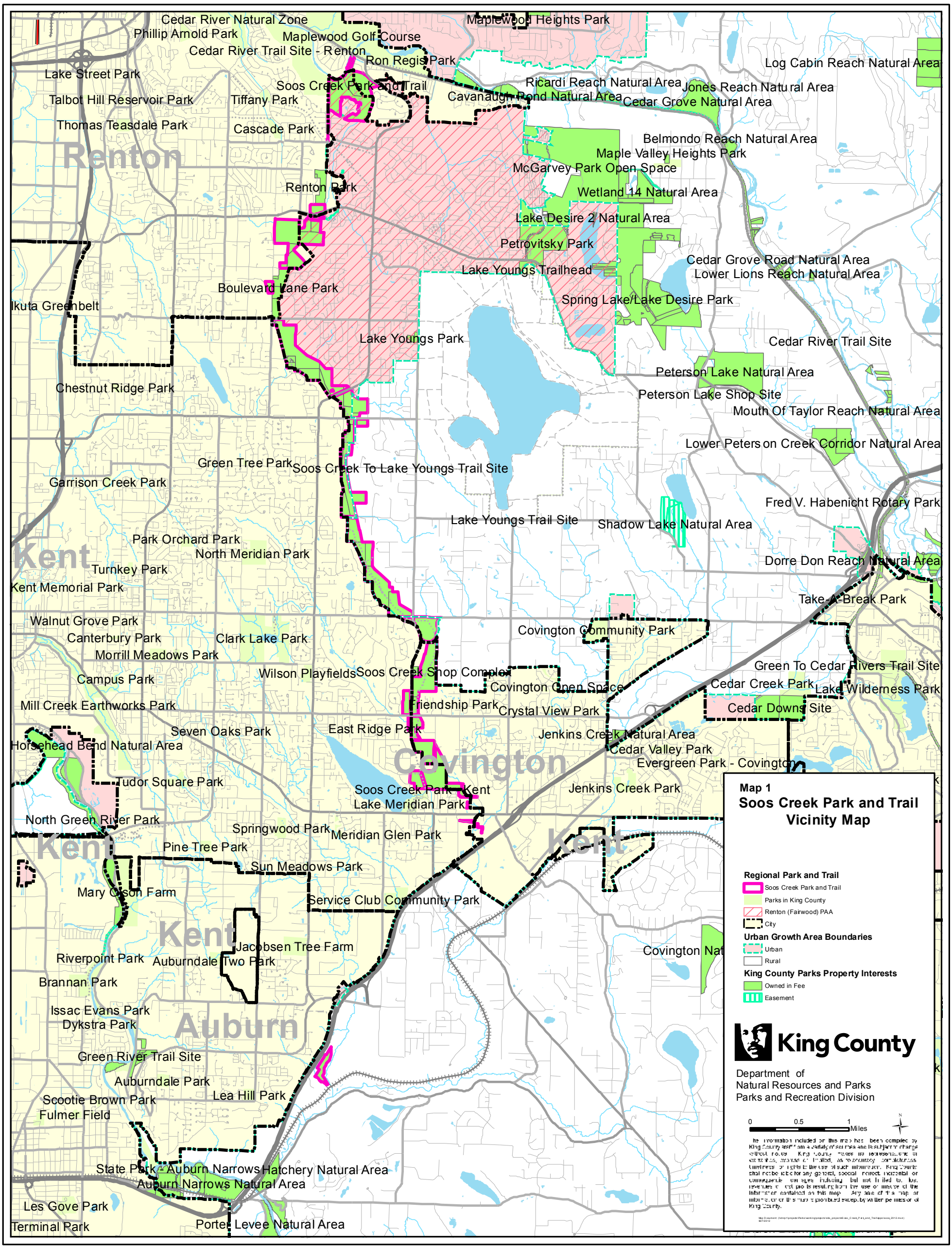
Appendix A. Maps


Cedar River Natural Zone
Phillip Arnold Park
Maplewood Golf Course
Cedar River Trail Site - Renton
Maplewood Heights Park
Ron Regis Park
Log Cabin Reach Natural Area
Lake Street Park
Soos Creek Park and Trail
Ricardi Reach Natural Area
Jones Reach Natural Area
Talbot Hill Reservoir Park
Tiffany Park
Cavanaugh Pond Natural Area
Cedar Grove Natural Area
Thomas Teasdale Park
Cascade Park
Belmondo Reach Natural Area
Renton
Maple Valley Heights Park
McGarvey Park Open Space
Renton Park
Wetland 14 Natural Area
Lake Desire 2 Natural Area
Petrovitsky Park
Cedar Grove Road Natural Area
Lower Lions Reach Natural Area
Lake Youngs Trailhead
Boulevard Lane Park
Spring Lake/Lake Desire Park
Ikuta Greenbelt
Lake Youngs Park
Cedar River Trail Site
Peterson Lake Natural Area
Chestnut Ridge Park
Peterson Lake Shop Site
Mouth Of Taylor Reach Natural Area
Lower Peterson Creek Corridor Natural Area
Green Tree Park
Soos Creek To Lake Youngs Trail Site
Garrison Creek Park
Fred V. Habenicht Rotary Park
Lake Youngs Trail Site
Shadow Lake Natural Area
Park Orchard Park
North Meridian Park
Kent
Dorre Don Reach Natural Area
Turnkey Park
Kent Memorial Park
Take-A-Break Park
Walnut Grove Park
Covington Community Park
Canterbury Park
Clark Lake Park
Morrill Meadows Park
Green To Cedar Rivers Trail Site
Wilson Playfields
Soos Creek Shop Complex
Campus Park
Covington Open Space
Cedar Creek Park
Lake Wilderness Park
Mill Creek Earthworks Park
Friendship Park
Crystal View Park
Cedar Downs Site
Seven Oaks Park
East Ridge Park
Jenkins Creek Natural Area
Horsehead Bend Natural Area
Cedar Valley Park
Evergreen Park - Covington
Covington
Tudor Square Park
Soos Creek Park - Kent
Lake Meridian Park
Jenkins Creek Park
North Green River Park
Springwood Park
Meridian Glen Park
Kent
Kent
Pine Tree Park
Sun Meadows Park
Mary Olson Farm
Service Club Community Park
Kent
Jacobsen Tree Farm
Riverpoint Park
Auburndale Two Park
Brannan Park
Issac Evans Park
Dykstra Park
Auburn
Green River Trail Site
Auburndale Park
Lea Hill Park
Scootie Brown Park
Fulmer Field
State Park - Auburn Narrows Hatchery Natural Area
Auburn Narrows Natural Area
Les Gove Park
Terminal Park
Porter Levee Natural Area
Map 1
Soos Creek Park and Trail
Vicinity Map
Regional Park and Trail
Soos Creek Park and Trail
Parks in King County
Renton (Fairwood) PAA
City
Urban Growth Area Boundaries
Urban
Rural
King County Parks Property Interests
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King County
Department of
Natural Resources and Parks
Parks and Recreation Division
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Map 2
Soos Creek Park and Trail

Trails
- On Street Trail
- Paved Trail
- Soft Surface Trail
- Surface Unknown

Regional Parks and Trail
- Soos Creek Park and Trail
- Parks in King County

King County Parks Property Interests
- Owned in Fee
- Easement
- City
- Potential Annexation Area

Zoning
- A-10 - Agricultural, one DU per 10 acres
- A-35 - Agricultural, one DU per 35 acres
- F - Forest
- M - Mineral
- RA - Rural Area
- UR - Urban Reserve, one DU per 5 acres
- R-1 - Residential, one DU per acre
- R-4 - Residential, 4 DU per acre
- R-6 - Residential, 6 DU per acre
- R-8 - Residential, 8 DU per acre
- R-12 - Residential, 12 DU per acre
- R-18 - Residential, 18 DU per acre
- R-24 - Residential, 24 DU per acre
- R-48 - Residential, 48 DU per acre
- NB - Neighborhood Business
- CB - Community Business
- RB - Regional Business
- O - Office
- I - Industrial

King County

Department of
Natural Resources and Parks
Parks and Recreation Division

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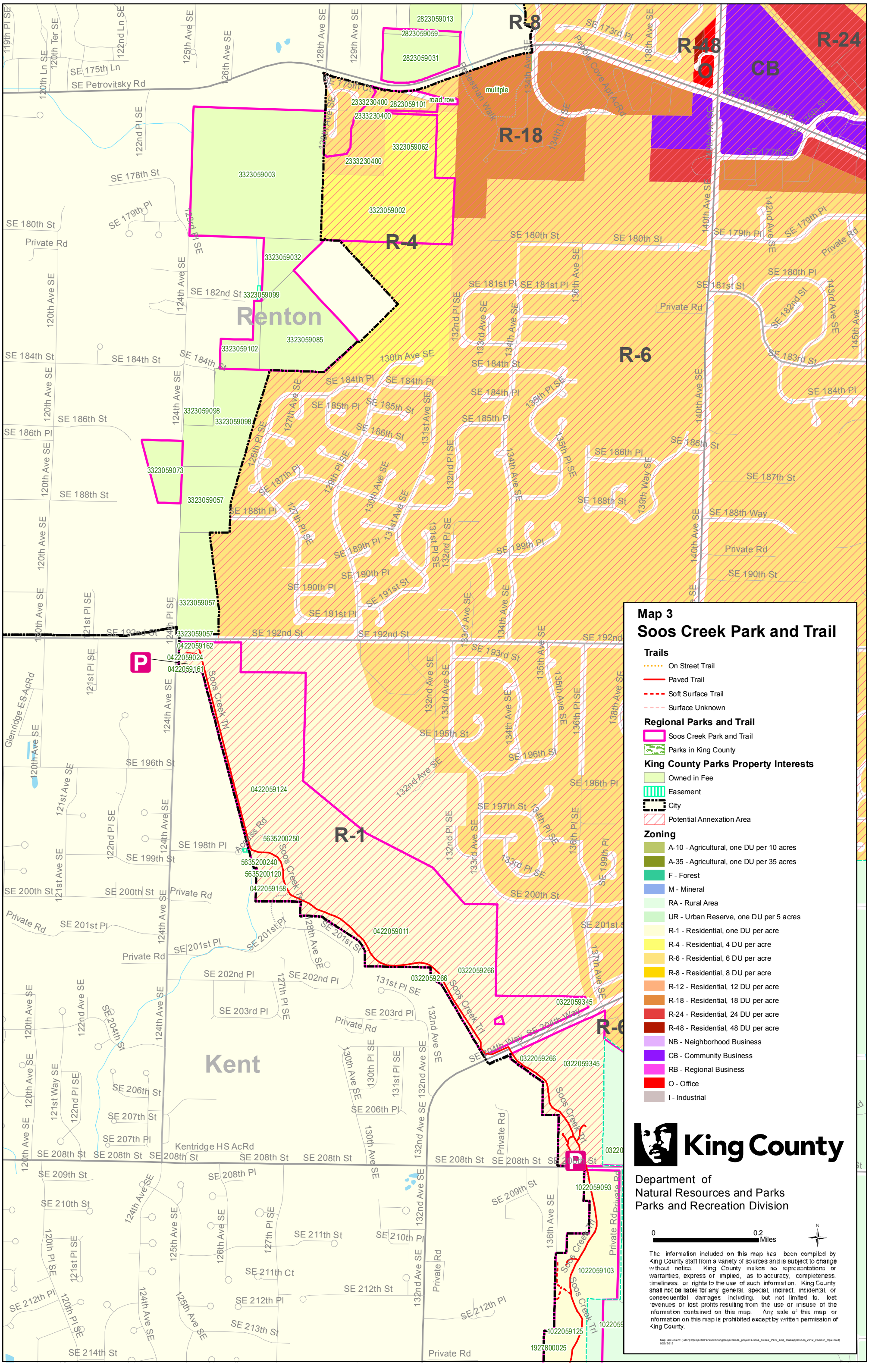
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Glenridge ES AcRd
Kentridge HS AcRd
Access Rd
Soos Creek Trl
Pedestrian Walk
Pebble Cove Apt AcRd
SE Petrovitsky Rd
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136th Ave SE
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Map 3
Soos Creek Park and Trail
Trails
On Street Trail
Paved Trail
Soft Surface Trail
Surface Unknown
Regional Parks and Trail
Soos Creek Park and Trail
Parks in King County
King County Parks Property Interests
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RB - Regional Business
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I - Industrial
King County
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Parks and Recreation Division
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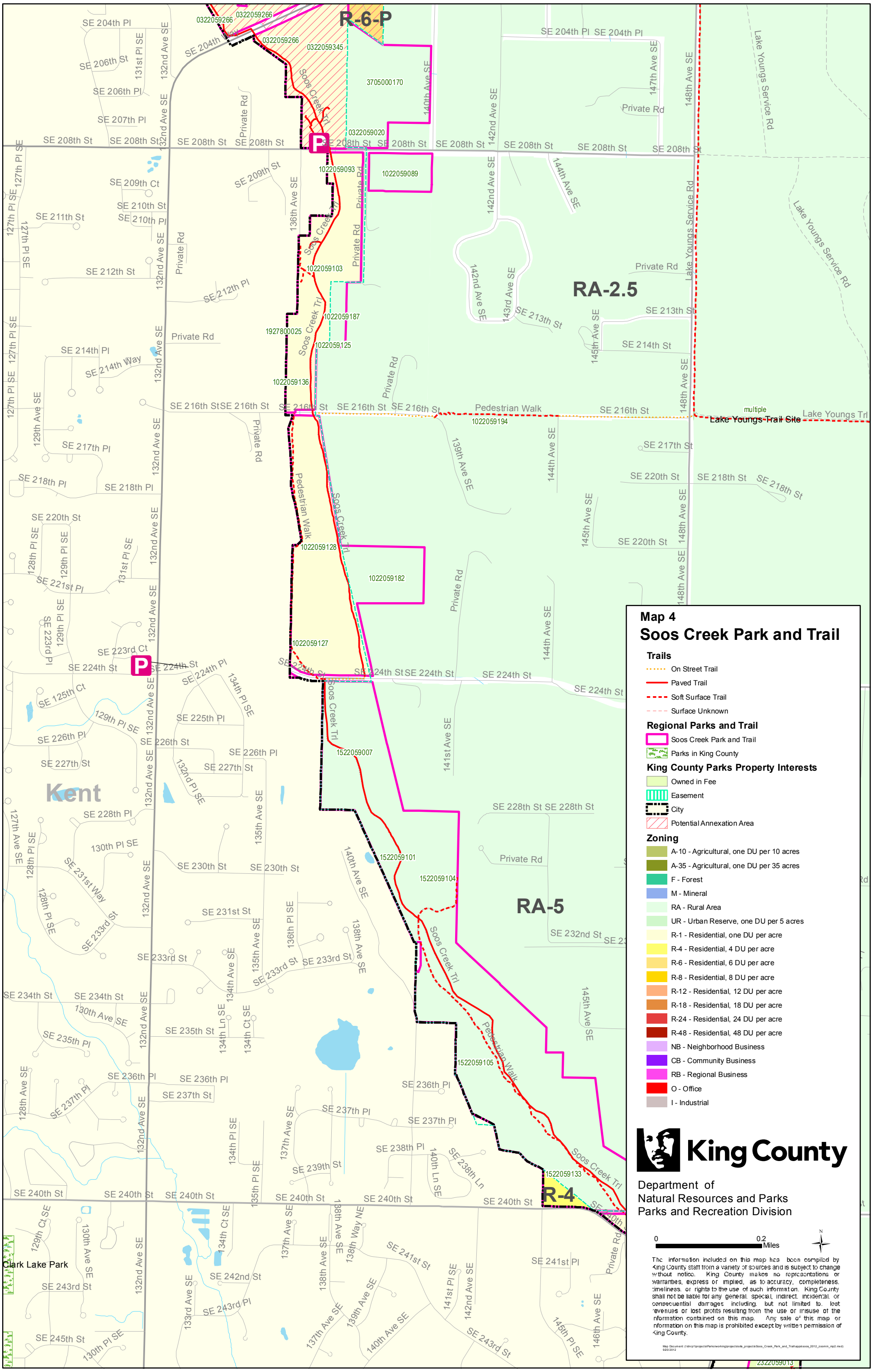
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Clark Lake Park
Lake Youngs Trail Site
Map 4
Soos Creek Park and Trail
Trails
On Street Trail
Paved Trail
Soft Surface Trail
Surface Unknown
Regional Parks and Trail
Soos Creek Park and Trail
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Miles
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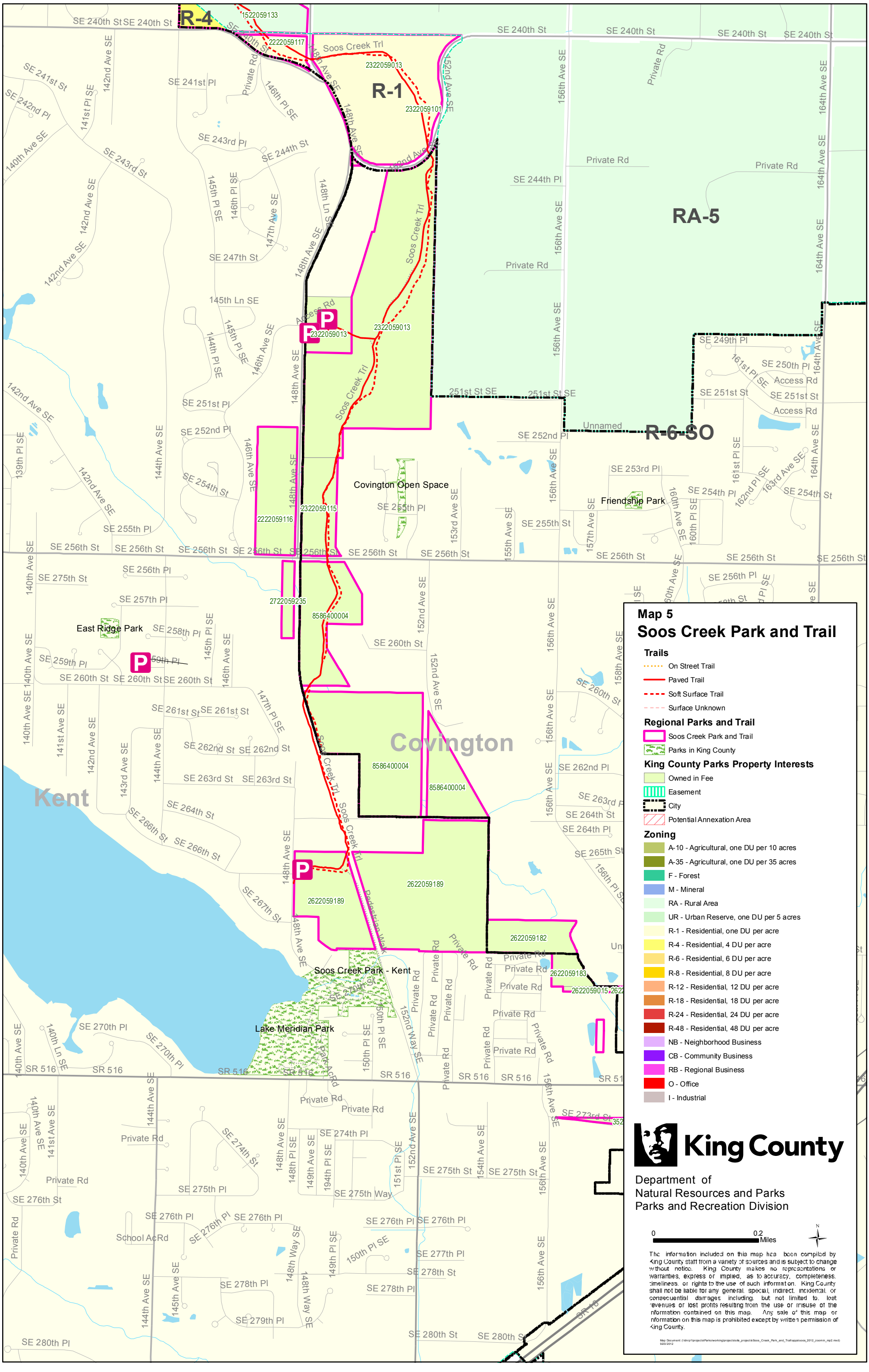
Soos Creek Trl
Pedestrian Walk
Private Rd
Lake Youngs Service Rd
Lake Youngs Trl
multiple
Pedestrian Walk
1022059194
3705000170
0322059020
0322059345
0322059266
1022059093
1022059089
1022059103
1022059187
1927800025
1022059125
1022059136
1022059128
1022059182
1022059127
1522059007
1522059101
1522059104
1522059105
1522059133
2322059013



Map 5
Soos Creek Park and Trail

Trails
- On Street Trail
- Paved Trail
- Soft Surface Trail
- Surface Unknown

Regional Parks and Trail
- Soos Creek Park and Trail
- Parks in King County

King County Parks Property Interests
- Owned in Fee
- Easement
- City
- Potential Annexation Area

Zoning
- A-10 - Agricultural, one DU per 10 acres
- A-35 - Agricultural, one DU per 35 acres
- F - Forest
- M - Mineral
- RA - Rural Area
- UR - Urban Reserve, one DU per 5 acres
- R-1 - Residential, one DU per acre
- R-4 - Residential, 4 DU per acre
- R-6 - Residential, 6 DU per acre
- R-8 - Residential, 8 DU per acre
- R-12 - Residential, 12 DU per acre
- R-18 - Residential, 18 DU per acre
- R-24 - Residential, 24 DU per acre
- R-48 - Residential, 48 DU per acre
- NB - Neighborhood Business
- CB - Community Business
- RB - Regional Business
- O - Office
- I - Industrial

King County

Department of
Natural Resources and Parks
Parks and Recreation Division

0 0.2 Miles

N

Map Document (\\dnrp1\projects\Parks\working\projects\site_projects\Soos_Creek_Park_and_Trail\apps\soos_2012_zoomin_mp2.mxd)
9/20/2012

Lake Meridian Park
Meridian Glen Park
Service Club Community Park
Kent
Auburn
Covington
R-1-SO
I-SO
RA-5
R-1
I-P
P
1021059045
3522059034
3522059210
3522059210

Map 6
Soos Creek Park and Trail

Trails
- On Street Trail
- Paved Trail
- Soft Surface Trail
- Surface Unknown

Regional Parks and Trail
- Soos Creek Park and Trail
- Parks in King County

King County Parks Property Interests
- Owned in Fee
- Easement
- City
- Potential Annexation Area

Zoning
- A-10 - Agricultural, one DU per 10 acres
- A-35 - Agricultural, one DU per 35 acres
- F - Forest
- M - Mineral
- RA - Rural Area
- UR - Urban Reserve, one DU per 5 acres
- R-1 - Residential, one DU per acre
- R-4 - Residential, 4 DU per acre
- R-6 - Residential, 6 DU per acre
- R-8 - Residential, 8 DU per acre
- R-12 - Residential, 12 DU per acre
- R-18 - Residential, 18 DU per acre
- R-24 - Residential, 24 DU per acre
- R-48 - Residential, 48 DU per acre
- NB - Neighborhood Business
- CB - Community Business
- RB - Regional Business
- O - Office
- I - Industrial

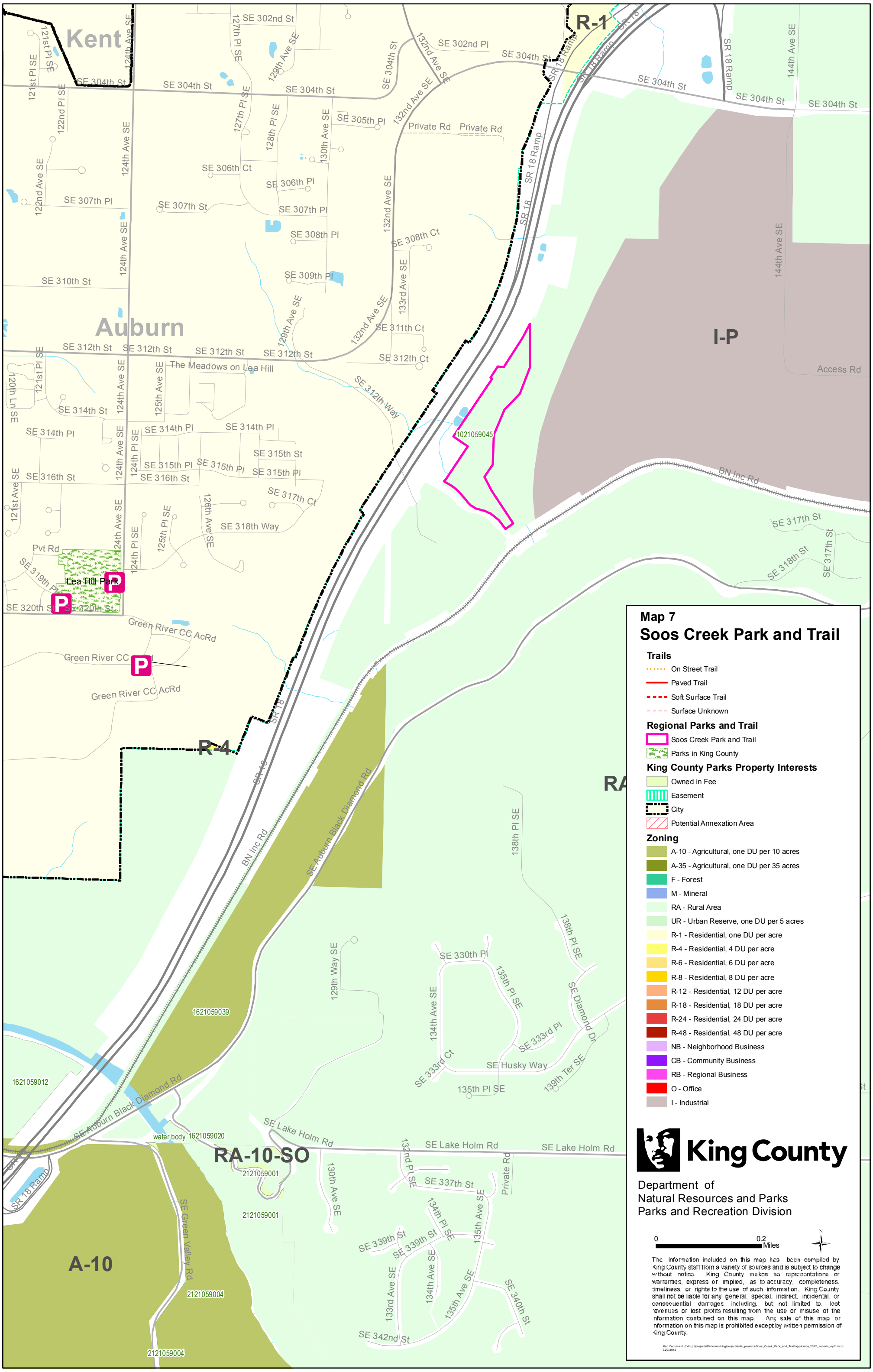
King County

Department of
Natural Resources and Parks
Parks and Recreation Division

0 0.2 Miles

N

Map Document (\\dnrp1\projects\Parks\working\projects\sis\e_projects\Soos_Creek_Park_and_Trail\mxds\soos_2012_zoomin_mp2.mxd)
9/20/2012



Map 7
Soos Creek Park and Trail

Trails
- On Street Trail
- Paved Trail
- Soft Surface Trail
- Surface Unknown

Regional Parks and Trail
- Soos Creek Park and Trail
- Parks in King County

King County Parks Property Interests
- Owned in Fee
- Easement
- City
- Potential Annexation Area

Zoning
- A-10 - Agricultural, one DU per 10 acres
- A-35 - Agricultural, one DU per 35 acres
- F - Forest
- M - Mineral
- RA - Rural Area
- UR - Urban Reserve, one DU per 5 acres
- R-1 - Residential, one DU per acre
- R-4 - Residential, 4 DU per acre
- R-6 - Residential, 6 DU per acre
- R-8 - Residential, 8 DU per acre
- R-12 - Residential, 12 DU per acre
- R-18 - Residential, 18 DU per acre
- R-24 - Residential, 24 DU per acre
- R-48 - Residential, 48 DU per acre
- NB - Neighborhood Business
- CB - Community Business
- RB - Regional Business
- O - Office
- I - Industrial

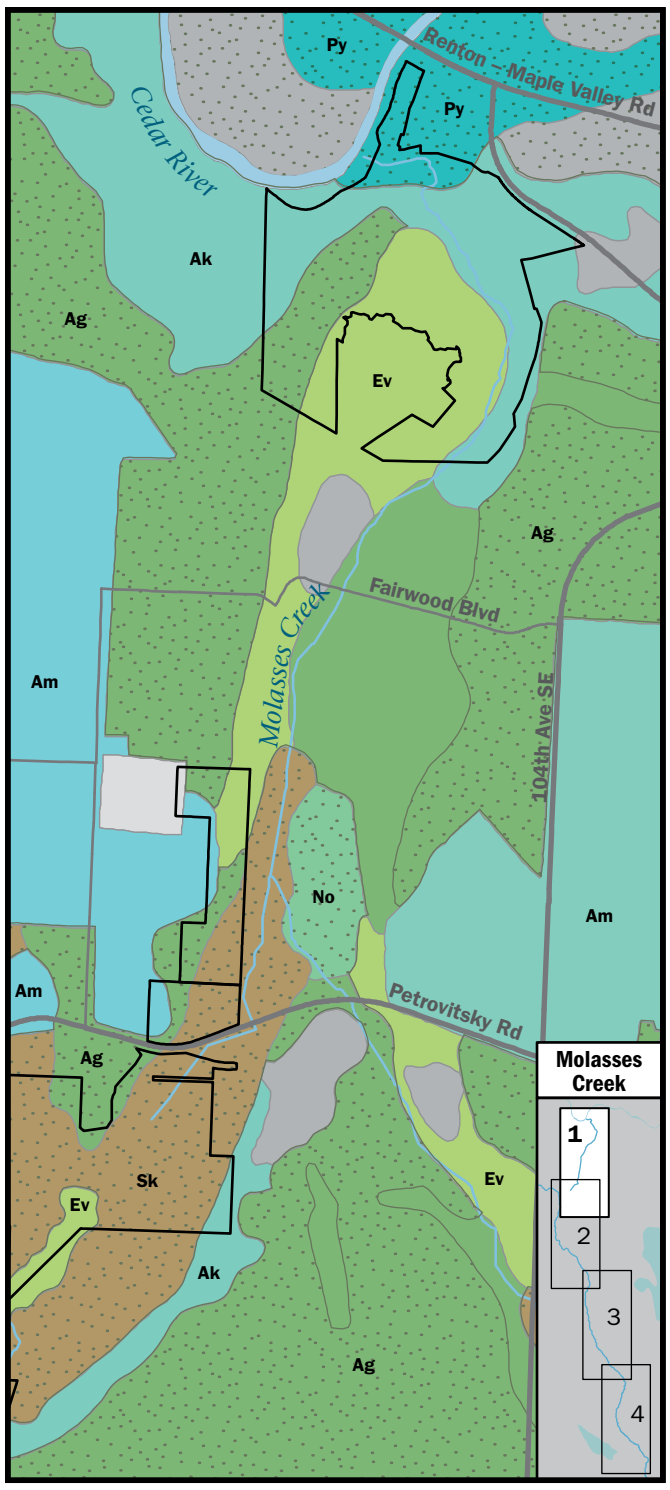
King County

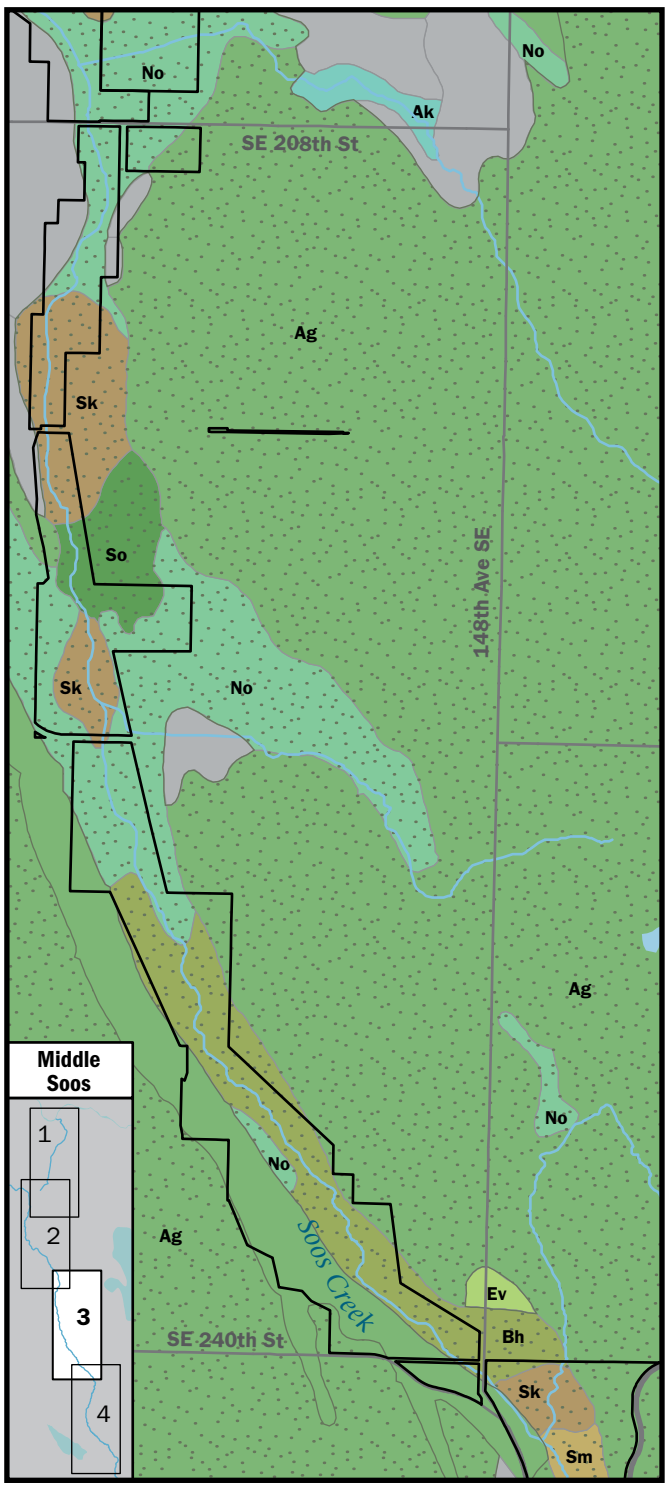
Department of
Natural Resources and Parks
Parks and Recreation Division

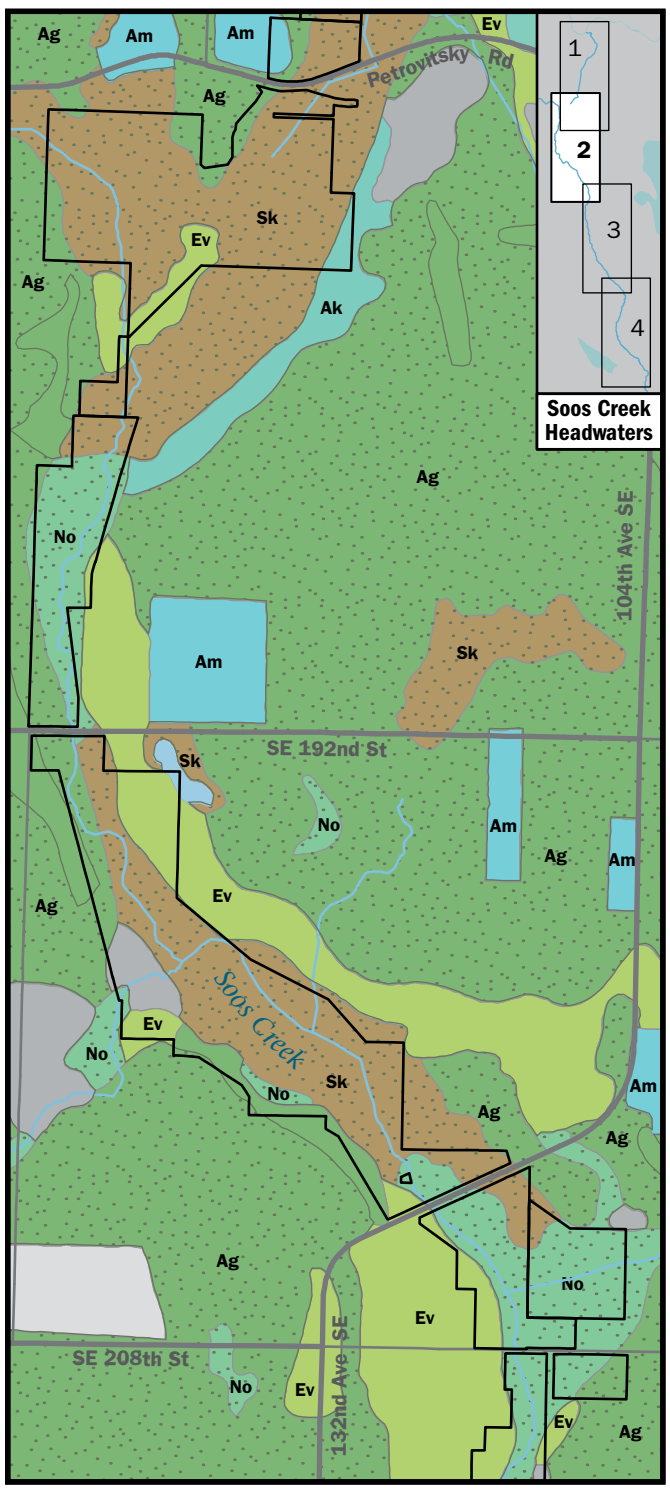
0 0.2 Miles

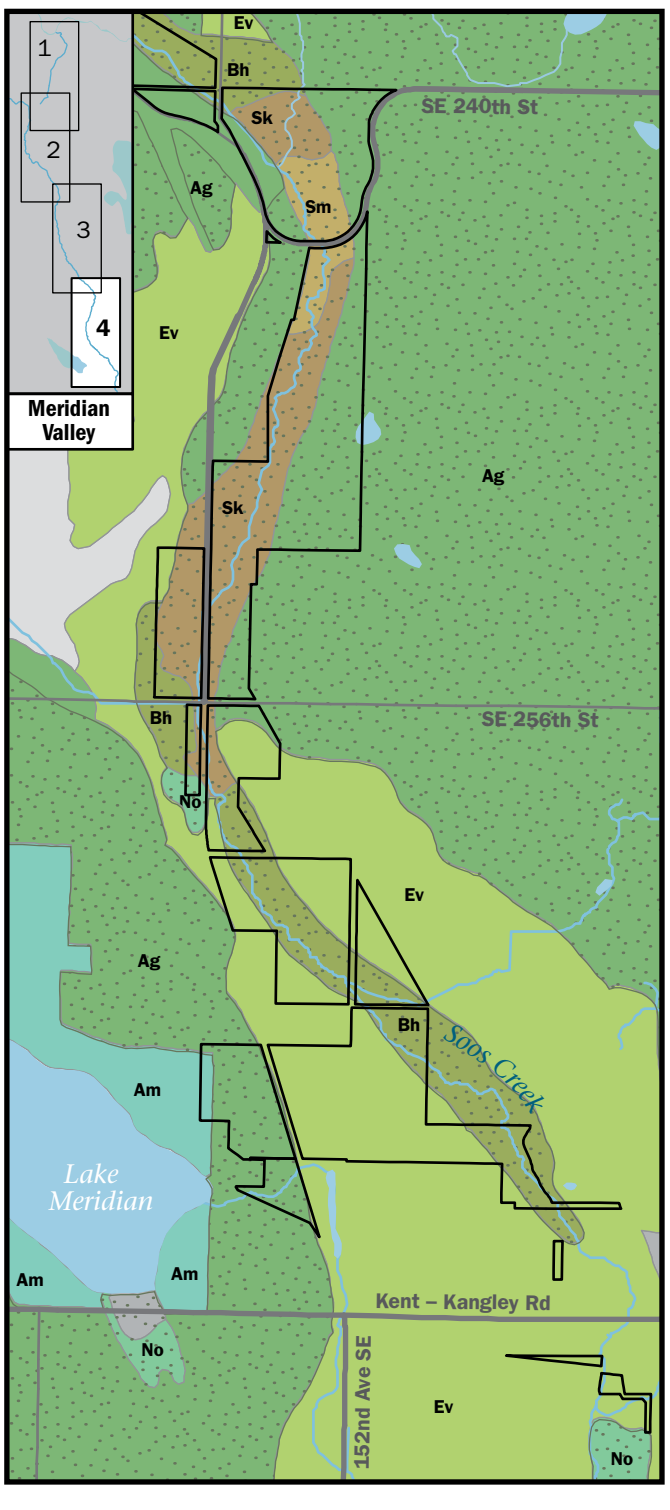
N

Map Document (\\dnrp1\projects\Parks\working\projects\sis\s_projects\Soos_Creek_Park_and_Trail\appx\soos_2012_zoomin_mp2.mxd)
9/20/2012









- Hydric Soils
- Ag — Alderwood Gravelly Sandy Loam
- Ak — Alderwood/Kitsap
- Am — Arents, Alderwood Material
- Bh — Bellingham Silt Loam
- Ev — Everett Gravelly Sandy Loam
- No — Norma Sandy Loam
- Py — Puyallup Fine Sandy Loam
- Sk — Seattle Muck
- Sm — Shalcar Muck
- So — Snohomish Silt Loam
- Urban
- Other
- Stream
- Major Road
- Lake or River
- Soos Creek Trail Park

Data Sources:
King County GIS Database

Map produced by:
King County IT/DNRP GIS,
Visual Communications & Web Unit
1303_3168_8soosSOILtype.ai wgab

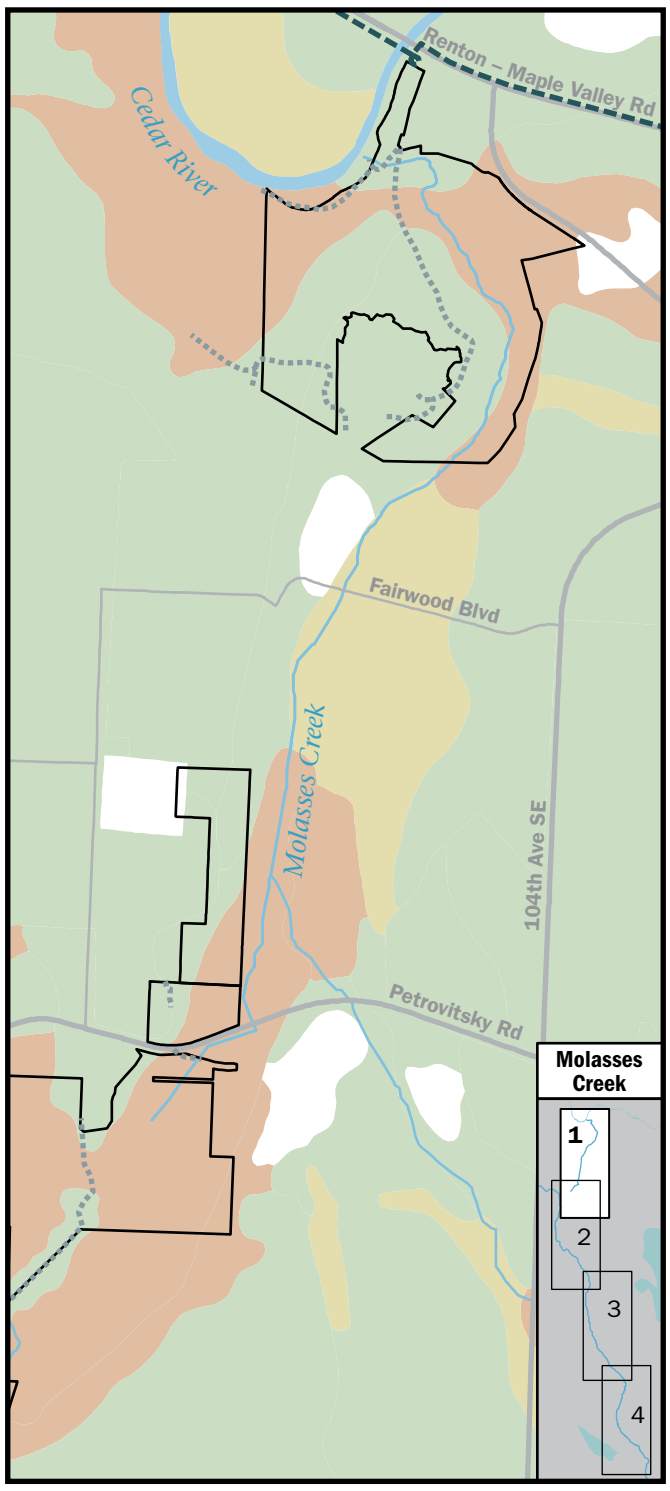
Map 8

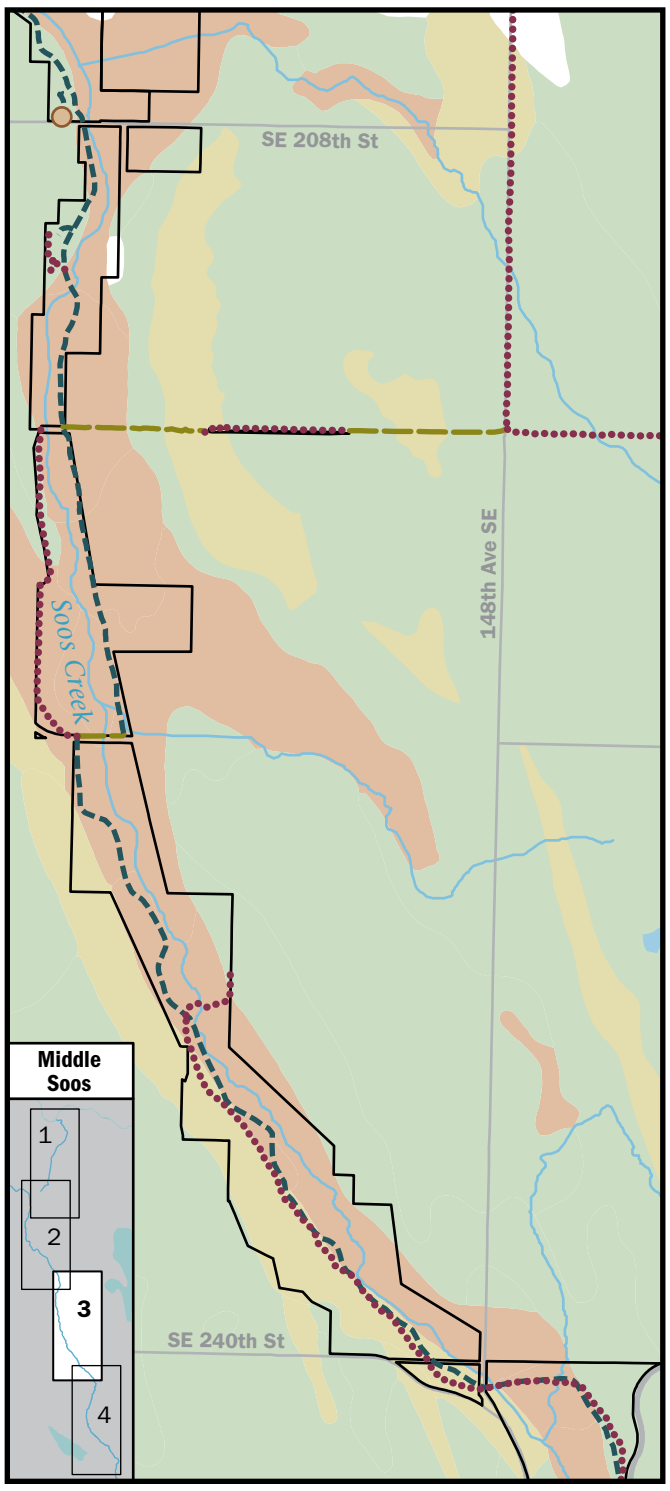
Soos Creek Park and Trail

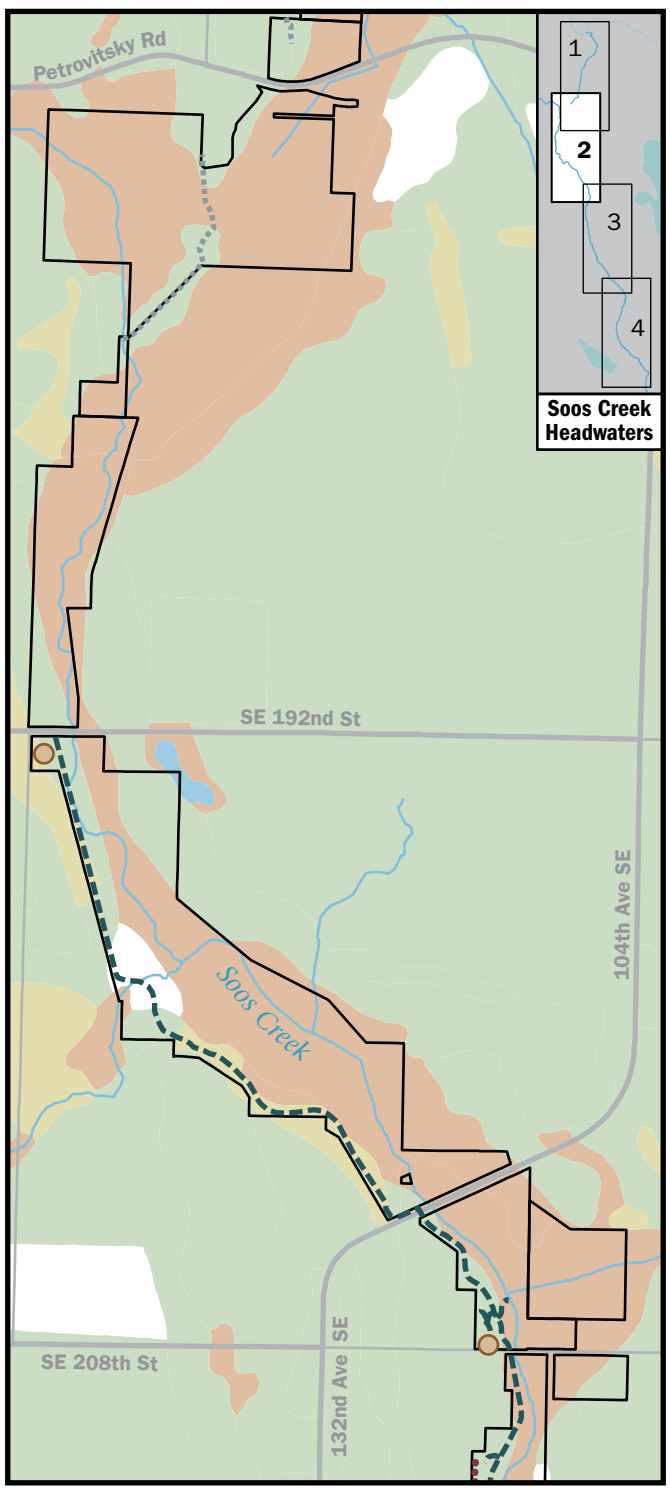
Soil Types

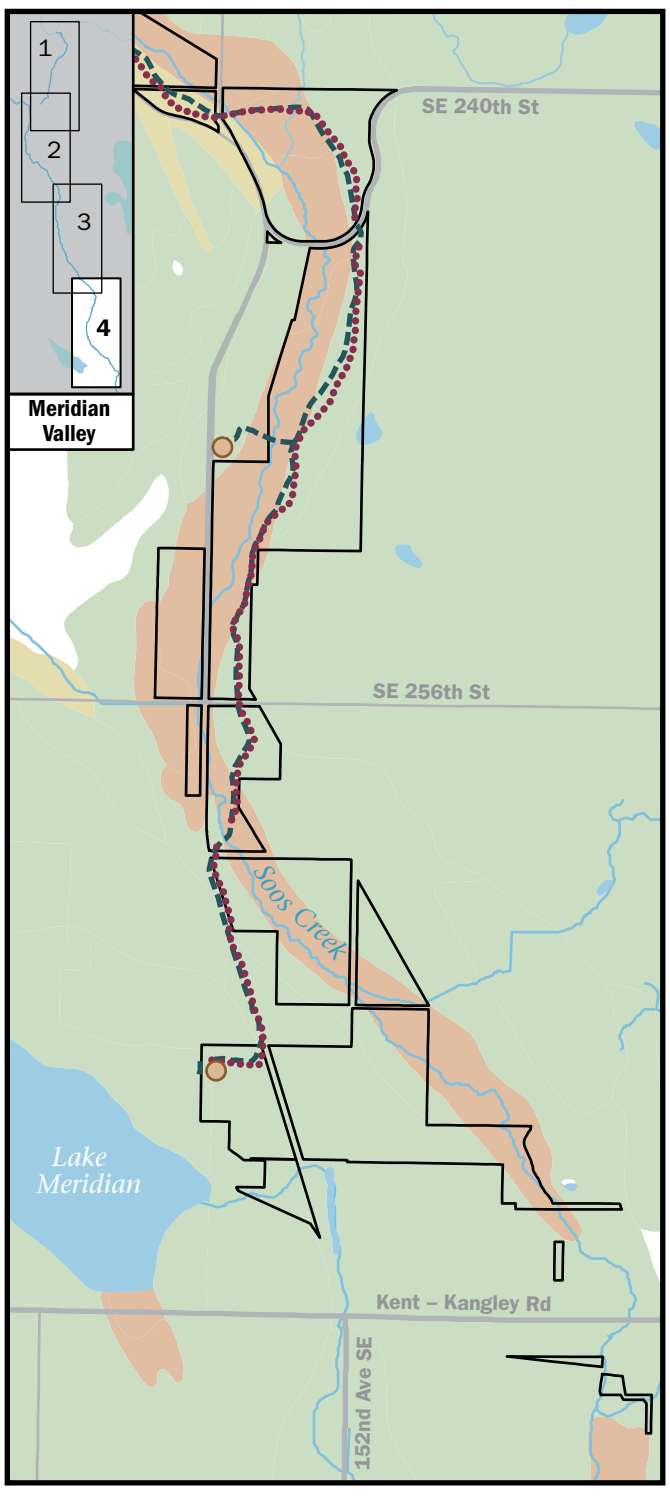
King County
Department of Natural Resources and Parks
Parks Division

N
0 250 500 Feet
March 2013









Soil Suitability

- Not Limited
- Somewhat Limited
- Very Limited
- Not Rated

Trail Type

- On-Street
- Paved
- Soft Surface
- Informal Trail
- Trailhead Location

- Stream
- Major Road
- Lake or River
- Soos Creek Trail Park

Data Sources:
King County GIS Database;

Map produced by:
King County IT/DNRP GIS,
Visual Communications & Web Unit
1303_3168_9soosTRAILS.ai wgab

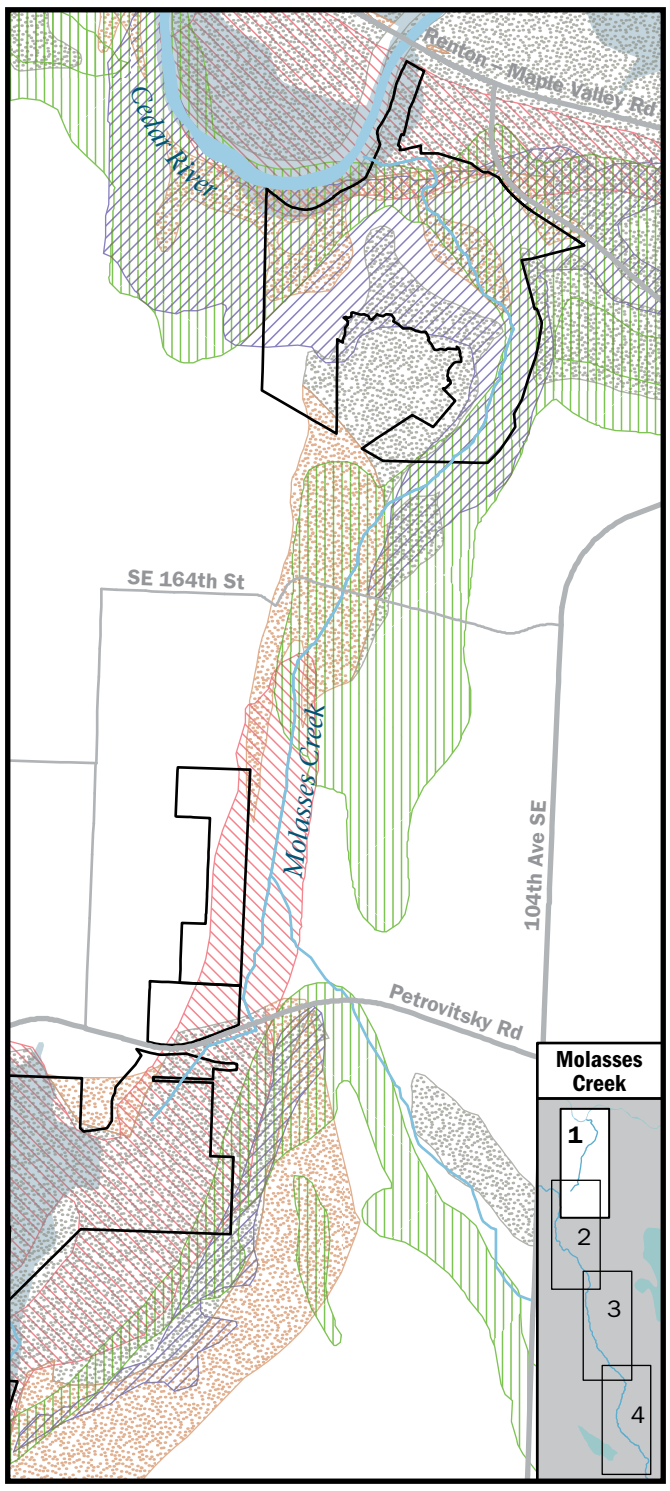
Map 9

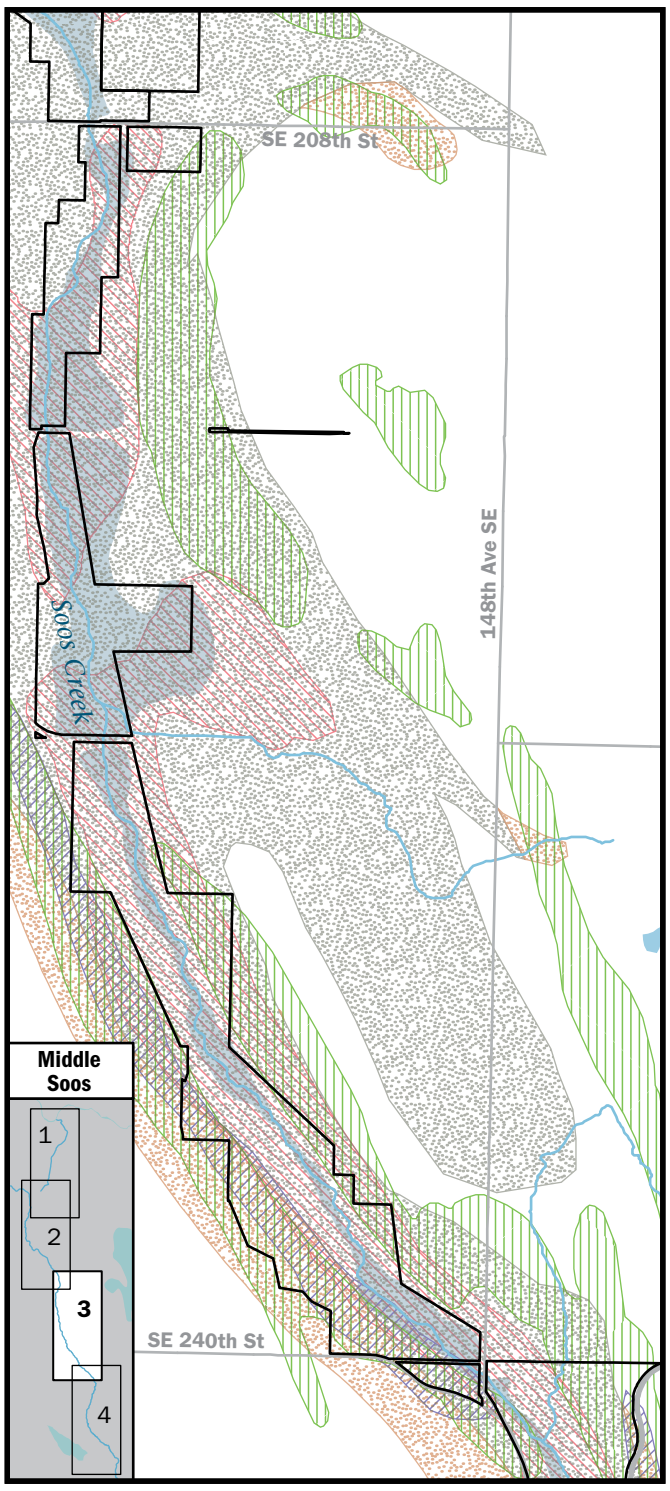
Soos Creek Park and Trail

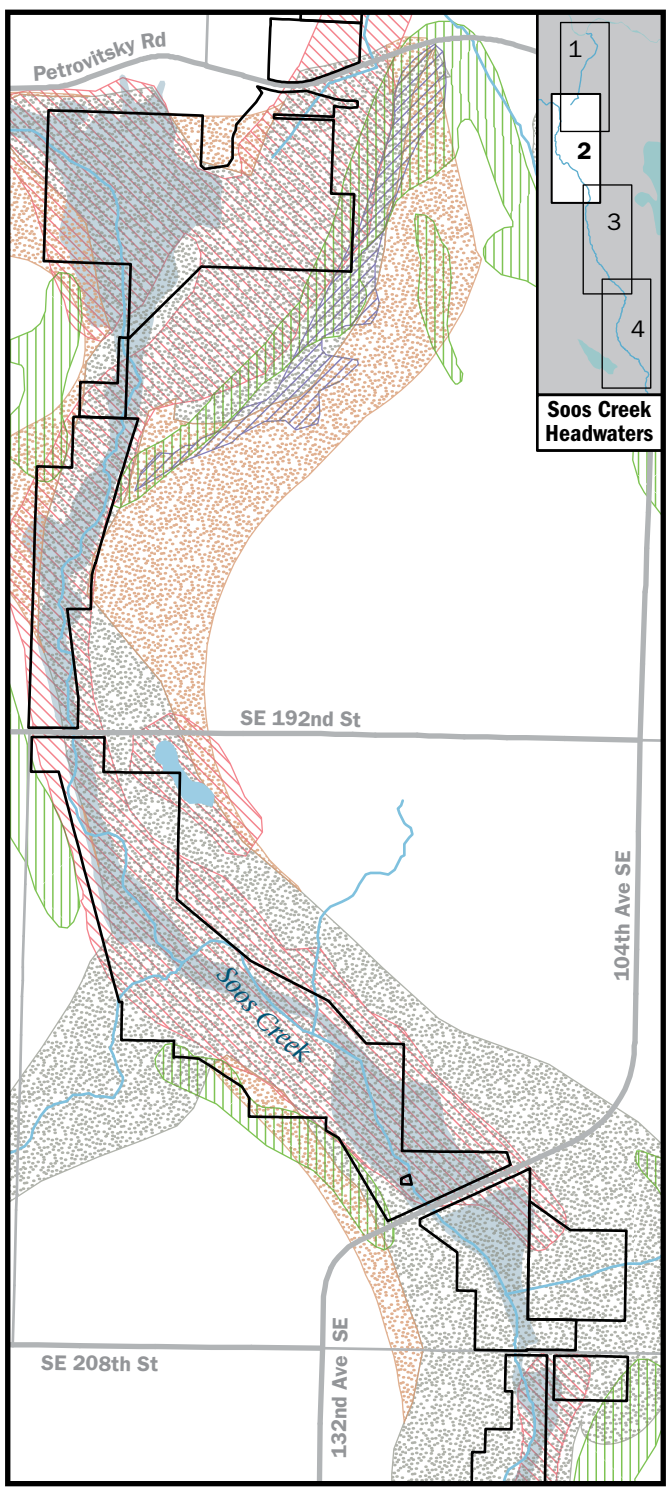
Existing Trails and Suitability of Soils for Trails

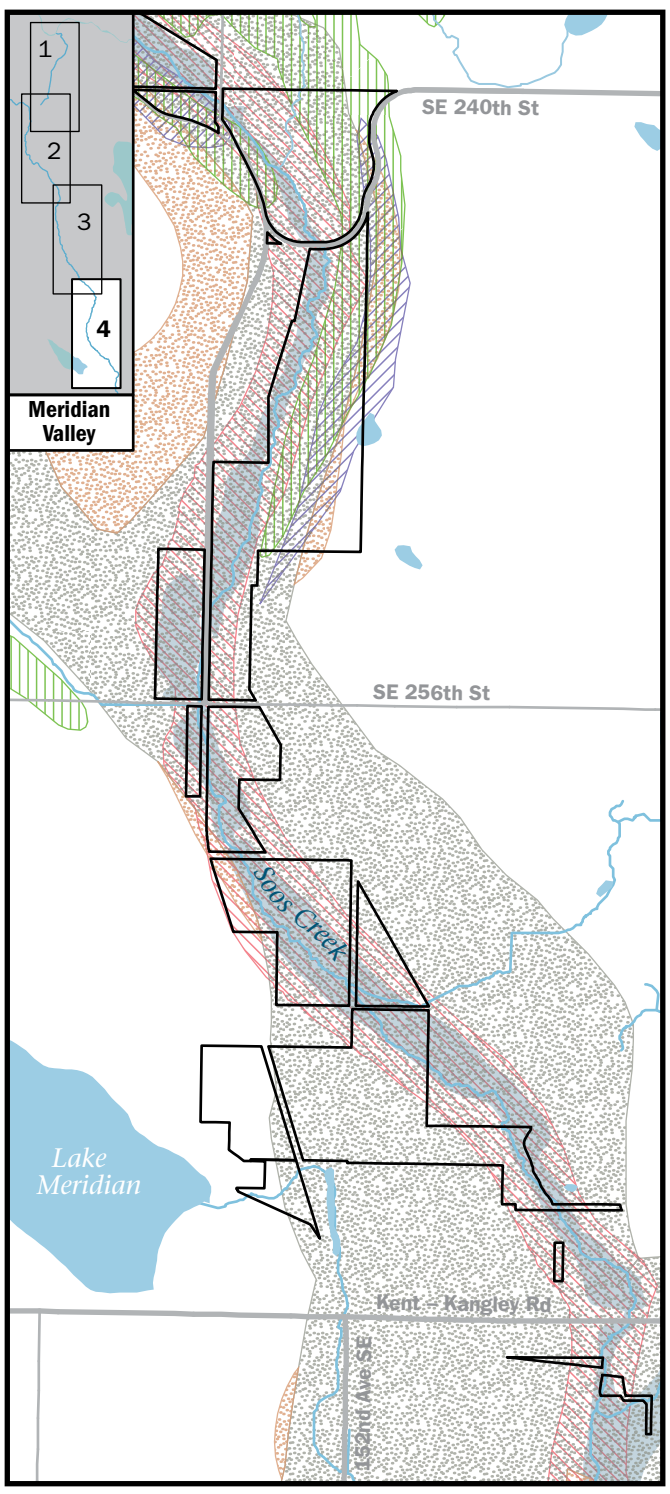
King County
Department of
Natural Resources and Parks
Parks Division

N
0 250 500 Feet
March 2013









Hazard Areas

- Landslide
- Erosion
- Seismic

Areas Susceptible to Groundwater Contamination

- High
- Medium

- 100-Year Floodplain
- Stream
- Major Road
- Lake or River
- Soos Creek Trail Park

Data Sources:
King County GIS Database

Map produced by:
King County IT/DNRP GIS,
Visual Communications & Web Unit
1303_3168_10soosHAZARDareas.ai wgab

Map 10

Soos Creek Park and Trail

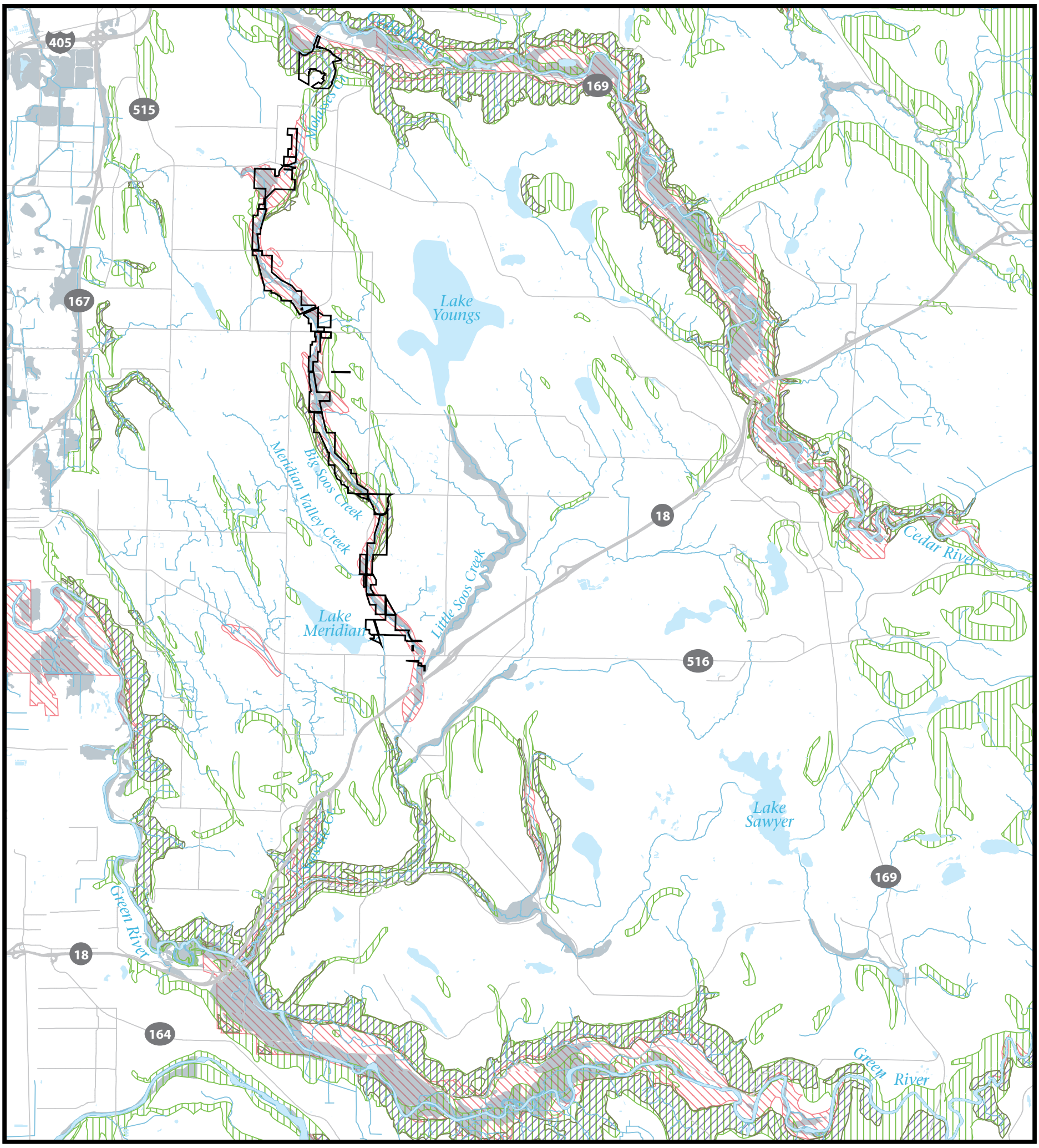
Hazard Areas

King County
Department of
Natural Resources and Parks
Parks Division

N

0 250 500 Feet

March 2013



Map 10A

Soos Creek Park and Trail Hazard Areas in Surrounding Region

Hazard Areas

- Landslide
- Erosion
- Seismic
- 100-Year Floodplain
- Soos Creek Trail Park
- Lake/River
- Major Road

King County

Department of Natural Resources and Parks
Parks Division

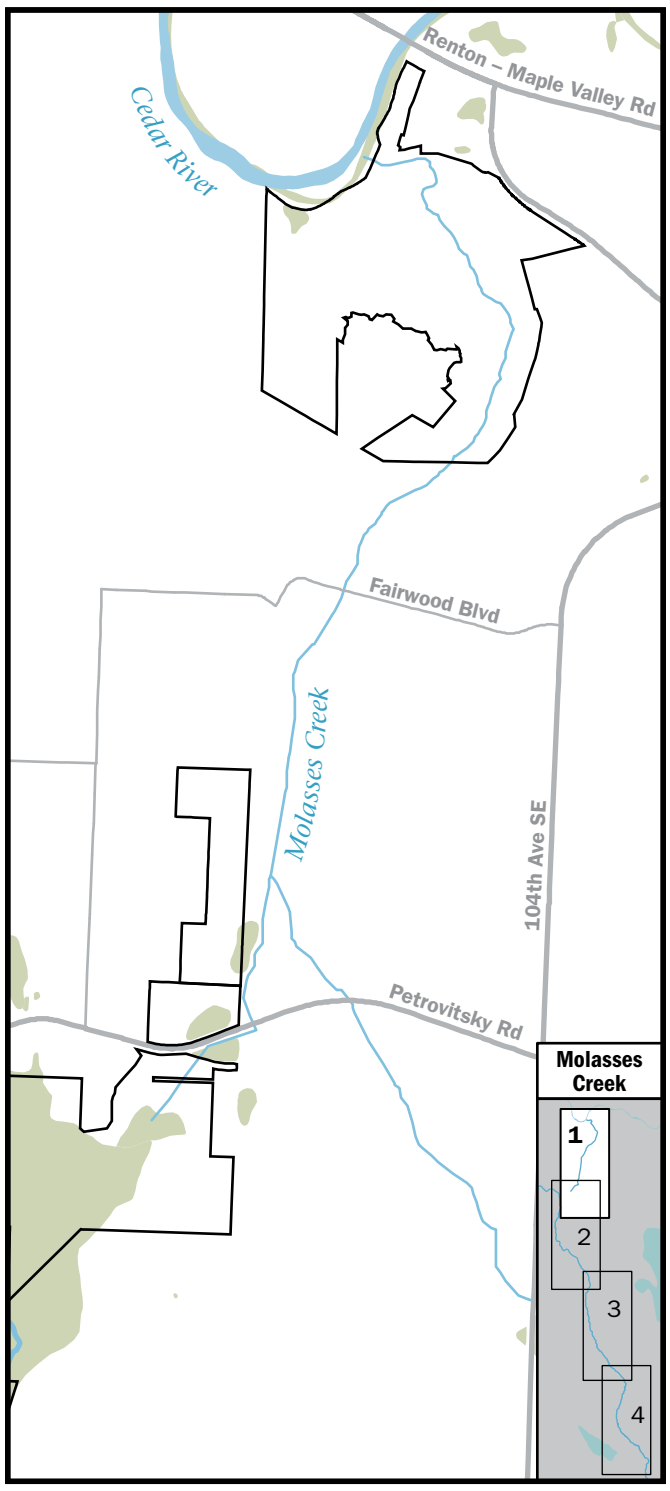
N

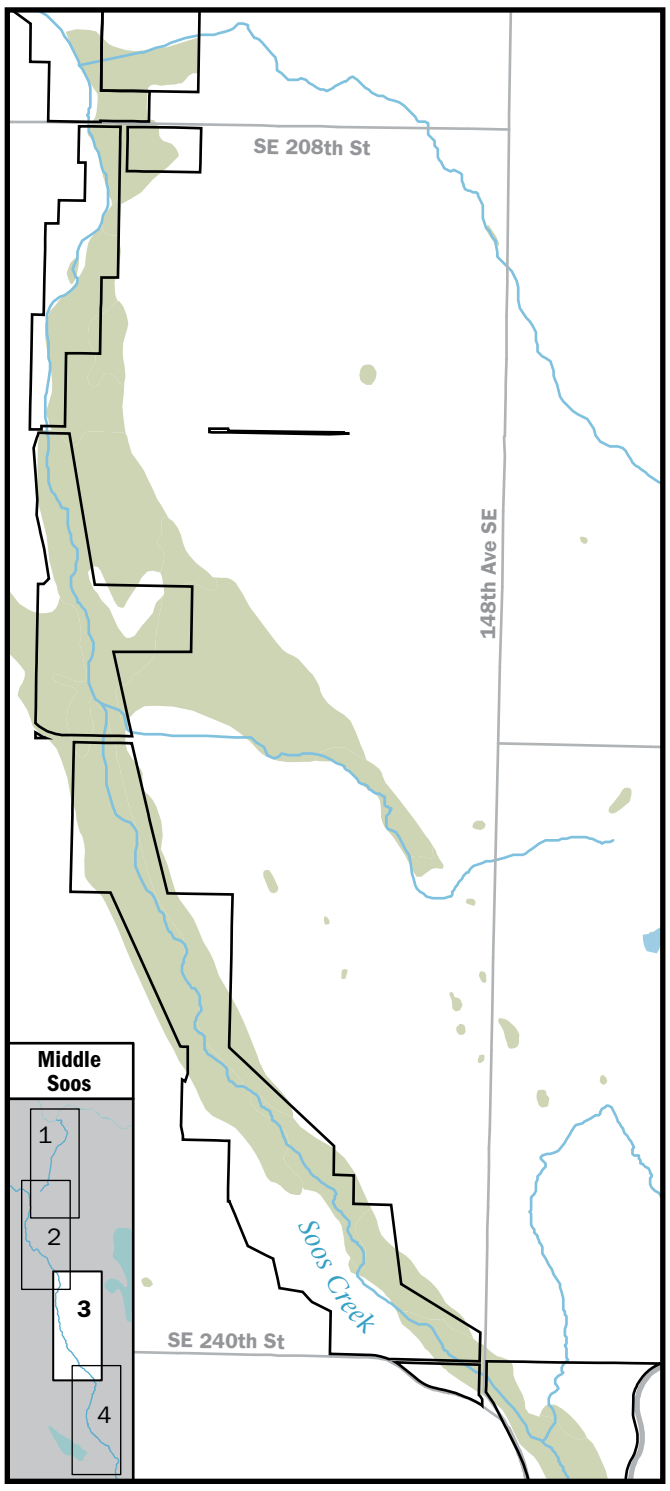
0 500 Feet

March 2013

Data Sources:
King County GIS Database, 2012 aerial

Map produced by:
King County IT/DNRP GIS,
Visual Communications & Web Unit
1303_3168_10AsoosHAZARDcontxt.ai wgab

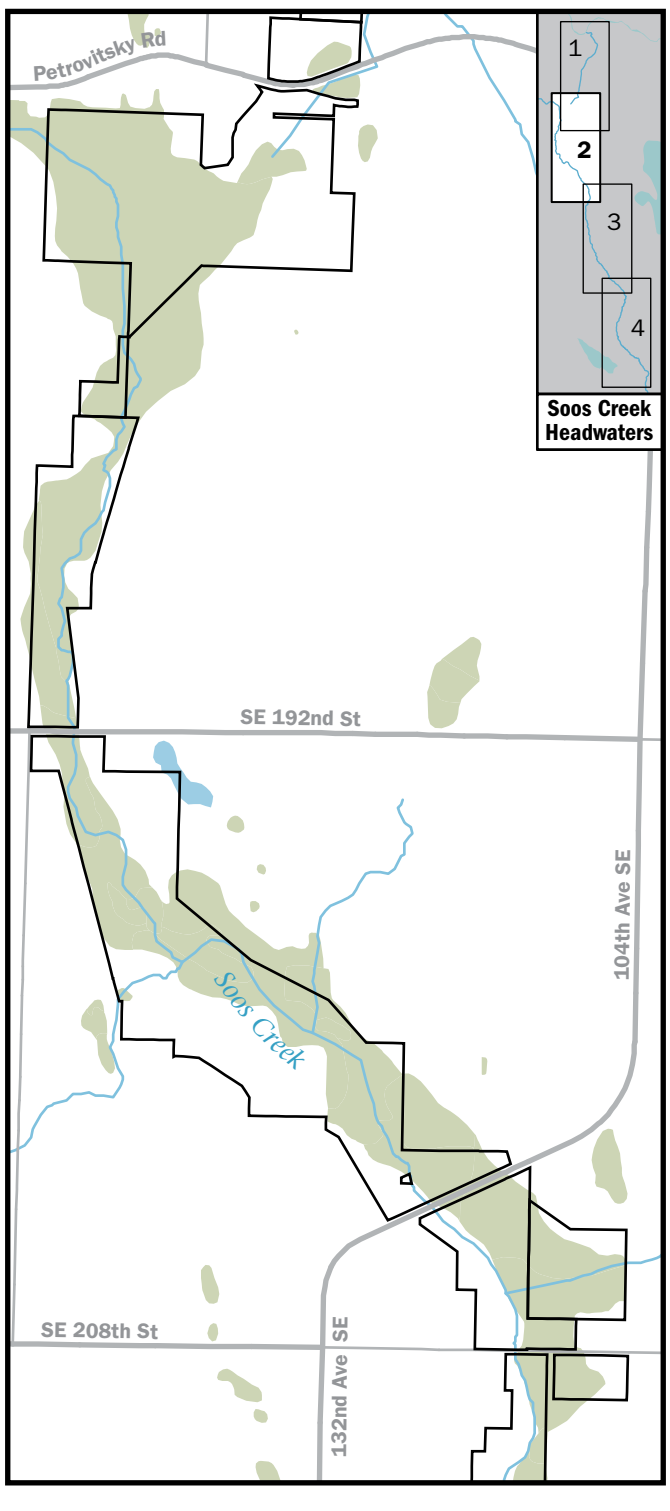


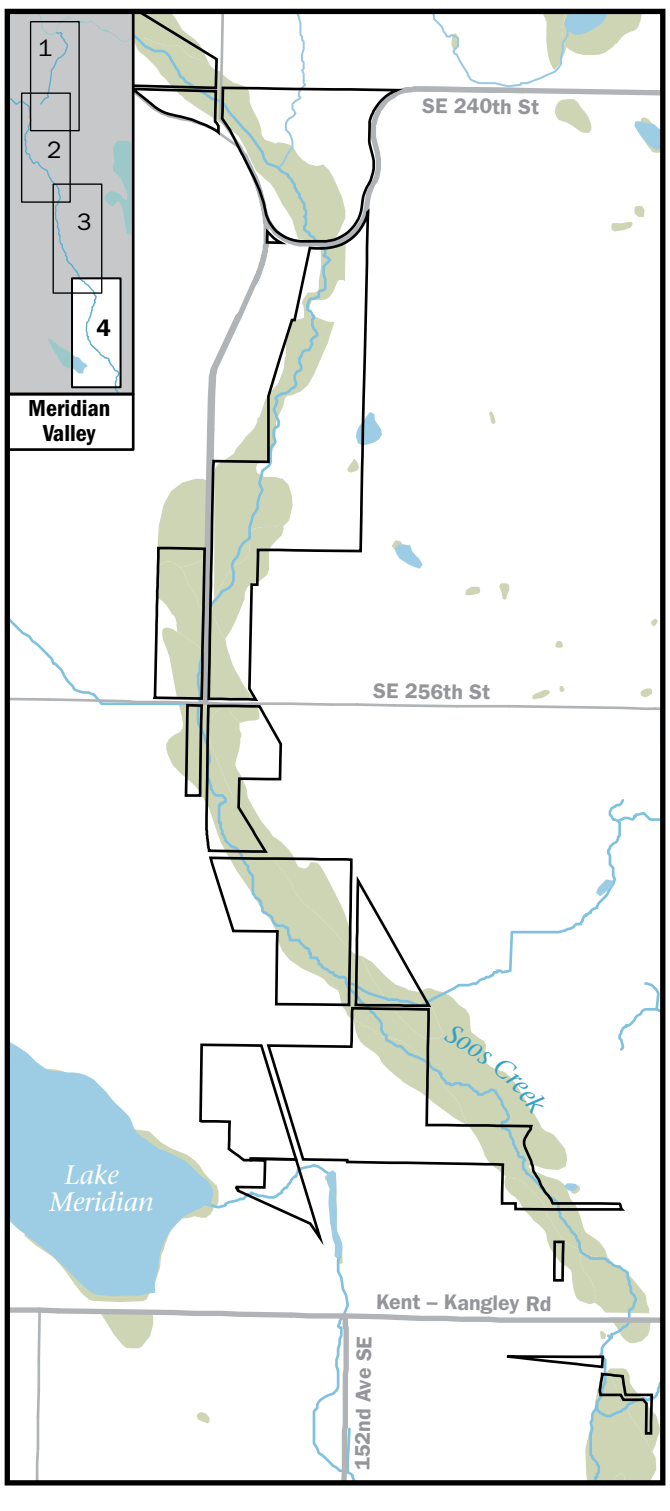


Stream
Major Road
Lake or River
Soos Creek Trail Park
Wetland

Data Sources:
King County GIS Database;
Wetlands are from the National Wetland Inventory

Map produced by:
King County IT/DNRP GIS,
Visual Communications & Web Unit
1303_3168_11soosWATERfeat.ai wgab





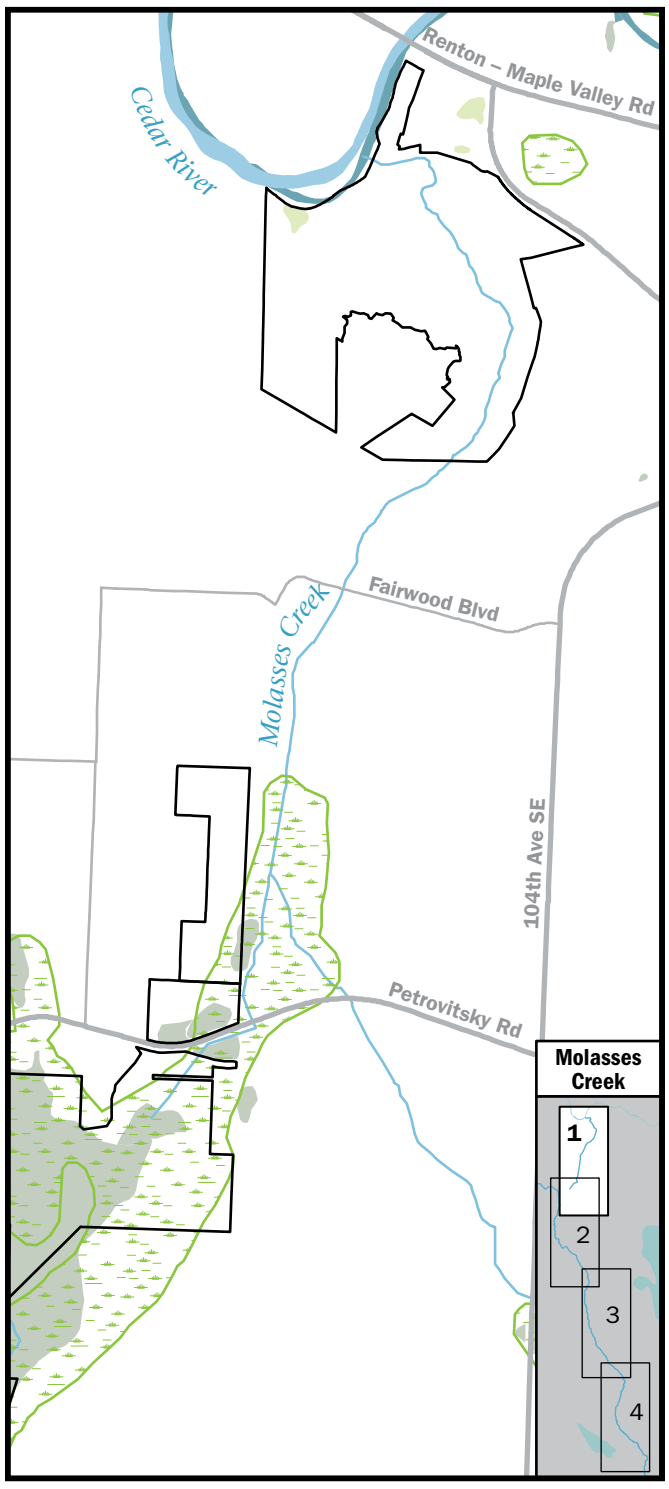
Map 11

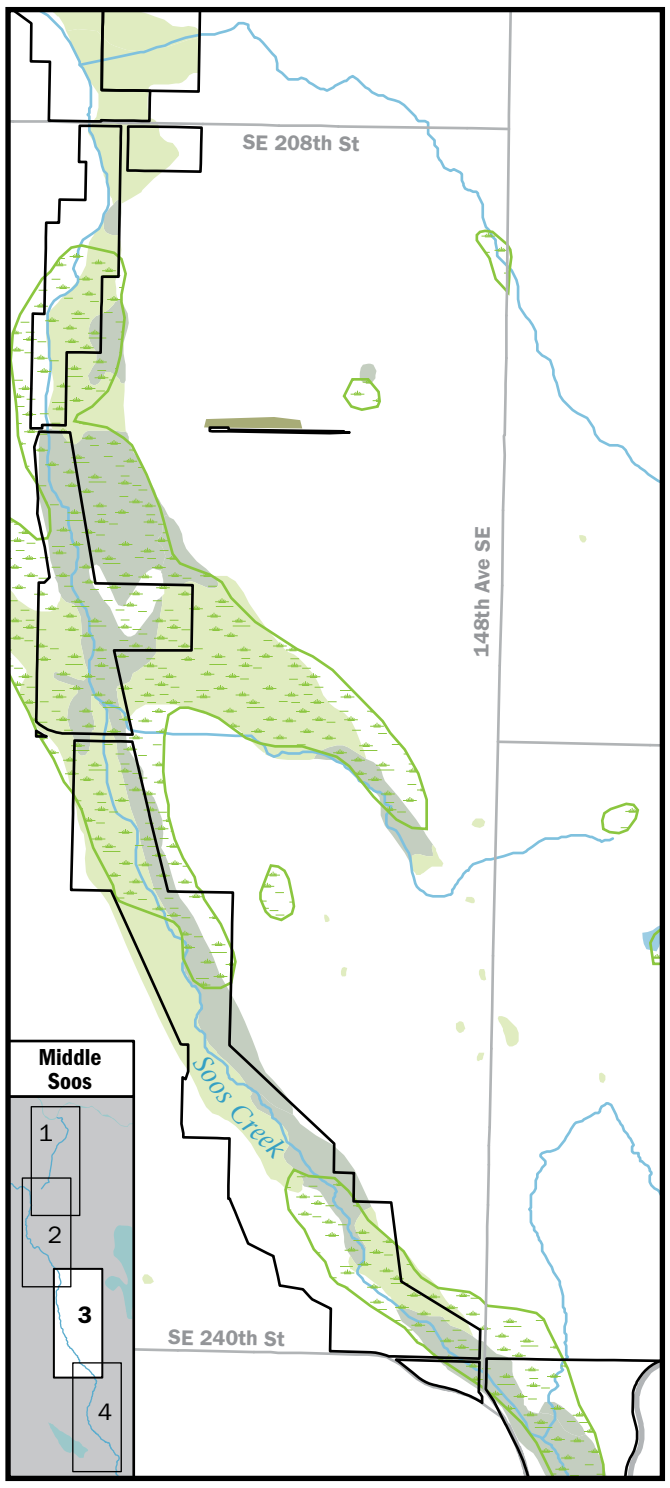
Soos Creek Park and Trail

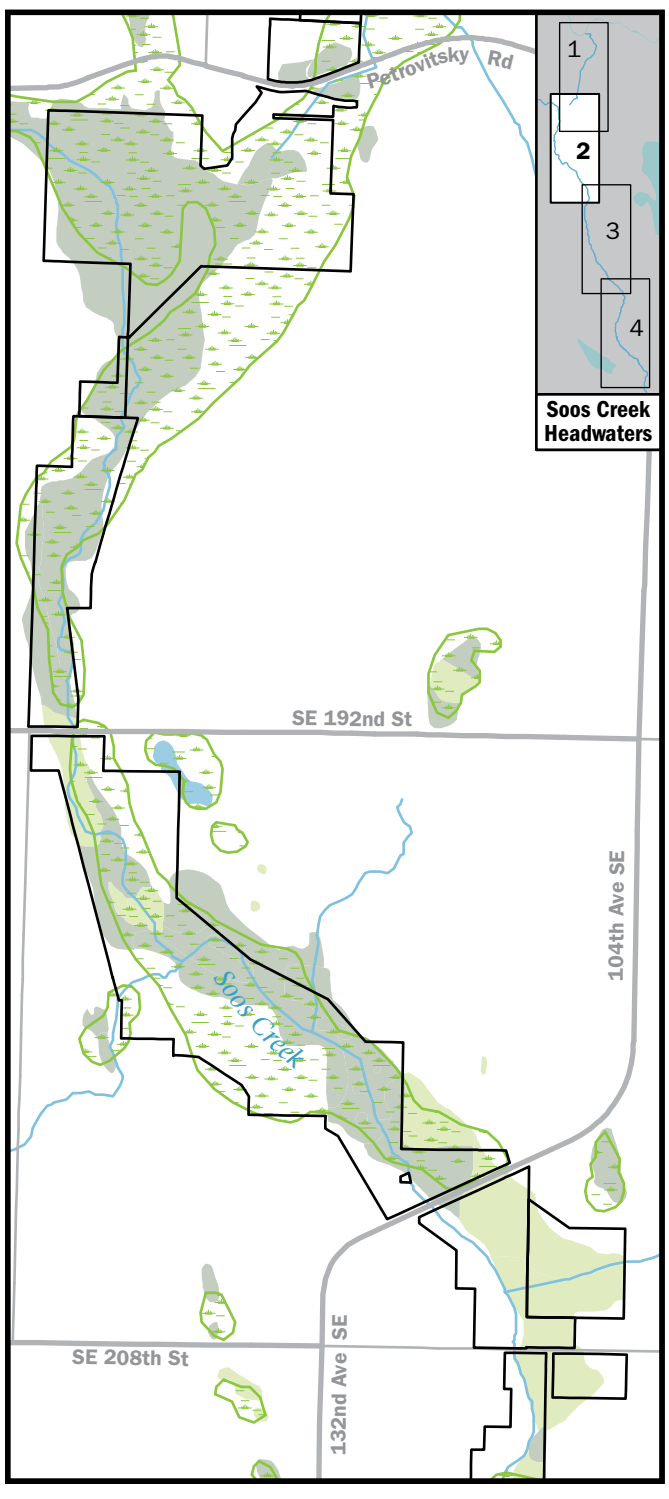
Water Features

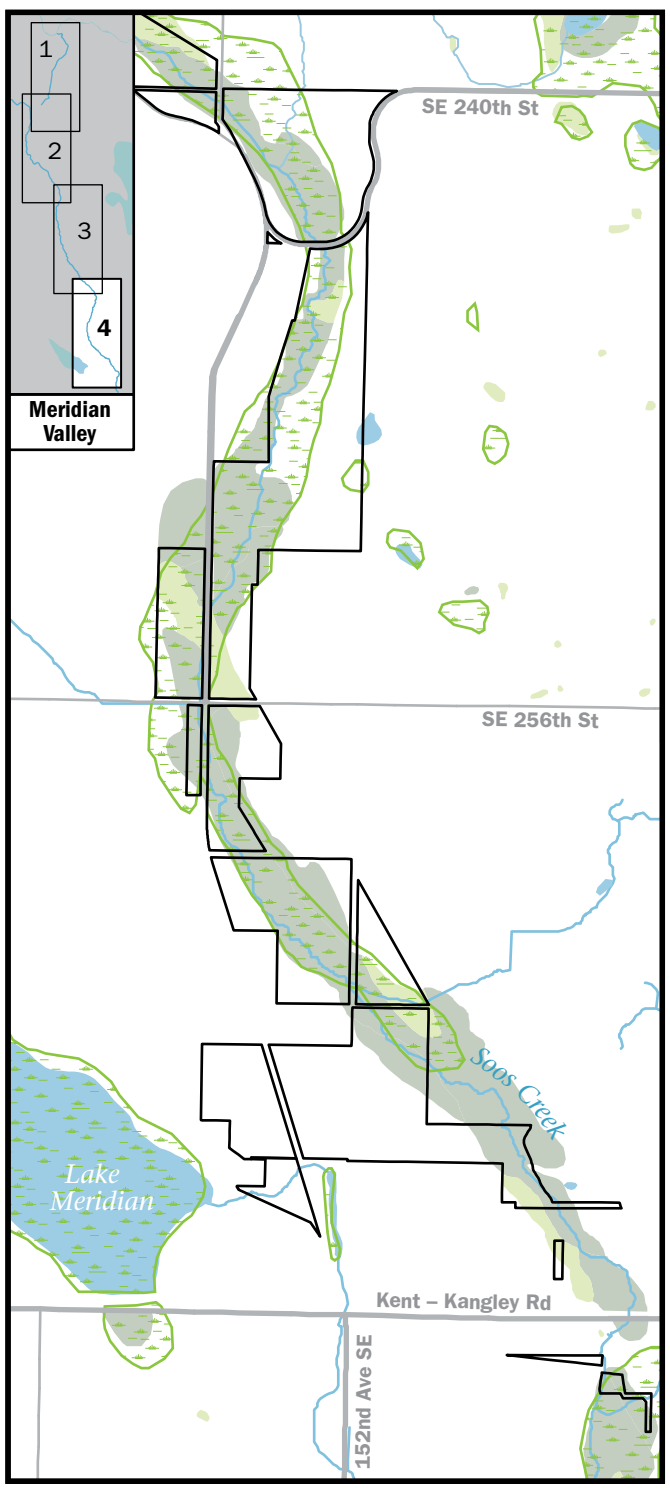
King County
Department of
Natural Resources and Parks
Parks Division

N
0 250 500 Feet
March 2013









- SAO Mapped Wetland, Unspecified Type
- Freshwater Emergent Wetland
- Freshwater Forested/ Shrub Wetland
- Riverine
- Stream
- Major Road
- Lake or River
- Soos Creek Trail Park

Data Sources:
King County GIS Database; National Wetland Inventory; Staff field observations

Map produced by:
King County IT/DNRP GIS,
Visual Communications & Web Unit
1303_3168_12soosWETLANDtype.ai wgab

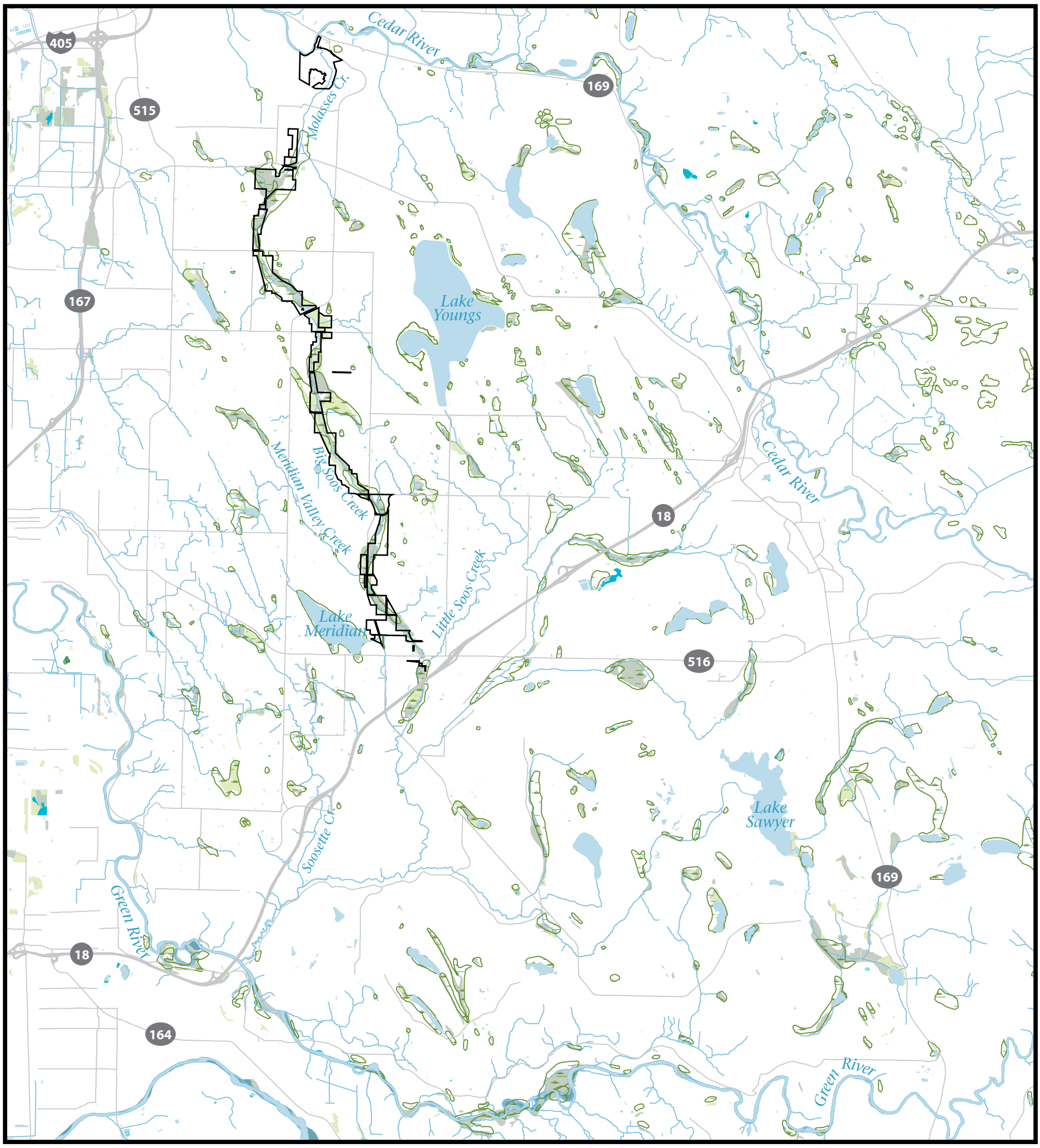
Map 12

Soos Creek Park and Trail

Wetland Types

King County
Department of Natural Resources and Parks
Parks Division

N
0 250 500 Feet
March 2013



Map 12A

Soos Creek Park and Trail Wetlands in Surrounding Region

NWI Wetland Type

- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Riverine
- SAO Wetland

- Soos Creek Trail Park
- Lake/River
- Major Road

King County

Department of Natural Resources and Parks
Parks Division

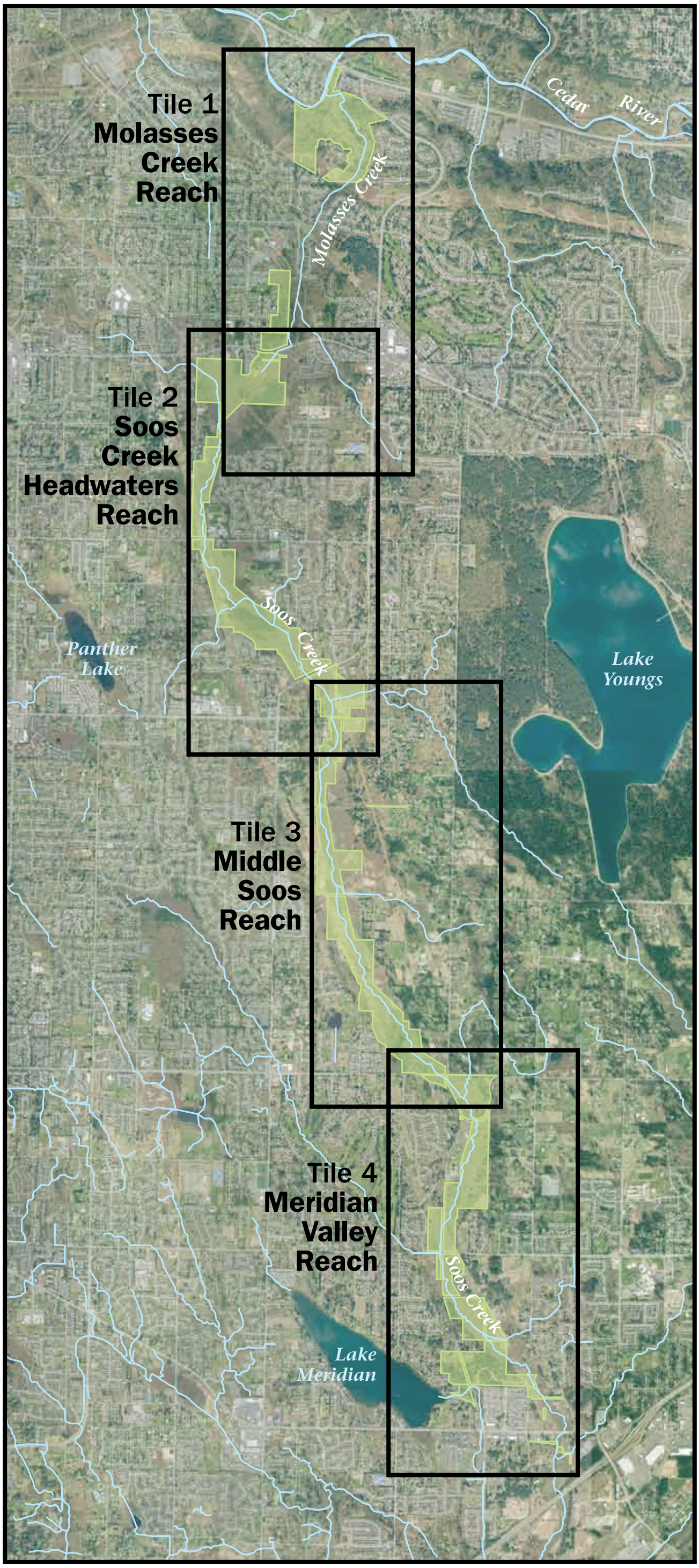
N

0 500 Feet

March 2013

Data Sources:
King County GIS Database, 2012 aerial

Map produced by:
King County IT/DNRP GIS,
Visual Communications & Web Unit
1303_3168_12AsoosWETLANDcontxt.ai wgab



Soos Creek Park and Trail

Data Sources:
King County GIS Database;
2012 Aerial

Map produced by:
King County IT/DNRP GIS,
Visual Communications & Web Unit
1303_3168_13soosOVERVIEW.ai wgab

Map 13

Soos Creek Park and Trail

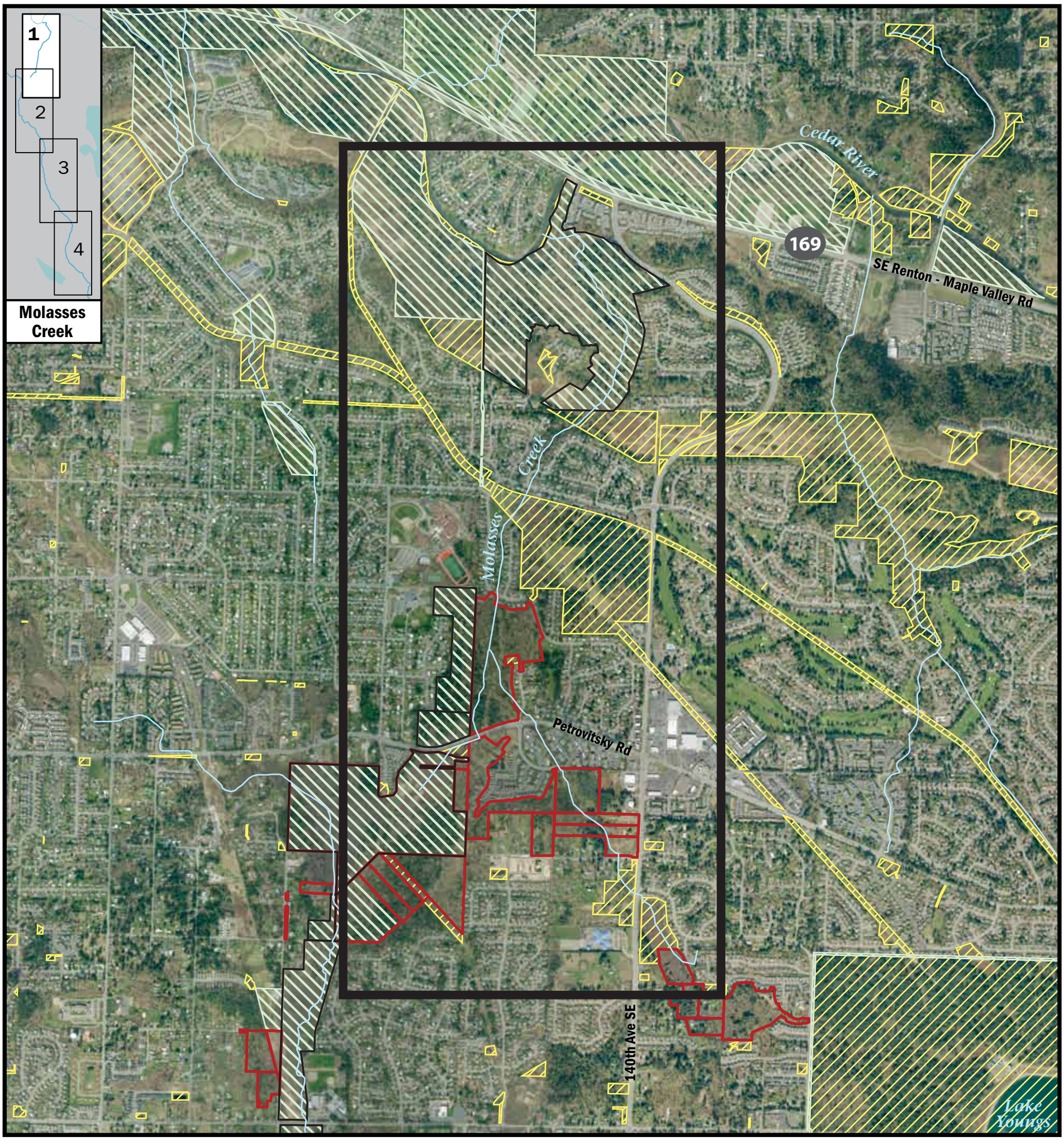
Overview

King County
Department of
Natural Resources and Parks
Parks Division

N

0 500 1,000 Feet

March 2013



Map 14

Soos Creek Park and Trail Molasses Creek Reach

Molasses Creek Reach Area

Priority Conservation Properties

Soos Creek Trail Park

King County Park Land

Other Public Land

King County

Department of Natural Resources and Parks
Parks Division

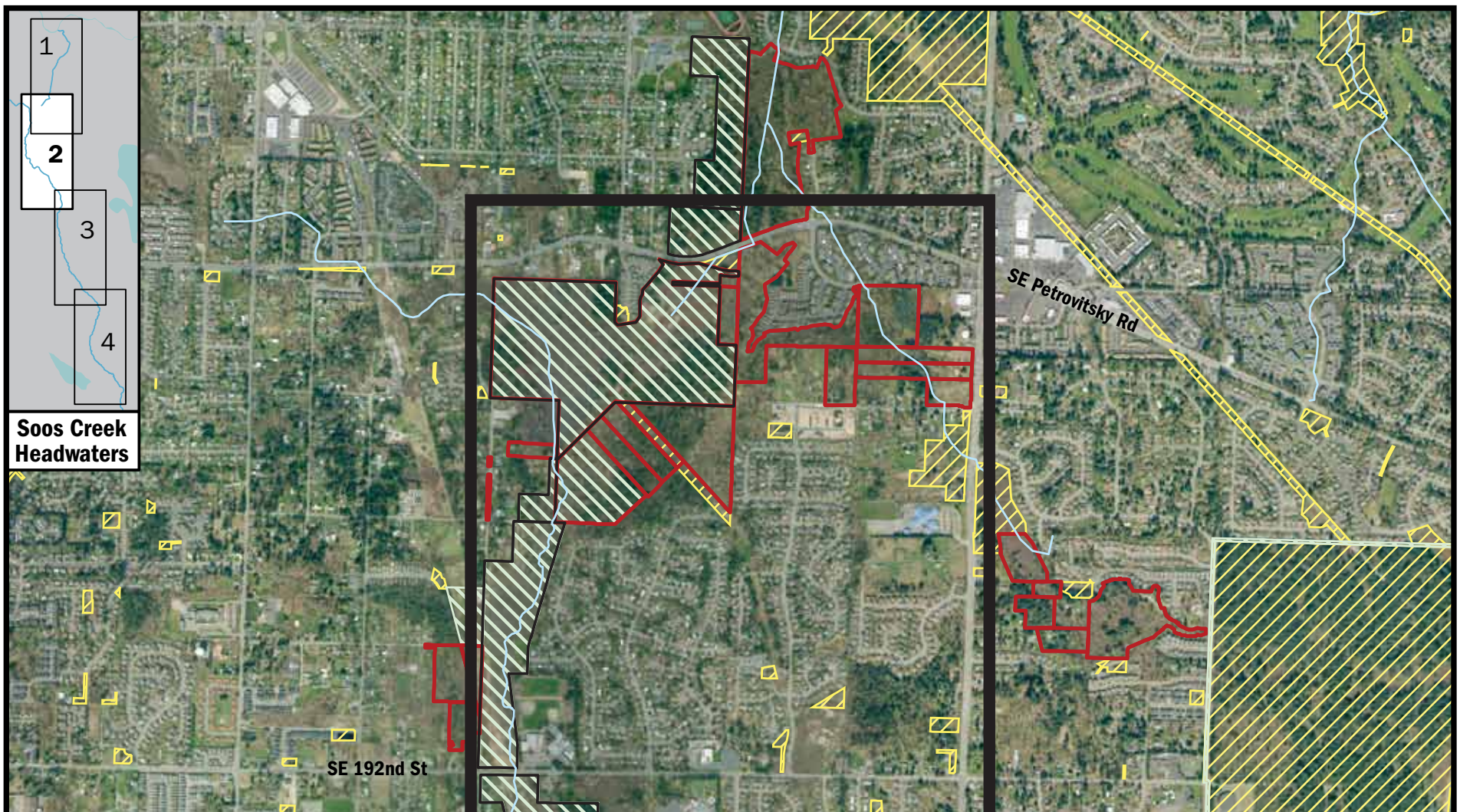
N

0 500 Feet

March 2013

Data Sources:
King County GIS Database, 2012 aerial

Map produced by:
King County IT/DNRP GIS,
Visual Communications & Web Unit
1303_3168_14soosMOLASSES.ai wgab



Map 15

Soos Creek Park and Trail Soos Creek Headwaters Reach

Soos Creek Headwaters Reach Area

Priority Conservation Properties

Soos Creek Trail Park

King County Park Land

Other Public Land

King County

Department of Natural Resources and Parks
Parks Division

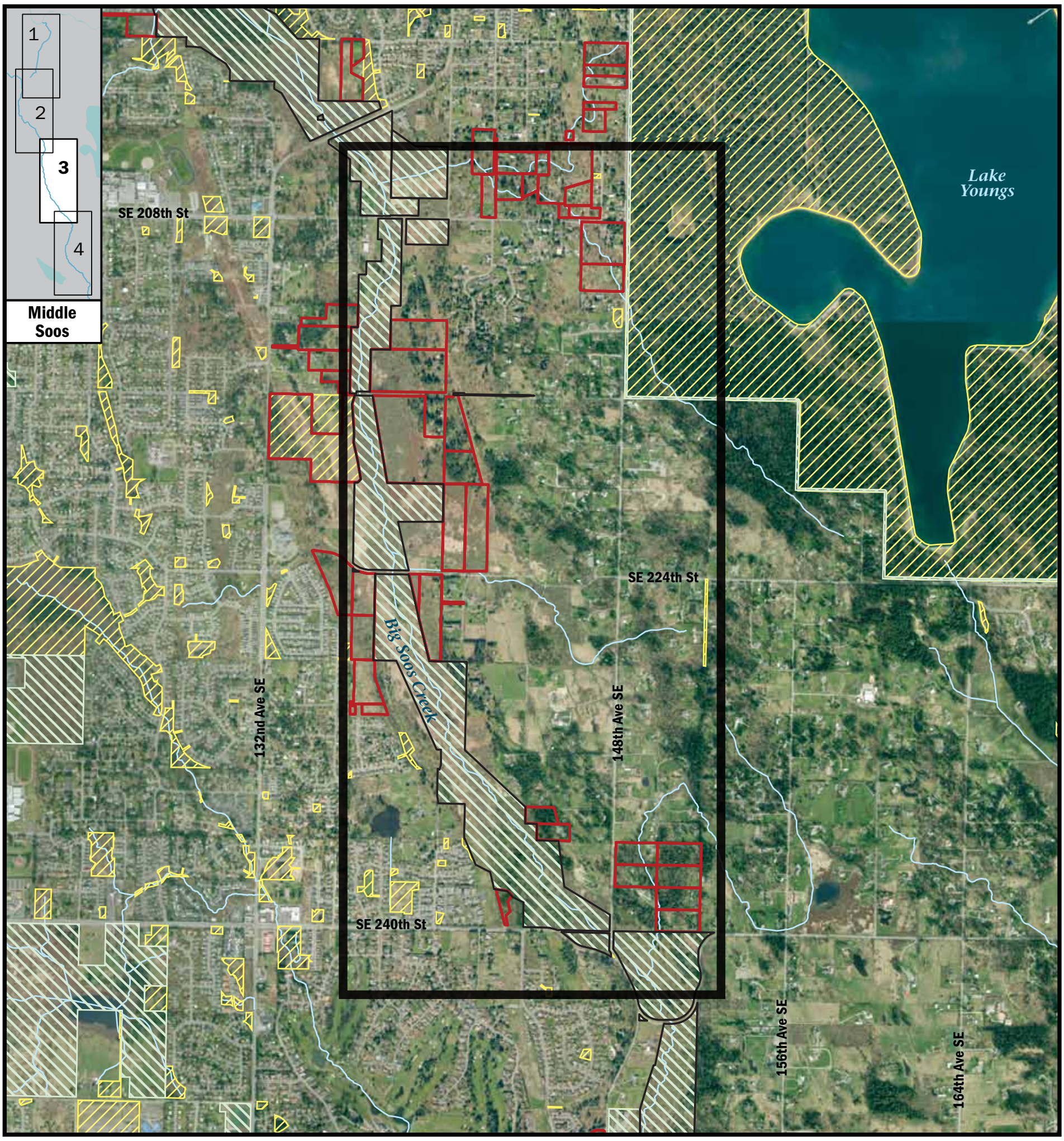
N

0 500 Feet

March 2013

Data Sources:
King County GIS Database, 2012 aerial

Map produced by:
King County IT/DNRP GIS,
Visual Communications & Web Unit
1303_3168_15soosHEADWTRS.ai wgab



Map 16

Soos Creek Park and Trail Middle Soos Reach

Middle Soos Reach Area

Priority Conservation Properties

Soos Creek Trail Park

King County Park Land

Other Public Land

King County

Department of Natural Resources and Parks
Parks Division

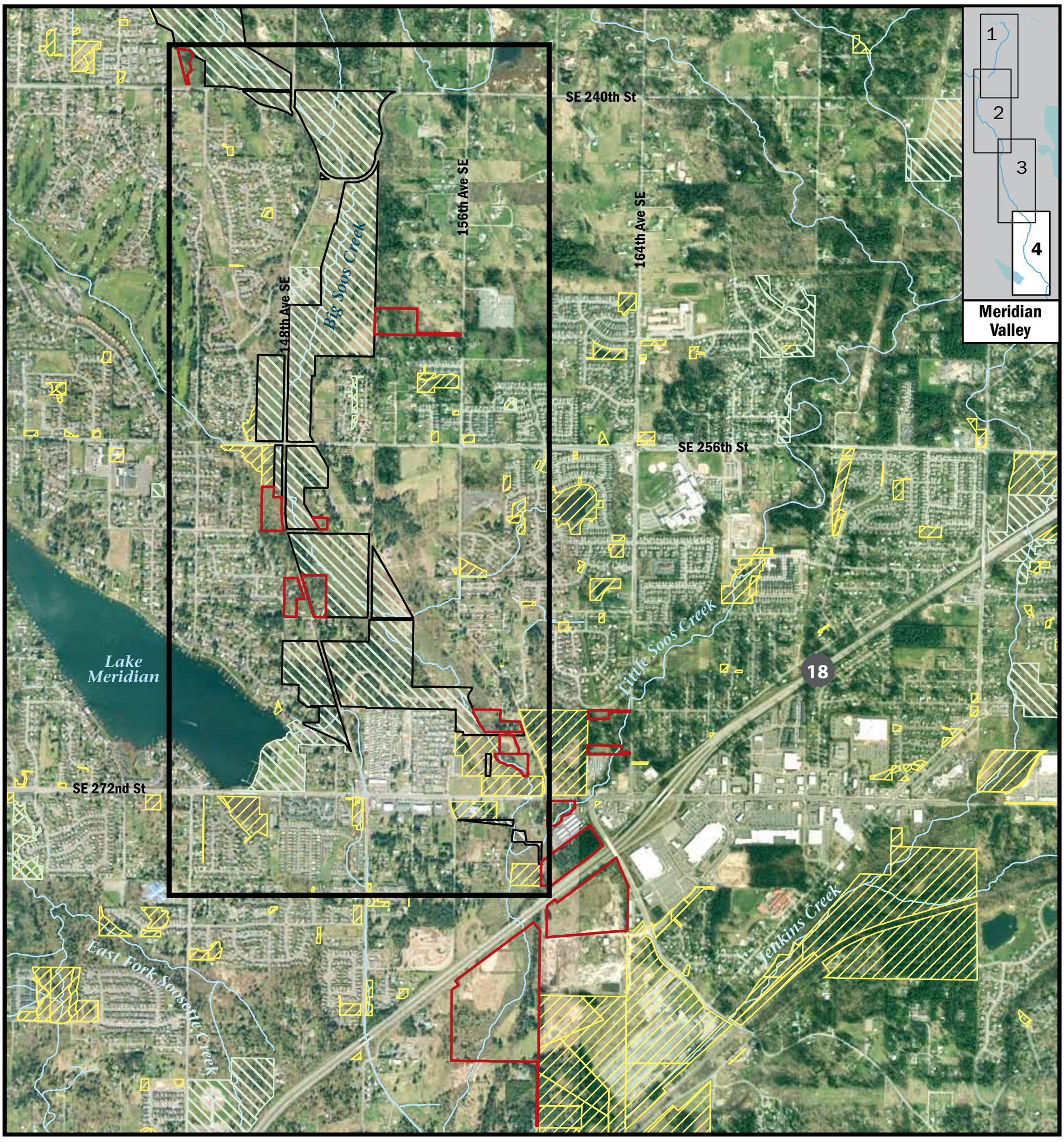
N

0 500 Feet

March 2013

Data Sources:
King County GIS Database, 2012 aerial

Map produced by:
King County IT/DNRP GIS,
Visual Communications & Web Unit
1303_3168_16soosMIDDLE.ai wgab



Map 17

Soos Creek Park and Trail Meridian Valley Reach

Meridian Valley Reach Area

Priority Conservation Properties

Soos Creek Trail Park

King County Park Land

Other Public Land

King County

Department of Natural Resources and Parks
Parks Division

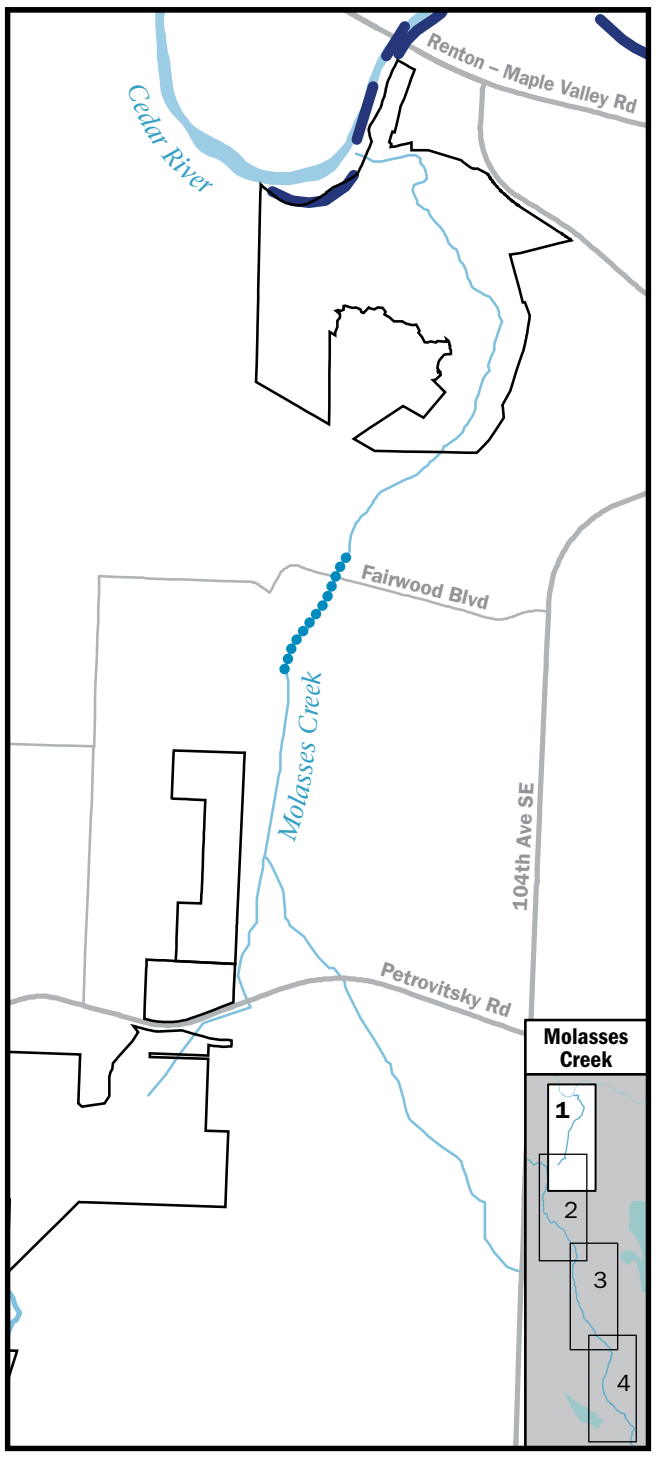
N

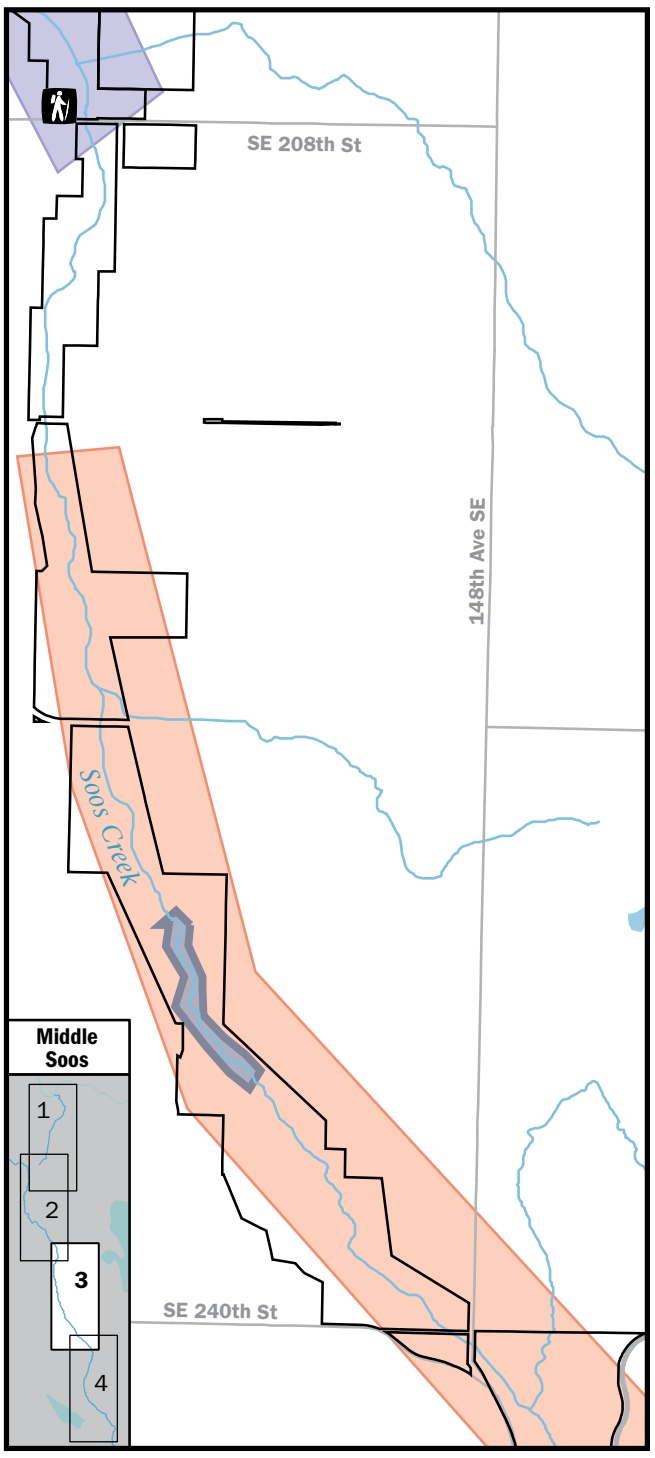
0 500 Feet

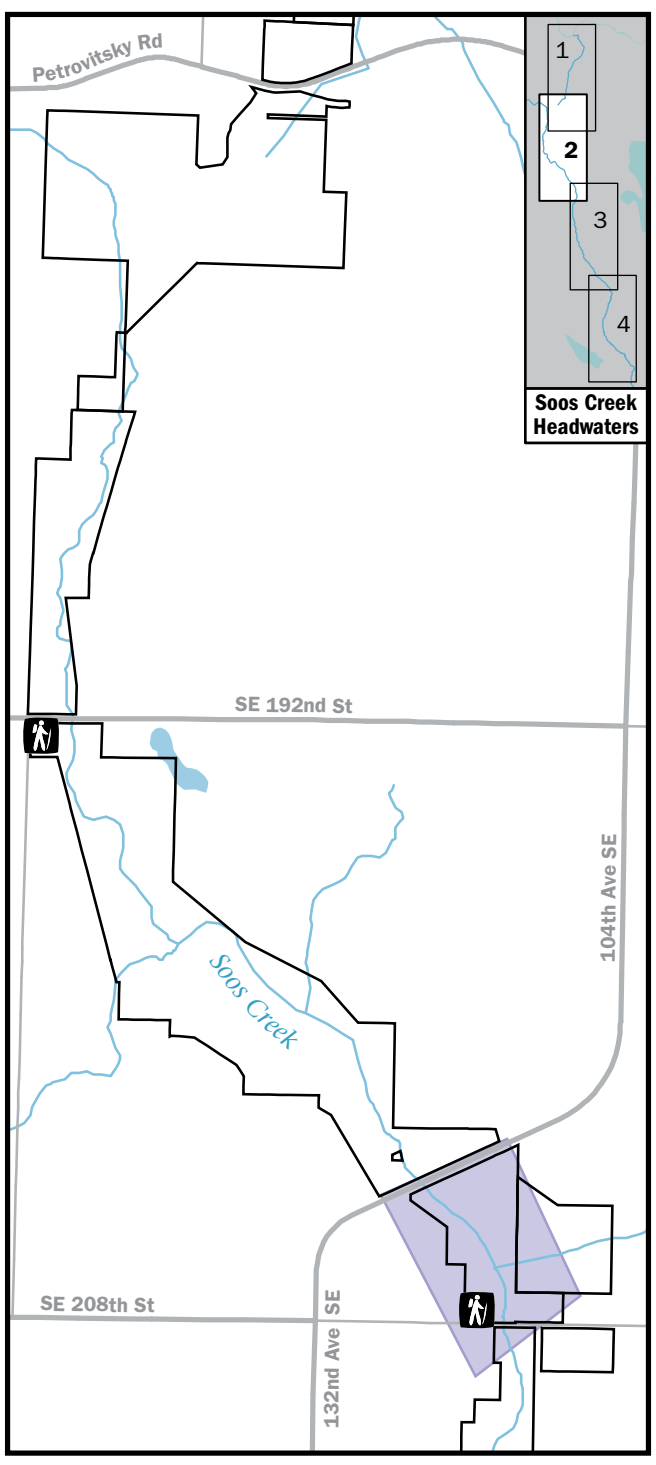
March 2013

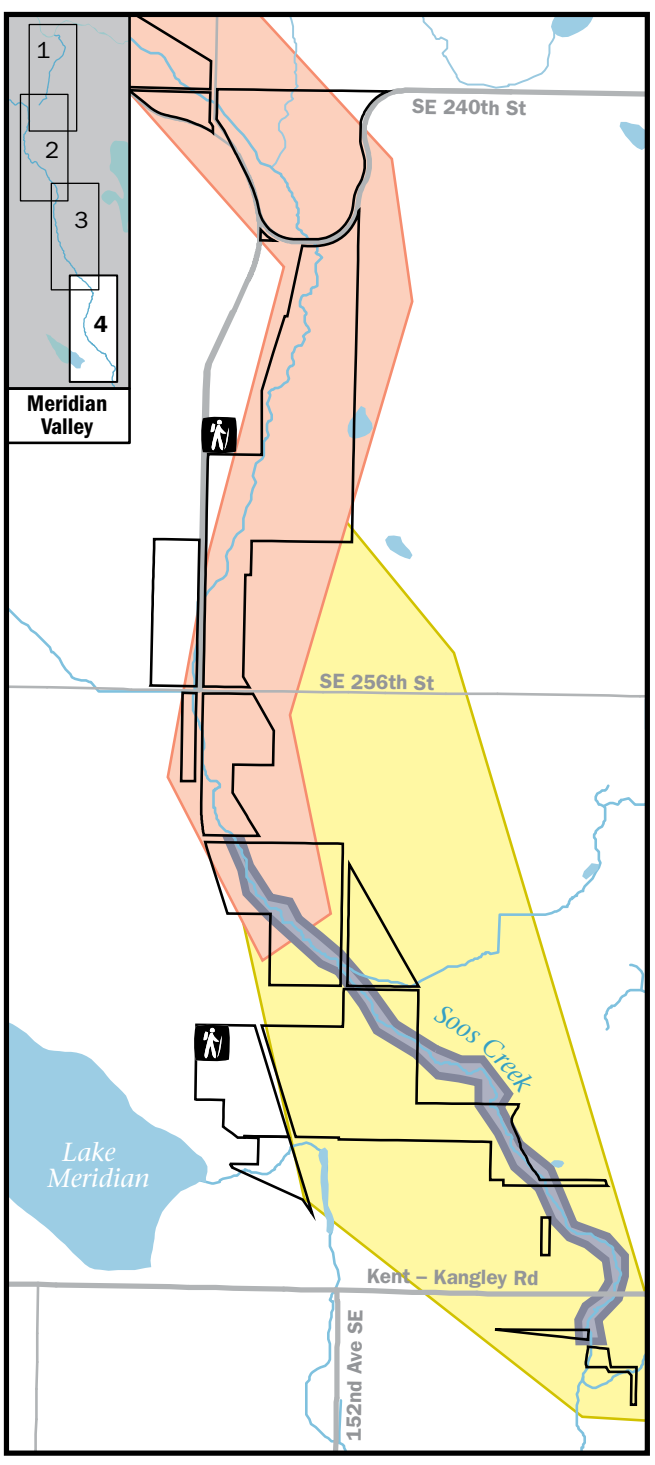
Data Sources:
King County GIS Database, 2012 aerial

Map produced by:
King County IT/DNRP GIS,
Visual Communications & Web Unit
1303_3168_17soosMERIDIAN.ai wgab









River Facility

Piped Stream

Gravel Patchiness

Groundwater Concern Area

Erosion & Sedimentation Problems

Water Quality Alert Area

Trailhead

Stream

Major Road

Lake or River

Soos Creek Trail Park

Data Sources:
King County GIS Database

Map produced by:
King County IT/DNRP GIS,
Visual Communications & Web Unit
1303_3168_18soosHYDROfeat.ai wgab

Map 18

Soos Creek Park and Trail

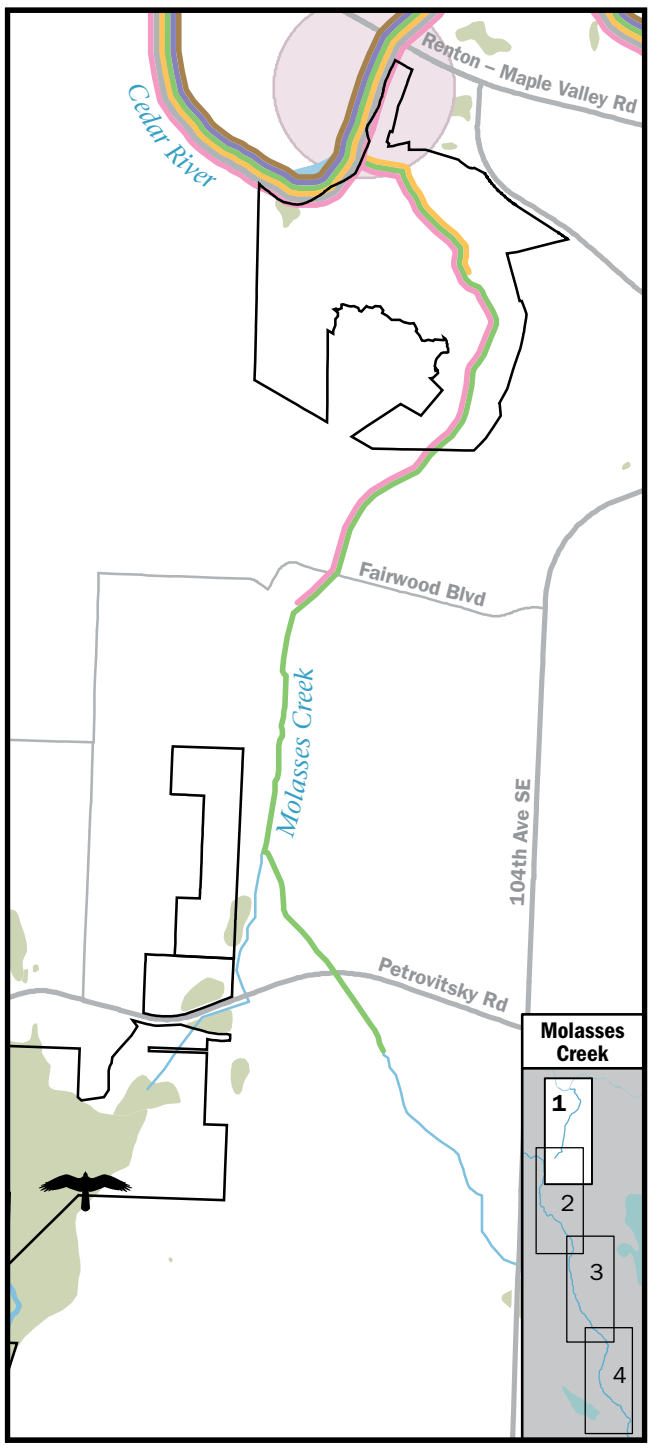
Hydrologic and Instream Features

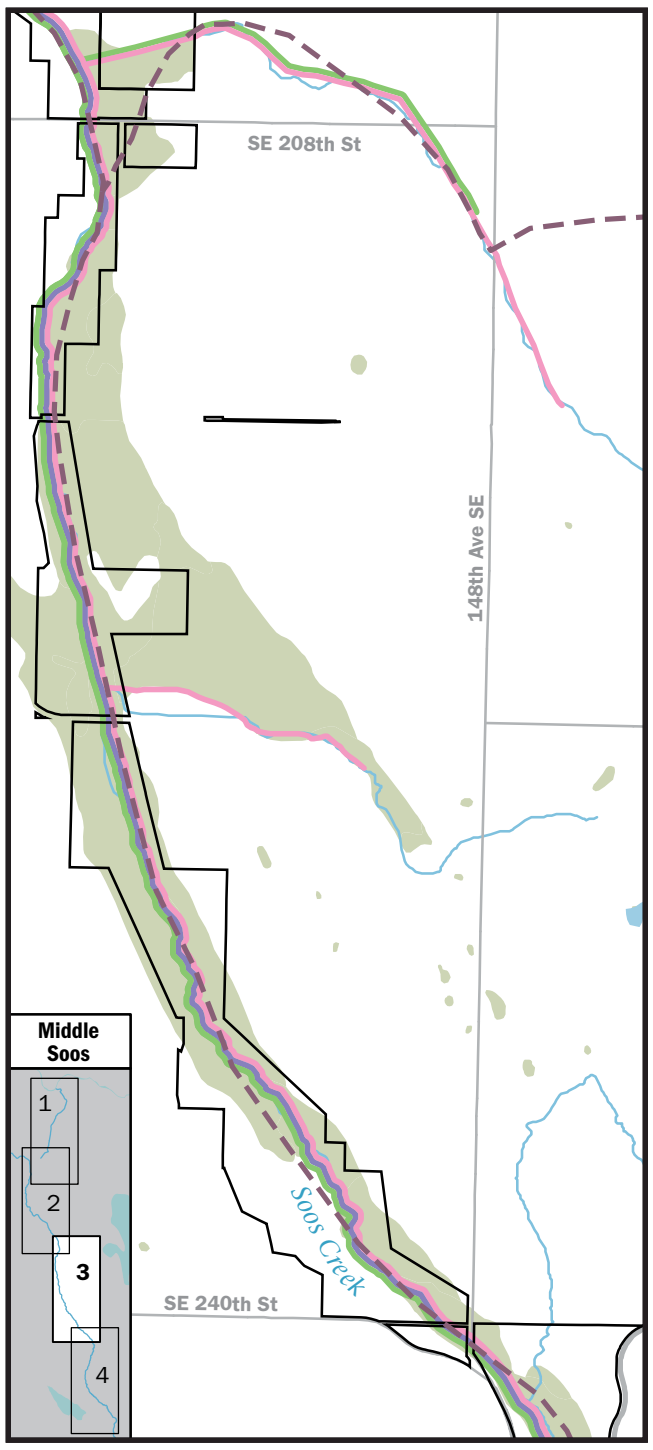
King County
Department of
Natural Resources and Parks
Parks Division

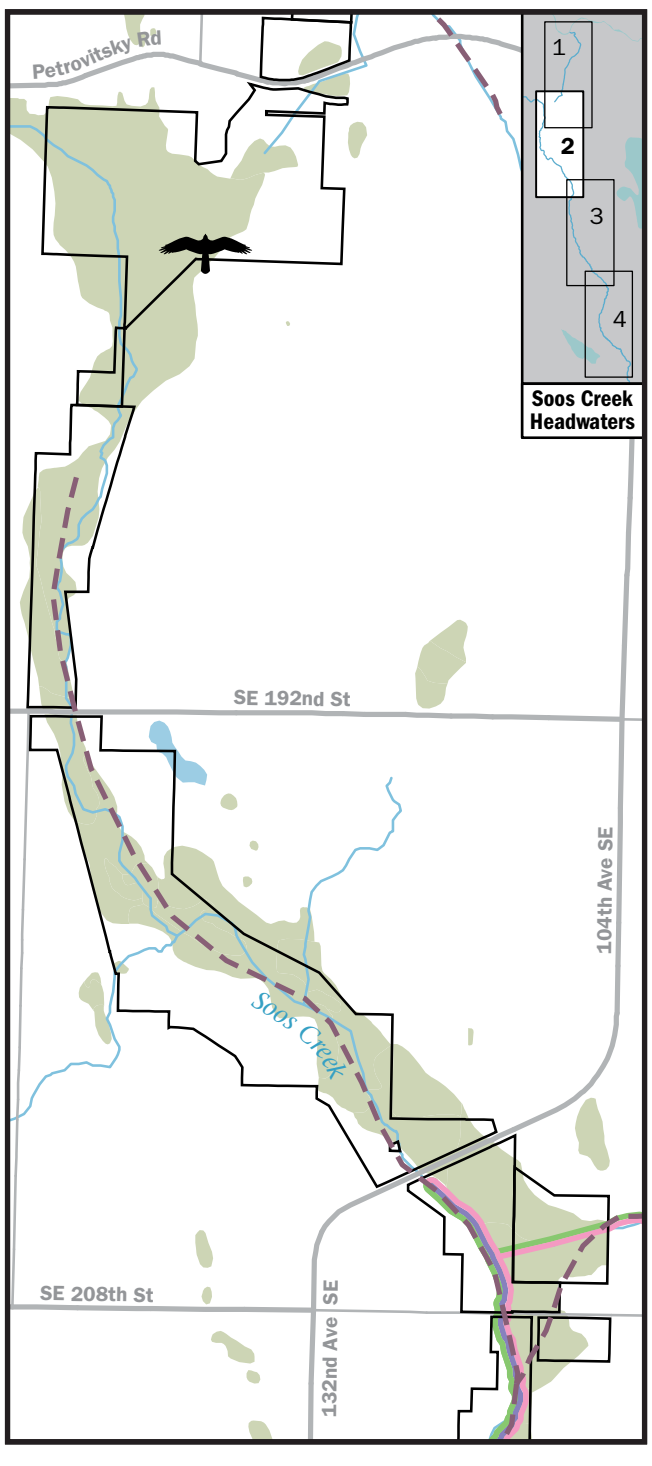
N

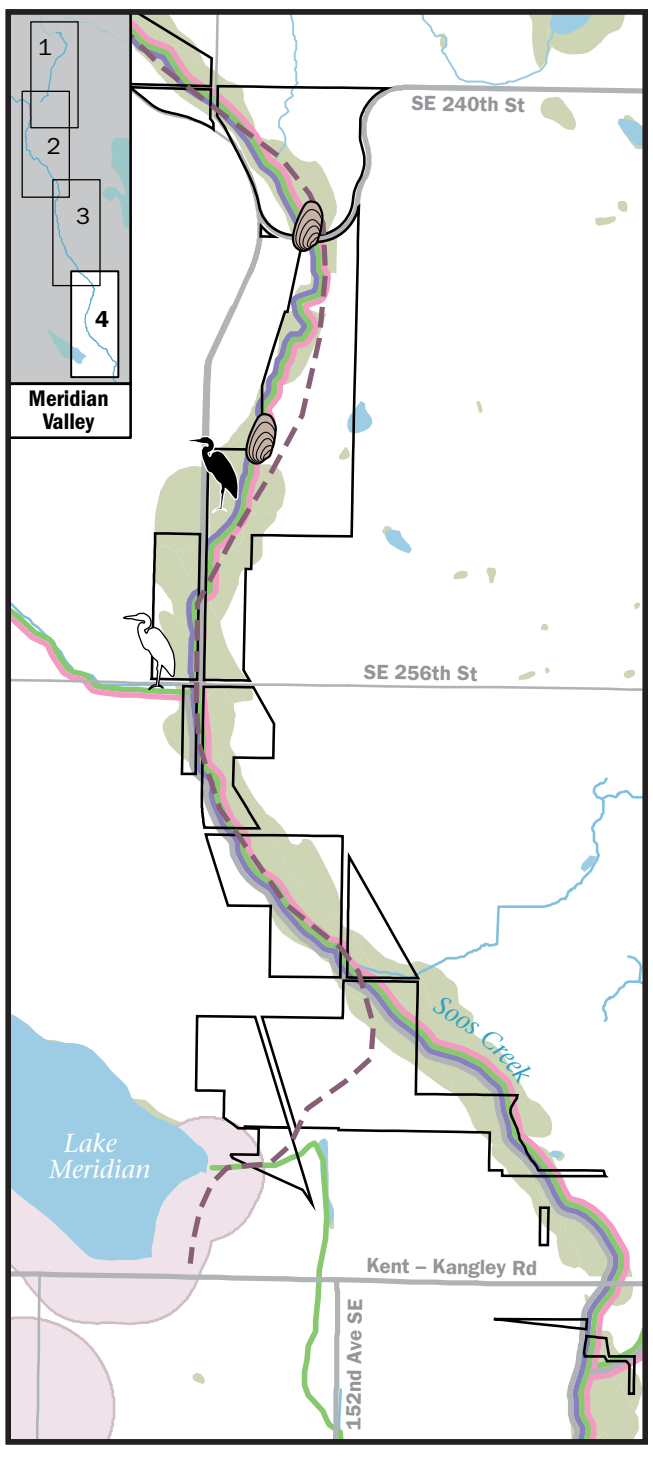
0 250 500 Feet

March 2013









Fish Distribution

- Coho
- Fall Chinook
- Winter Steelhead
- Resident Cutthroat
- Dolly Varden/Bull Trout
- Sockeye

Wildlife

- Wildlife Habitat Network
- Bald Eagle Nesting Area and Buffer
- Red Tailed Hawk Nest
- Active Great Blue Heron Rookery
- Old Great Blue Heron Rookery
- Freshwater Mussel (*Margaritifera falcata*) Location

- Stream
- Major Road
- Lake or River
- Soos Creek Trail Park
- Wetland

Data Sources:
King County GIS Database;
National Wetland Inventory

Map produced by:
King County IT/DNRP GIS,
Visual Communications & Web Unit
1303_3168_19soosWILDfish.ai wgab

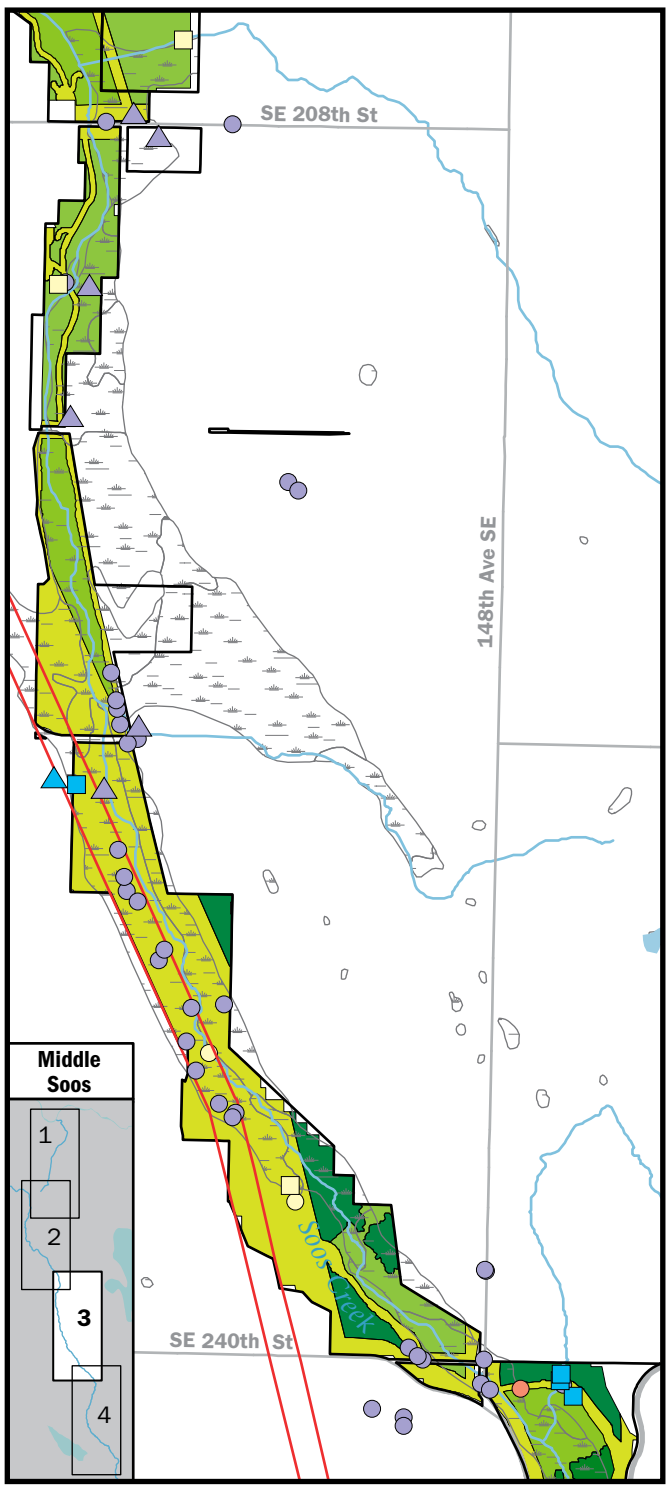
Map 19

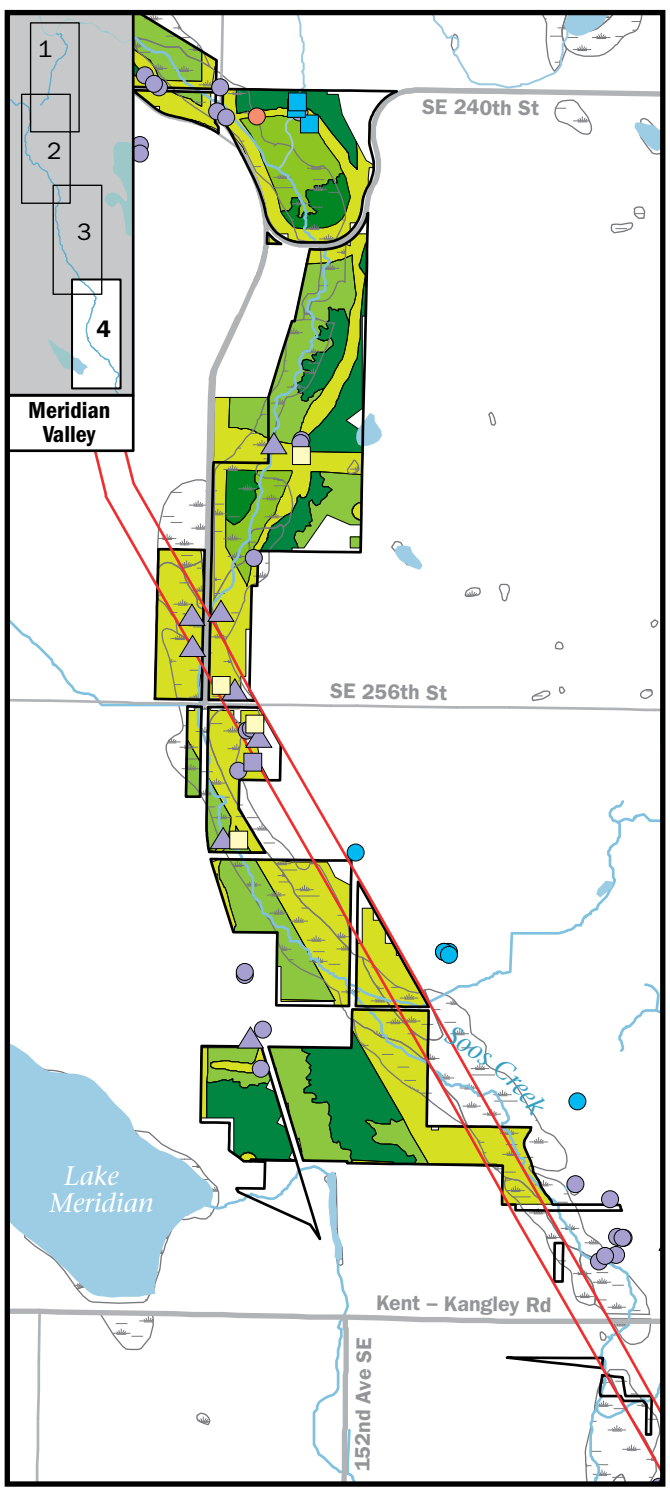
Soos Creek Park and Trail

Fish and Wildlife

King County
Department of
Natural Resources and Parks
Parks Division

N
0 250 500 Feet
March 2013





Noxious Weed Species

- Bohemian Knotweed
- English Ivy
- Himalayan Blackberry
- Purple Loosestrife (Class B)
- Reed Canarygrass
- Scot's Broom
- Spotted Knapweed (Class B)
- Sulfur Cinquefoil (Class B)
- Tansy Ragwort (Class A)
- Non-native Rose spp.
- Yellow-flag Iris

Percent of Invasive Species Presence

- > 0.5%
- 3–5%
- 6–10%
- 11–25%

- Stream
- Major Road
- Bonneville Right-of-way
- Lake or River
- Soos Creek Trail Park
- Wetland

Data Sources:
King County GIS Database;
National Wetland Inventory

Map produced by:
King County IT/DNRP GIS,
Visual Communications & Web Unit
1303_3168_20soosWEEDtype.ai wgab

Map 20

Soos Creek Park and Trail

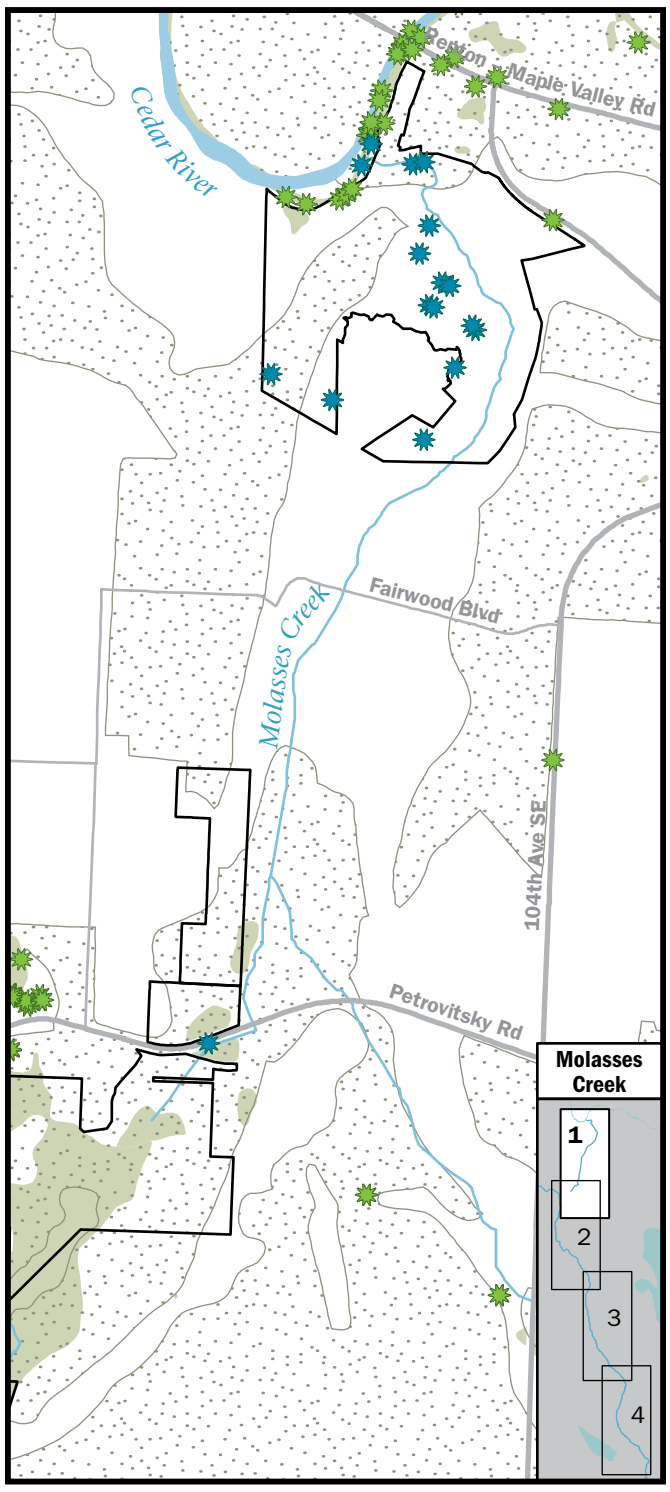
Weed Species and Percent Presence

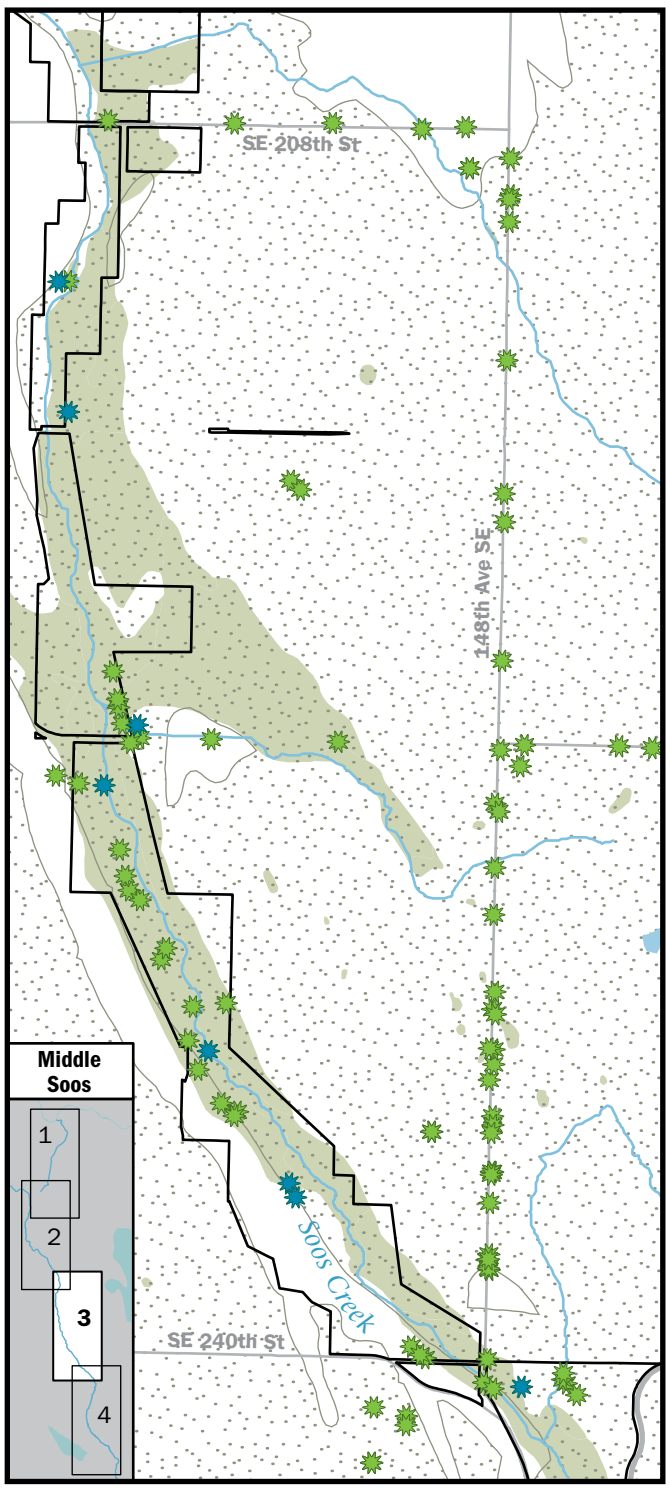
King County
Department of Natural Resources and Parks
Parks Division

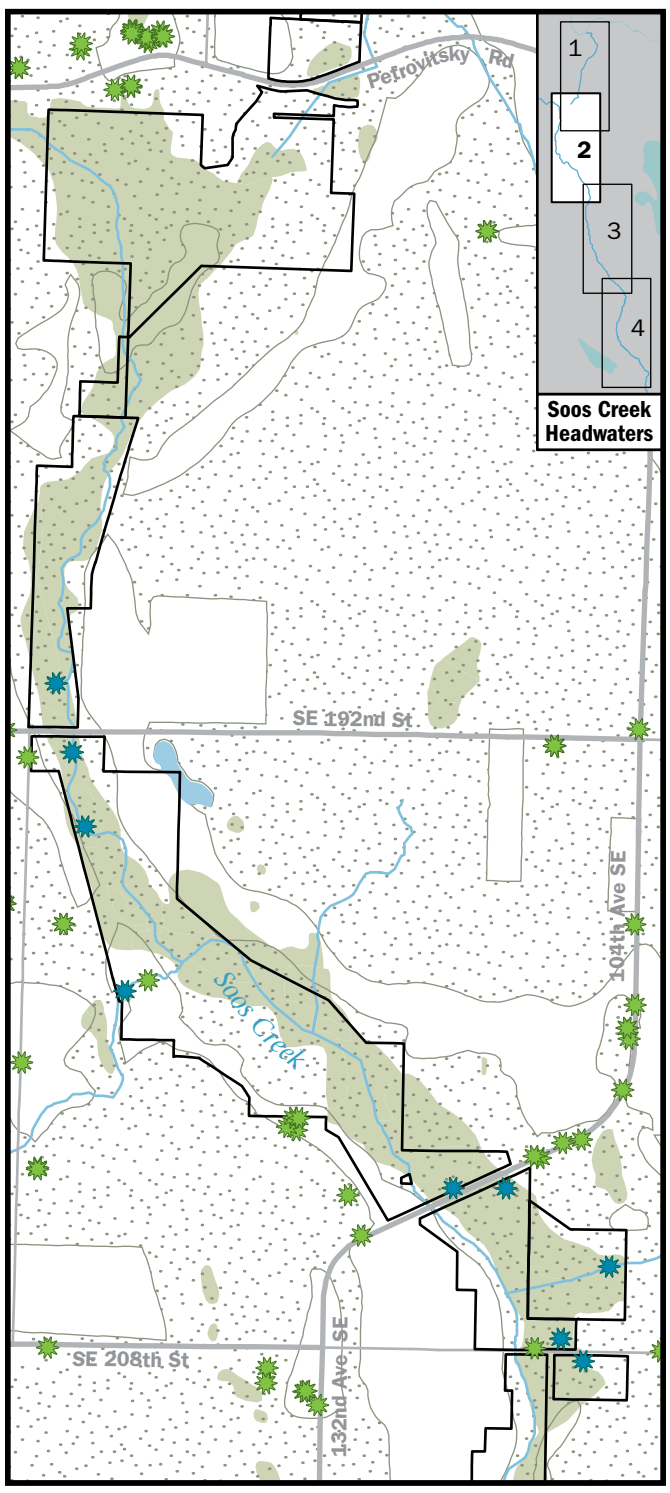
N

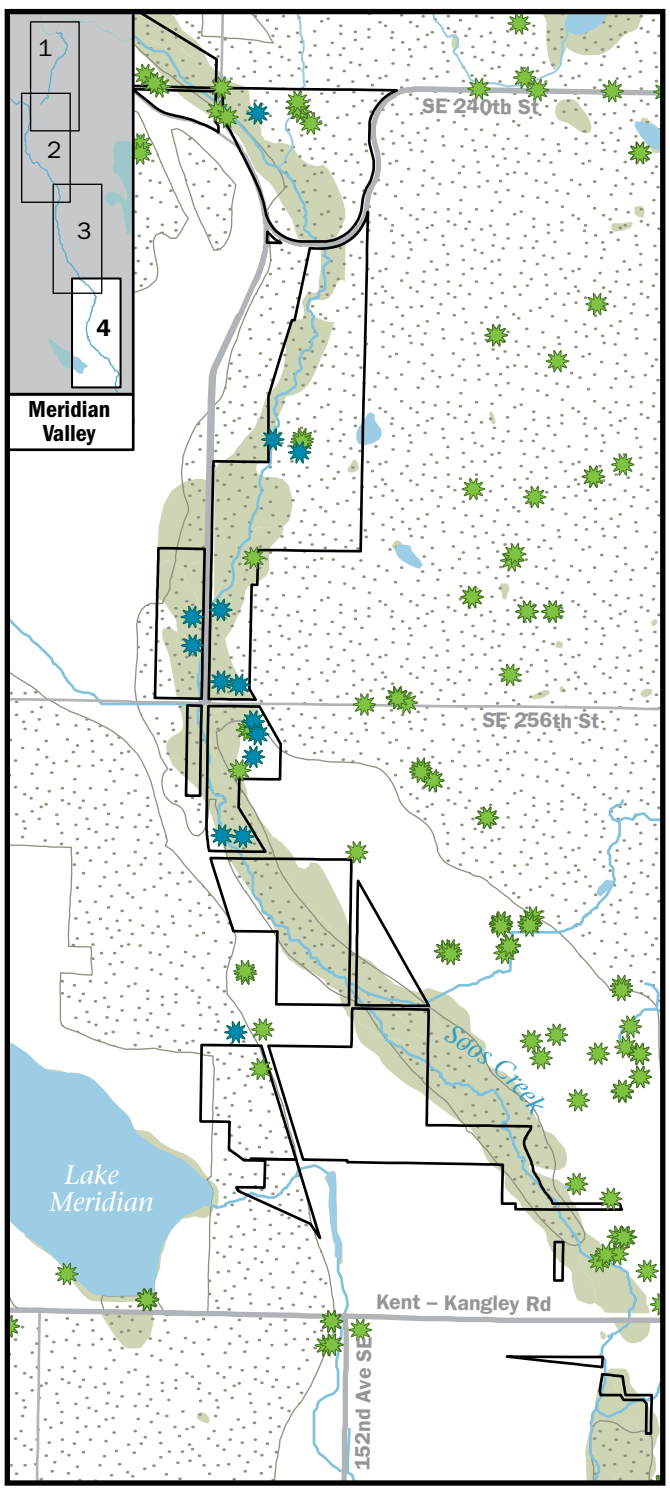
0 250 500 Feet

March 2013









Hydric Soils

Weed Observed During Field Work for this Site Management Guidelines

Weed Observed During Noxious Weed Survey

Stream

Major Road

Lake or River

Soos Creek Trail Park

Wetland

Data Sources:
King County GIS Database;
National Wetland Inventory

Map produced by:
King County IT/DNRP GIS,
Visual Communications & Web Unit
1303_3168_21soosWEEDpoints.ai wgab

Map 21

Soos Creek Park and Trail

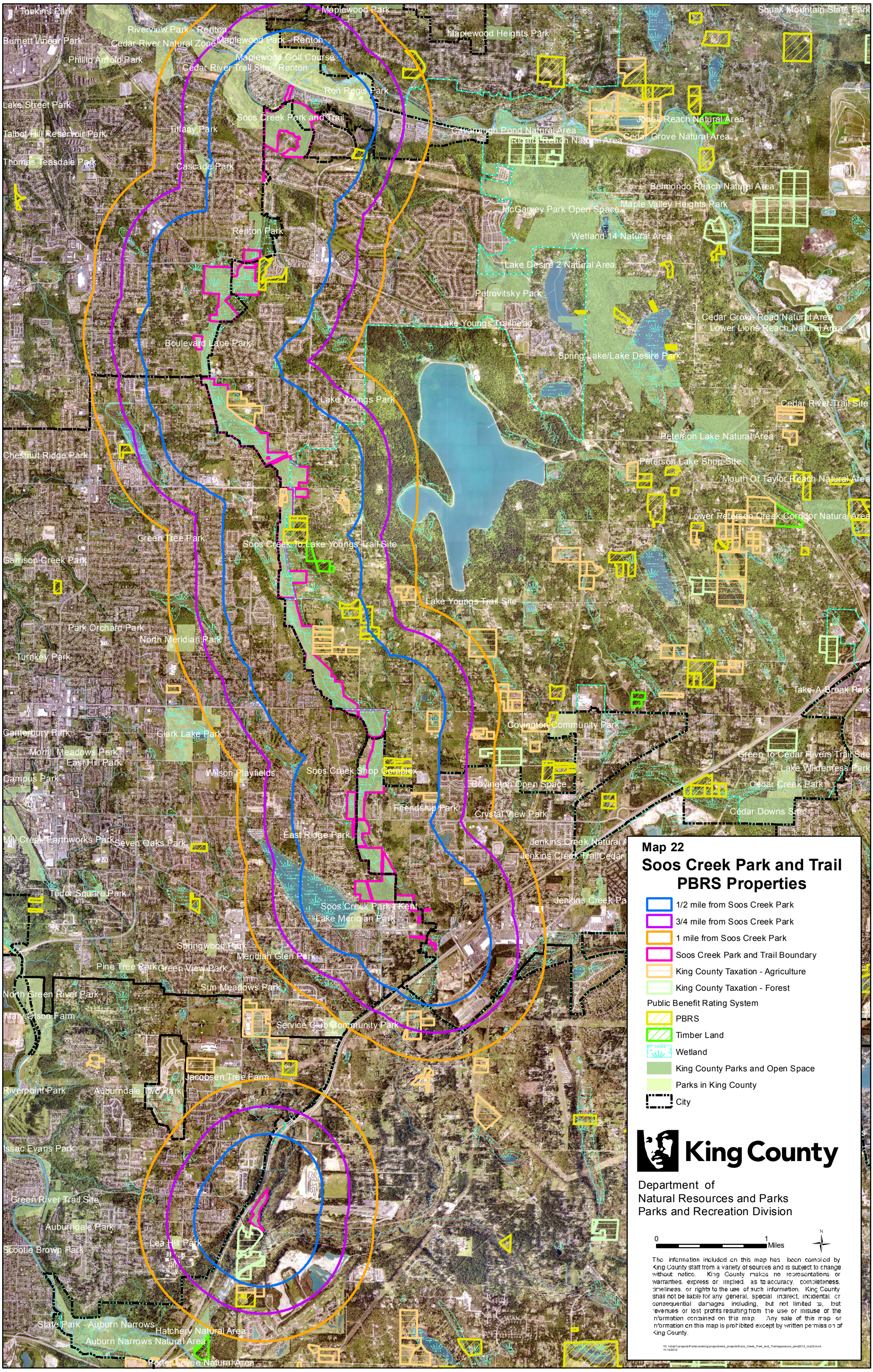
Noxious Weed Point Data

King County
Department of Natural Resources and Parks
Parks Division

N

0 250 500 Feet

March 2013



Map 22

Soos Creek Park and Trail PBRS Properties

- 1/2 mile from Soos Creek Park
- 3/4 mile from Soos Creek Park
- 1 mile from Soos Creek Park
- Soos Creek Park and Trail Boundary
- King County Taxation - Agriculture
- King County Taxation - Forest

Public Benefit Rating System

- PBRS
- Timber Land
- Wetland
- King County Parks and Open Space
- Parks in King County
- City

King County

Department of
Natural Resources and Parks
Parks and Recreation Division

0 1 Miles

N

YC \\dnp1\projects\Parks\working\projects\site_projects\Soos_Creek_Park_and_Trail\apps\soos_pbrs2012_mp22.mxd
11/14/2012

Map 23

Soos Creek Park and Trail

Trails

- On Street Trail
- Paved Trail
- Soft Surface Trail
- Surface Unknown
- Regional Trails
- Soos Creek Proposed Trail
- King County Parks
- Parks in King County (non-King County owned)

King County

Department of
Natural Resources and Parks
Parks and Recreation Division

N

0 0.4 Miles

Map Document (\\dnrp1\projects\Parks\working\projects\site_projects\Soos_Creek_Park_and_Trail\apps\soos_2012air_mp23.mxd)
11/14/2012

Soos Creek Park and Trail
East Ridge Park
Soos Creek Park and Trail
Soos Creek Park and Trail
Soos Creek Park and Trail
Soos Creek Park and Trail
Soos Creek Park - Kent
Lake Meridian Park
Meridian Glen Park
Meadows Park
Service Club Community Park
Jacobsen Tree Farm
Auburndale Two Park
Soos Creek Park and Trail
Lea Hill Park
Hatchery Natural Area
Auburn Narrows Natural Area
Porter Levee Natural Area
Porter Levee Natural Area
Porter Levee Natural Area

Map 24

Soos Creek Park and Trail

Trails

- On Street Trail
- Paved Trail
- Soft Surface Trail
- Surface Unknown
- Regional Trails
- Soos Creek Proposed Trail
- King County Parks
- Parks in King County (non-King County owned)

King County

Department of
Natural Resources and Parks
Parks and Recreation Division

N

0 0.4 Miles

Map Document (\\dnrp1\projects\Parks\working\projects\site_projects\Soos_Creek_Park_and_Trail\apps\soos_2012air_mp23.mxd)
11/14/2012

Soos Creek Park and Trail
East Ridge Park
Soos Creek Park and Trail
Soos Creek Park and Trail
Soos Creek Park and Trail
Soos Creek Park and Trail
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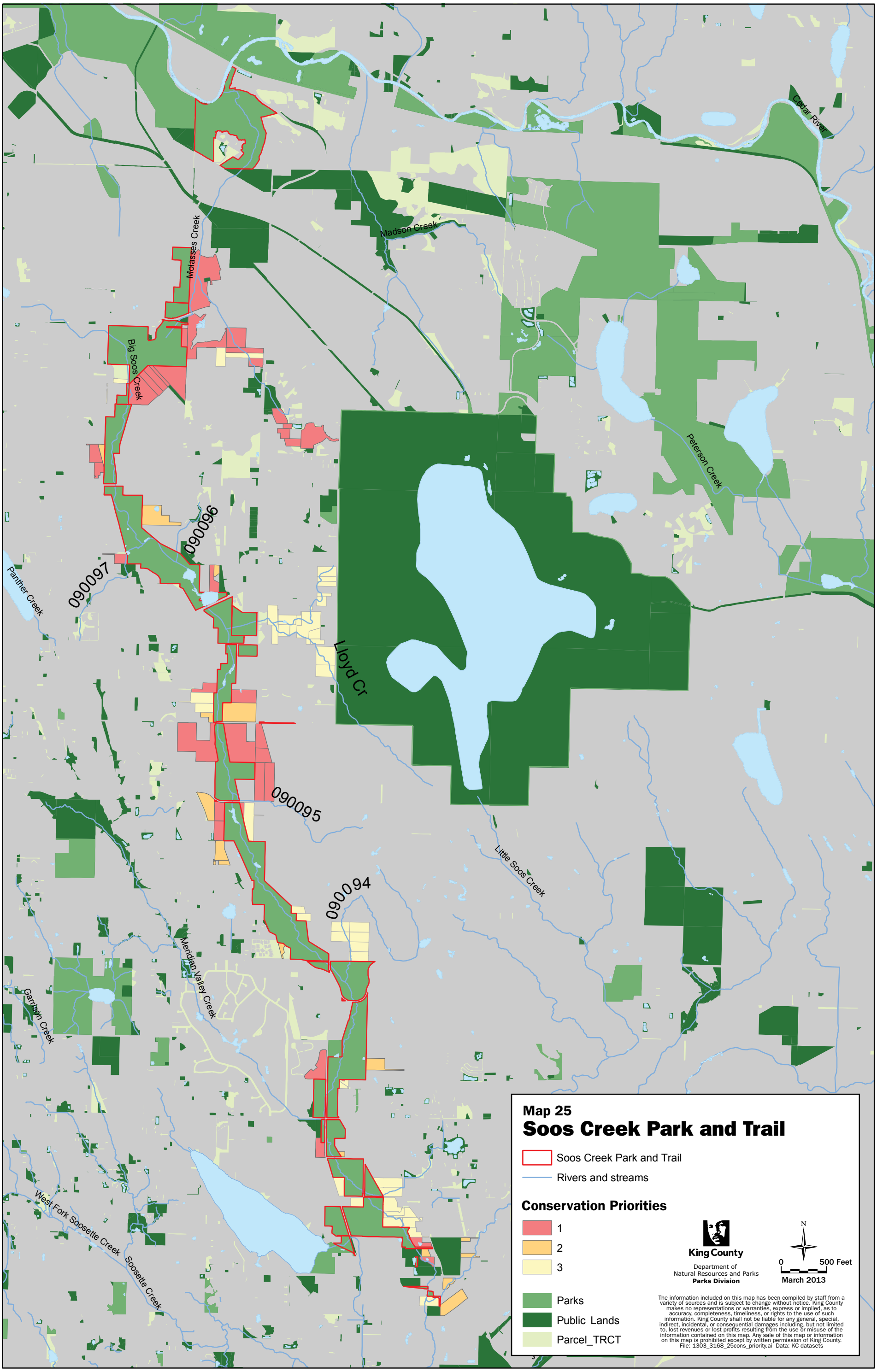
Meadows Park
Service Club Community Park
Jacobsen Tree Farm
Auburndale Two Park
Soos Creek Park and Trail
Lea Hill Park
Hatchery Natural Area
Auburn Narrows Natural Area
Porter Levee Natural Area
Porter Levee Natural Area
Porter Levee Natural Area


Cedar River
Madson Creek
Molasses Creek
Big Soos Creek
Peterson Creek
090060
090097
Panther Creek
Lloyd Cr
090095
Little Soos Creek
090094
Meridian Valley Creek
Garrison Creek
West Fork Soosette Creek
Soosette Creek
Map 25
Soos Creek Park and Trail
Soos Creek Park and Trail
Rivers and streams
Conservation Priorities
1
2
3
Parks
Public Lands
Parcel_TRCT
King County
Department of
Natural Resources and Parks
Parks Division
N
0
500 Feet
March 2013
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File: 1303_3168_25cons_priority.ai Data: KC datasets

Appendix B. Bird Species Recorded in Soos Creek Park

All species reported by Friends of Soos Creek members except when noted with † or †† symbol. Species listed in taxonomic order. Introduced species are denoted with an asterisk (*).

Pied-billed Grebe	Rock Dove
Western Grebe	Band-tailed Pigeon
Double-crested Cormorant	Mourning Dove
Great Blue Heron	Barn Owl
Green Heron	Western Screech-owl
American Bittern††	Great Horned Owl
Sandhill Crane	Northern Pygmy-owl
Tundra Swan	Barred Owl
Trumpeter Swan	Northern Saw-whet Owl
Snow Goose	Snowy Owl††
Canada Goose	Common Nighthawk
Wood Duck	Vaux's Swift
Green-winged Teal	Anna's Hummingbird
Cinnamon Teal††	Rufous Hummingbird
Mallard	Belted Kingfisher
Pintail††	Red-breasted Sapsucker
Northern Shoveler	Downy Woodpecker
Gadwall	Hairy Woodpecker
American Wigeon	Northern Flicker
Lesser Scaup	Northern Flicker -- yellow-shafted variety
Bufflehead	Pileated Woodpecker
Common Goldeneye††	Olive-sided Flycatcher
Hooded Merganser	Pacific slope flycatcher
Common Merganser	Hammond's flycatcher
Ruddy Duck	Willow Flycatcher
Osprey	Western Wood-pewee
Bald Eagle	Tree Swallow
Turkey Vulture	Violet-green Swallow
Sharp-Shinned Hawk	Barn Swallow
Cooper's Hawk	Cliff Swallow†
Red-Tailed Hawk	Steller's Jay
Northern Harrier	Western Scrub Jay
Merlin	American Crow
Peregrine Falcon	Black-capped Chickadee
California Quail†	Chestnut-backed Chickadee
Ring-Necked Pheasant	Bushtit
Ruffed Grouse	Red-breasted Nuthatch
Virginia Rail	Brown Creeper
American Coot	Bewick's Wren
Killdeer	Winter Wren
Wilson's Snipe	Marsh Wren
Glaucous-winged Gull	Wilson's Warbler
House Wren	Western Tanager

Common Dipper††	Black-headed Grosbeak
Golden-Crowned Kinglet	Spotted Towhee
Ruby-Crowned Kinglet	Savannah Sparrow
Swainson's Thrush	Fox Sparrow
Hermit Thrush	Song Sparrow
American Robin	White-throated Sparrow
Varied Thrush	Golden-crowned Sparrow
Townsends' Solitaire	White-crowned Sparrow
American Pipit	Lincoln sparrow
Lazuli Bunting	Dark-eyed Junco
Cedar Waxwing	Red-winged Blackbird
European Starling*	Yellow-headed Blackbird
Hutton's Vireo	Brewer's Blackbird†
Warbling Vireo	Brown-headed Cowbird
Red-Eyed Vireo	Purple Finch
Orange-Crowned Warbler	House Finch
Yellow Warbler	Pine Siskin
Black-Throated Gray Warbler	red crossbill
Macgillivray's Warbler	American Goldfinch
Townsend's Warbler	Evening Grosbeak
Hermit Warbler	House Sparrow*
Common Yellowthroat	

† Recorded in del Moral et al. (1974) but not observed directly by author (Eksten).

†† Recorded in del Moral et al. (1974) as potential on the site, but not observed by author (Eksten) or anyone he interviewed.

Appendix C. Mammal Species Recorded in Soos Creek Park

Species listed in taxonomic order. Introduced species are denoted with an asterisk (*).

Mammal, Common Name	Latin Name	Data Source††
Opossum	*Didelphis virginianus*	FOSC; Eksten
Vagrant shrew	*Sorex vagrans*	FOSC; Eksten (should)
Trowbridge shrew	*Sorex trowbridgii*	Eksten (should)
Pacific water shrew ("marsh shrew" and "Bendire's shrew")	*Sorex bendirii*	Eksten (should)
Pacific ("Coast") mole	*Scapanus orarius*	Eksten
Townsend's mole	*Scapanus townsendii*	FOSC; Eksten
Shrew-mole	*Neurotrichus gibbsii*	Eksten (should)
Little brown bat	*Myotis lucifugus*	FOSC
Big brown bat	*Eptesicus fuscus*	FOSC; Eksten (should)
Yuma myotis	*Myotis yumanensis*	Eksten (should)
Silver-haired bat	*Lasionycteris noctivagans*	Eksten (should)
Hoary bat	*Lasiurus cinereus*	Eksten (should)
Eastern cottontail*	*Sylvilagus floridanus*	Eksten; JV and JW
Showshoe hare	*Lepus americanus*	Eksten (should)
Mountain beaver	*Aplodontia rufa*	FOSC; Eksten
Townsend chipmunk	*Tamias townsendii*	FOSC; Eksten
Douglas squirrel	*Tamiasciurus douglasi*	FOSC; Eksten
Eastern gray squirrel*	*Sciurus carolinensis*	FOSC; Eksten
Northern flying squirrel	*Glaucomys sabrinus*	FOSC
Beaver	*Castor canadensis*	Eksten
Deer mouse	*Peromyscus maniculatus*	Eksten
Pacific jumping mouse	*Zapus trinotatus*	FOSC; Eksten (should)
Montane vole ("Oregon meadow mouse")	*Microtus montanus*	Eksten (should)
Townsend's vole ("Townsend meadow mouse")	*Microtus townsendii*	Eksten (should)
Muskrat	*Ondatra zibethicus*	FOSC; Eksten
Porcupine	*Erethizon dorsatum*	FOSC; Eksten
Coyote	*Canis latrans*	FOSC; Eksten
Black bear	*Ursus americanus*	FOSC; Eksten
Raccoon	*Procyon lotor*	FOSC; Eksten
Short-tailed weasel	*Mustela erminea*	FOSC; Eksten (should)
Long-tailed weasel	*Mustela frenata*	FOSC; Eksten
Mink	*Mustela vison*	Eksten
Western spotted skunk	*Spilogale gracilis*	Eksten
Striped skunk	*Mephitis mephitis*	Eksten
River otter	*Lutra canadensis*†	FOSC; Eksten
Bobcat	*Lynx rufus*	FOSC; Eksten
Mule deer	*Odocoileus hemionus*	FOSC; Eksten

† Formerly *Lontra canadensis*

†† FOSC = Friends of Soos Creek. Eksten = author of wildlife survey chapter in del Moral et al. (1974); "(should)" denotes species that were not directly observed as part of the author's investigations but were noted as "may or should be part of the fauna" in the park based upon habitat available. JV and JW = ecologists doing field work for this report.

Appendix D. BIBI Scores for sites in the Soos Creek Basin

Benthic Index of Biotic Integrity (BIBI) is a widely used scale for assessing stream health based on the composition of 'stream bugs.' King County uses the Puget Lowland BIBI, which is calibrated to the conditions within our region and is based on ten individual metrics that measure different aspects of stream biology including taxonomic richness and composition, tolerance and intolerance, habit, reproductive strategy, feeding ecology, and population structure. Each metric describes some aspect of the community that responds to degradation. The raw value of each metric is calculated, and from the raw value, a score of 1, 3, or 5 is assigned to the metric. The ten metric scores are then added to produce the overall B-IBI score that range from 10 to 50. The total BIBI score is representative of the conditions of the stream. Table D1 provides BIBI scores from sites in Soos Creek Basin. Table D2 gives some information on interpreting those numbers. Information on each of the ten metrics may be found at this web site: http://www.kingcounty.gov/environment/data-and-trends/monitoring-data/stream-bugs/metrics-description.aspx.

Table D1. BIBI scores for sites in the Soos Creek Basin.

Stream	Site Code	2002	2003	2004	2005	2006	2007	2008
Big Soos Creek	09SOO0943	30			28	26	36	26
Big Soos Creek	09SOO1040	16						
Big Soos Creek	09SOO1144	28	30			22	26	28
Little Soos Creek	09SOO1209		20		28		22	18
Little Soos Creek	09SOO1283	32	34		22	24	32	30
Meridian Valley Creek	09SOO1106	12	16		14		16	16
Soos Creek	09SOO1130	36	40		32	32	42	38
Soos Creek	09SOO1134	42	34		30	36	46	34
Soosette Creek	09SOO1020	24	35					
Soosette Creek	09SOO1022	28	36			34	28	40

Table D2. Five classes of biological condition as determined by B-IBI. Modified from Karr et al. (1986) by Morley (2000).

Biological Condition	B-IBI Range	Description
Excellent	46 - 50	Comparable to least disturbed reference condition; overall high taxa diversity, particularly of mayflies, stoneflies, caddisflies, long-lived, clinger, and intolerant taxa. Relative abundance of predators high.
Good	38 - 44	Slightly divergent from least disturbed condition; absence of some long-lived and intolerant taxa; slight decline in richness of mayflies, stoneflies, and caddisflies; proportion of tolerant taxa increases.
Fair	28 - 36	Total taxa richness reduced - particularly intolerant, long-lived, stonefly, and clinger taxa. Relative abundance of predators declines; proportion of tolerant taxa continues to increase.
Poor	18 - 26	Overall taxa diversity depressed; proportion of predators greatly reduced as is long-lived taxa richness; few stoneflies or intolerant taxa present; dominance by three most abundant taxa often very high.
Very Poor	10 - 16	Overall taxa diversity very low and dominated by a few highly tolerant taxa; mayfly, stonefly, caddisfly, clinger, long-lived and intolerant taxa largely absent. Relative abundance of predators very low.

Appendix E. Soos Creek Regional Park/Trail Policy Guidance

2012 King County Comprehensive Plan

(Note: Some policies do not contain the full text of the policy)

Urban Communities, Chapter 2

U-182	Urban separators are corridors of land that define community or municipal identities and boundaries, provide visual breaks in the urban landscape, and link parks and open space within and outside the Urban Growth Area. These urban corridors should include and link parks and other lands that contain significant environmentally sensitive features, provide wildlife habitat or critical resource protection, contain defining physical features, or contain historic resources.
U-184	Designated urban separators should be preserved through park, trail and open space acquisitions; incentive programs such as the Transfer of Development Rights program; the Public Benefit Rating System program; and regulatory measures.

Environment, Chapter 4

E-103	King County should coordinate with local jurisdictions, universities, federal and state agencies, tribes, citizen interest groups, special districts, businesses, and citizens to implement, monitor, and update Water Resource Inventory Area plans for all areas of King County.
E-105	Environmental quality and important ecological functions shall be protected and hazards to health and property shall be minimized through development reviews and implementation of land use plans, Water Resource Inventory Area plans, surface water management plans and programs, flood hazard management plans, environmental monitoring programs, and park master plans. These plans shall also encourage stewardship and restoration of critical areas as defined in the Growth Management Act, and include an adaptive management approach.
E-106	The protection of lands where development would pose hazards to health, property, important ecological functions or environmental quality shall be achieved through acquisition, enhancement, incentive programs and appropriate regulations.
E-223	King County shall consider projected impacts of climate change on habitat for salmon and other wildlife when developing long-range conservation plans and prioritizing habitat protection and restoration actions.
E-224	To foster resilience to climate change in ecosystems and species, the county should prioritize efforts such as the restoration of riparian vegetation to reduce warming in cold water systems, restore wetlands to reduce drought and flooding, improve connections between different habitats, facilitate migration

opportunities for species whose ranges shift in latitude and altitude and protect and restore areas most likely to be resistant to climate change.

E-407 Distribution, spatial structure, and diversity of native wildlife and plant populations should be taken into account when planning restoration activities, acquiring land, and designing and managing parks.

E-408 King County should carry out conservation planning efforts in close collaboration with other local governments, tribes, state and federal governments, land owners, and other conservation planning stakeholders.

E-413 King County's efforts to restore and maintain biodiversity should place priority on protecting and restoring ecological processes that create and sustain habitats and species diversity.

E-414 When acquiring land for habitat protection, efforts should be made to protect and restore areas of each habitat type most likely to be resistant to and enhance resilience to climate change.

E-415 King County should conserve areas where conditions support dynamic ecological processes that sustain important ecosystem and habitat functions and values, and promote structural and landscape diversity.

E-419 King County should give special consideration to protection of rare, endemic, and keystone species when identifying and prioritizing land areas for protection through acquisition, conservation easements, and incentive programs.

E-424 The county should steward public lands well and should integrate fish and wildlife habitat considerations into capital improvement projects whenever feasible. Fish and Wildlife Habitat Conservation Areas should be protected and, where possible, enhanced as part of capital improvement projects.

E-428 On county-owned lands, King County should use locally adapted native species for natural area landscaping, restoration, rehabilitation, and erosion control. Habitat restoration projects should include provisions for adequate maintenance of plantings to prevent invasion of weeds and ensure survival of native plantings.

E-430 King County shall implement its strategy to minimize impacts of noxious weeds to the environment, recreation, public health and the economy on all lands in the County. This includes preventing, monitoring and controlling infestations of state-listed noxious weeds and other non-native invasive weeds of concern on county-owned and managed lands.

E-436 King County shall protect Species of Local Importance through measures such as regulations, incentives, capital projects, or purchase, as appropriate

E-468 King County's Shoreline Master Program, watershed management plans, Water Resource Inventory Area plans, flood hazard management plans, master drainage plans, open space acquisition plans, and critical areas regulations should apply a tiered system of protection that affords a higher standard of protection for more significant resources.

E-473 King County's overall goal for the protection of wetlands is no net loss of wetland functions and values within each drainage basin. Acquisition, enhancement, regulations, and incentive programs shall be used independently or in combination with one another to protect and enhance wetlands functions and values.

E-475 Areas of native vegetation that connect wetland complexes should be protected.

E-476 King County should identify upland areas of native vegetation that connect wetlands to upland habitats and that connect upland habitats to each other. The county should seek protection of these areas through acquisition, stewardship plans, and incentive programs.

E-478 Public access to wetlands for scientific, recreational, and traditional cultural use is desirable, providing that public access trails are carefully sited, sensitive habitats and species are protected, and hydrologic continuity is maintained.

E-499k King County should use the recommendations of approved Water Resource Inventory Area salmon habitat plans to inform the updates to development regulations as well as operations and capital planning for its surface water management, transportation, wastewater treatment, parks, and open space programs.

E-499l King County should seek to support Water Resource Inventory Area plan goals of maintaining intact natural landscapes through:

a. Retaining low density land use designations such as Agriculture, Forestry and Rural;
b. Promoting Current Use Taxation and other incentives;
c. Promoting stewardship programs including development and implementation of Forest Plans, Farm Plans, and Rural Stewardship Plans;
d. Promoting the use of Low Impact Development methods; and
e. Acquiring property or conservation easements in areas of high ecological importance with unique or otherwise significant habitat values.

E-505 King County should be a good steward of public lands and protect water quality, by reducing the use of insecticides, herbicides and fungicides through the use of integrated pest and vegetation management practices.

Parks, Open Spaces and Cultural Resources, Chapter 6

P-107 King County shall complete a regional trail system, linking trail corridors to form a countywide network. King County will continue to primarily own the land necessary for the operation and management of the trail system.

P-111 King County will manage its natural areas to protect, preserve and enhance important natural resource habitat, biological diversity, and the ecological integrity of natural systems.

P-112 King County shall recognize and protect the natural character and ecological value of its natural areas. These areas are important for preserving fish and wildlife and their habitat, native vegetation, and features of scientific and educational value. Development and public use may be limited to preserve the natural state and reduce disturbance of the natural resources. Site improvements should be focused on providing educational and interpretive opportunities. Public access should be directed to the less fragile portions of a site to ensure continued protection of the ecological resources.

P-120 Trails should be acquired when identified in King County Trails Plans, the Regional Trails Needs Report or when identified as part of a regional community trail network.

P-122 Lands preserved for public parks, trails or other open space should provide multiple benefits whenever possible.

P-126 Development and management of parks, trails and open space sites should be consistent with the purposes of their acquisition and in consideration of their funding sources.

P-127 Open space lands shall be classified to identify their role in the open space system and the purpose of the acquisition as recreation site, trail, natural area park, multiuse site, or working resource land.

Community Plans, Chapter 10 (Soos Creek)

CP-1003 New development should rehabilitate degraded wetlands and stream channels and banks in the Soos Creek planning area's drainage's to prevent further erosion and water quality problems. These areas include, but are not limited to, May Creek, Garrison Creek, Molasses Creek and Olsen Creek. Where conditions permit, the banks and channels should be restored to a natural state.

CP-1010 Equestrian crossings of arterials should be permitted only where they do not greatly disrupt traffic. Where possible, these crossings should be combined with pedestrian and bicycle crossings. There should be no at grade equestrian crossings of SR-516, except at Lake Meridian.

CP-1015 King County should give high priority to expanding the Big Soos Creek trail by linking the City of Covington to the south and Fairwood Center to the north to the existing trail system.

CP-1016 King County should give high priority to linking the Green River and Cedar River corridors.

CP-1017 King County should coordinate with the City of Seattle, WSDOT, and other jurisdictions to link major elements of the open space system including the Cedar River, Lake Desire, Big Soos Creek, SR-18 and the Green River trail systems.

2010 King County Open Space Plan: Parks, Trails and Natural Areas

G-101 King County will be a regional provider of open space with a major focus on systems of open space corridors that conserve natural resources and provide recreation, education and interpretive opportunities, ecological value and scenic beauty.

G-104 King County will have a countywide regional trail network of non-motorized, shared use trails (multipurpose) paths that link cities and communities and offers recreation, alternative commuting options and migration corridors for wildlife.

G-108 Local open space sites in urban growth areas will become the responsibility of cities.

OS-106	King County will work with a variety of public and private groups to identify and protect significant open space lands.
OS-109	Regional sites and facilities are generally large in size, have unique features or character and/or are important as part of a larger system. These sites are destinations whose users come from distances and multiple jurisdictions drawn by the type of site...,that provide a unique or high level of activity, contain significant facilities, and/or have high ecological value.
OS-110	King County should retain ownership of regional open space system assets, including sites that lie within both urban and rural areas and those that serve as 'urban separators" providing a buffer along the Urban Growth Area boundaries.
OS-129	Multi-use sites include lands that may have areas of environmental value, but also may accommodate extensive public access and active and/or passive recreation opportunities.
OS-118	Regional trail corridors serve multiple users and where possible should be designed to include separate surface areas to serve different modes of use. This includes a hard surface with shoulders along with a parallel or nearby soft surface path with adequate separation between them.
OS-139	King County's goal for the Regional Trail System will be based on opportunities to expand the overall network for recreation and mobility and to increase connectivity to local trails and other open space sites.
OS-140	King County's goal for location, size and distribution of regional active and multipurpose parks and facilities will be based on geographic distribution of sites, consideration of need, and public support and partnership opportunities.
PIO-107	King County will seek and encourage public input, advice and participation in open space system issues.
PIO-111	King County will encourage and support volunteer efforts to maintain and enhance programs and facilities.
CIP-106	King County will coordinate open space planning, acquisition and development with other county projects and programs and with other agencies and organizations that may provide mutual benefits.
CIP-109	As soon as possible after acquisition and prior to significant development, use or large scale restoration of a site, King County will prepare a site management plan, site master plan or development plan for each open space site.
CIP-138	Site-specific plans should be prepared for regional trail corridors in King County based on the priority guidance provided by th4e Regional Trail Needs Report.
SO-107	King County should strive to use locally-adapted native species for natural area landscaping restoration, rehabilitation and erosion control.
SO-112	Use of pesticides and fungicides will be based on integrated pest management principles.
SO-138	Priorities for restoration projects on open space sites should be based on priority recommendations in the WRIA plans, Flood Management plan, individual Site Management Guidelines and other King County-endorsed planning documents and processes.

SO-141 **King County will strive to identify and conserve components of native biodiversity within its open space system that are especially sensitive to climate change and work to conserve biodiversity through the protection and restoration of ecological processes that create and sustain habitats and species diversity.**

SO-143 **King County will promote wildlife habitat enhancement projects by community groups, park users, stakeholders, non-profits and businesses through education, active stewardship and volunteer events.**

Watershed Resources Inventory Area (WRIA 9) Salmon Habitat Plan Green/Duwamish and Central Puget Sound

The Habitat Plan focuses on actions and policies that address the key salmon habitat needs; the following is a list of those relevant to Soos Creek Park.:

- **Watershed-Wide Needs**
  - **Prevent and reduce armoring of stream banks and shorelines**
  - **Promote low impact development such as porous pavement, bioswales, and clustered development;**
  - **Replace culverts that block fish passage on tributary streams;**
  - **Protect and improve water quality by focusing on "nonpoint" pollution that comes from stormwater runoff from streets, highways, parking lots, roofs, yards, and cleared lands;**
  - **Maintain adequate stream flows.**

;

- **Lower Green River Subwatershed**
  - **Protect and restore side channels, off-channel wetlands, tributary mouths, and pools that provide shelter and habitat complexity for young salmon;**

Watershed Resources Inventory Area (WRIA 8) Salmon Habitat Plan Cedar River/Lake Washington Watershed

The Habitat Plan focuses on actions and policies that address the key salmon habitat needs,

- **Cedar River Basin action recommendations relevant to Soos Creek Park:**
  - **Protect water quality**
  - **Protect/restore instream flows**
  - **Protect/restore riparian habitat**
  - **Restore sources of large woody debris (LWD) and add new LWD to restore pool habitat**

Appendix F. Soos Creek Regional Park/Trail Site Maintenance Plan Tasks

The following tasks are required to maintain, manage and steward the land and infrastructure within the Park.

- Park Inspection
- Public Relations and Complaint Resolution
- Project planning
- Maintain/Install Trail Structure and Signage
- Drainage Maintenance and Repair
- Pavement cleaning
- Asphalt/ Concrete Maintenance
- Leaf gathering
- Noxious weed control
- Evaluate/remove marginal/hazardous trees
- Vegetation Control and Brush Removal
- Trimming/ Edging/ Mowing/ Brushing
- Invasive Plant Removal
- Open/Close Park
- Restroom, Play Area and Picnic Area Maintenance
- Litter and Garbage Pickup
- Removal of unauthorized camps
- Code Enforcement
- Semi-skilled crafts

Appendix G. Soos Creek Regional Park/Trail Parcel Information Table

Appendix G

Soos Creek Regional Park Funding Information

Park Name	Recording Number	Parcel Number	Zoning	Acreage	Date Acquired	Ownership Type	Best Funding Source Info
Soos Creek Park and Trail	6588379	2322059013	R-1	86.18	11/01/69	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	6629963000	1522059101	RA-5	10.11	03/01/70	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	6654747000	8586400004	R-1	45.83	05/01/70	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	6648459000	2722059235	SR-1	2.14	05/01/70	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	6686363000	1522059007	RA-5	19.61	08/01/70	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	6713425000	1522059104	RA-5	12.10	11/01/70	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	6727592000	1022059125	R-1	7.86	12/01/70	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	7101260411	1522059105	RA-5	39.08	01/01/71	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	7103030378	1022059128	R-1	20.10	03/01/71	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	7104210438	2222059117	R-1	3.26	04/01/71	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	7107080392	1022059136	R-1	1.45	07/01/71	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	7107080394	0322059266	R-1	30.51	07/01/71	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	6717567	2322059101	R-1	0.09	07/01/71	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	7202240376	0422059124	R-1	55.89	02/01/72	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	7203080443	0322059345	R-1	9.69	03/01/72	Owned in Fee	Forward Thrust, Federal

Park Name	Recording Number	Parcel Number	Zoning	Acreage	Date Acquired	Ownership Type	Best Funding Source Info
Soos Creek Park and Trail	7211090130	2222059116	SR-1	11.83	11/01/72	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	7304040454	1022059093	R-1	2.56	04/01/73	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	7304040454	1022059103	R-1	11.23	04/01/73	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	0000000000	1522059133	RA-5	24.27	11/01/74	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	0000000000	1927800025	R-1	0.81	01/01/75	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	0000000000	2322059115	R-1	8.00	06/01/75	Owned in Fee	Forward Thrust, Federal
Soos Creek Park and Trail	0000000000	2723059020	R-6	0.44	09/01/77	Unclear Ownership	Unknown
Soos Creek Park and Trail	0000000000	road row		0.02	09/01/77	Unclear Ownership	Unknown
Soos Creek Park and Trail	8204280551	1022059187	RA-5	2.42	04/01/82	Owned in Fee	Forward Thrust, Federal
Trail	8206140609	water body	R-4/RC	0.65	06/14/82	Easement	Unknown
Soos Creek Park and Trail	9209210677	1022059127	R-1	9.93	09/01/92	Owned in Fee	Bond (Open Space)
Soos Creek Park and Trail	9210011444	0422059158	R-1	3.41	10/01/92	Owned in Fee	Bond (Open Space)
Soos Creek Park and Trail	9303221440	3522059034	SR-1	0.83	03/01/93	Owned in Fee	Bond (Open Space)
Soos Creek Park and Trail	9303122165	2622059182	R-1	6.63	03/01/93	Owned in Fee	Bond (Open Space)
Soos Creek Park and Trail	9303122165	2622059183	SR-1	2.55	03/01/93	Owned in Fee	Bond (Open Space)
Soos Creek Park and Trail	9309131407	3323059032	RC	4.51	06/01/93	Owned in Fee	Bond (Open Space)
Soos Creek Park and Trail	9307132392	3522059210	R-1	0.78	07/01/93	Owned in Fee	Bond (Open Space)
Soos Creek Park and Trail	9311190952	mulitple	R-18	0.65	12/31/93	Easement	
Soos Creek Park and Trail	9403311295	3522059210	R-1	0.52	03/31/94	Owned in Fee	Bond (Open Space)
Soos Creek Park and Trail	9504280553	3323059102	RC	3.41	04/01/95	Owned in Fee	
Soos Creek Park and Trail	9611141149	5635200240	R-1	3.10	10/31/96	Owned in Fee	
Soos Creek Park and Trail	9610311295	5635200250	R-1	0.50	10/31/96	Owned in Fee	

Park Name	Recording Number	Parcel Number	Zoning	Acreage	Date Acquired	Ownership Type	Best Funding Source Info
Soos Creek Park and Trail	9611141149	5635200120	R-1	0.34	10/31/96	Owned in Fee	
Soos Creek Park and Trail	9611121375	0322059020	RA-5	2.50	11/01/96	Owned in Fee	
Soos Creek Park and Trail	199704080898	5635200130	SR-1	0.04	04/08/97	Easement	Donated or Dedicated
Soos Creek Park and Trail	199801141369	2622059189	SR-1	45.49	12/01/97	Owned in Fee	
Soos Creek Park and Trail	9810304345	2223059161	RC	1.31	10/30/98	Owned in Fee	Bond (Open Space)
Soos Creek Park and Trail	9810304345	2223059161	RC	0.32	10/30/98	Owned in Fee	Bond (Open Space)
Soos Creek Park and Trail	9810304345	water body	RC	0.14	10/30/98	Implied Responsibility	Bond (Open Space)
Soos Creek Park and Trail	9810304345	2223059161	RC	0.04	10/30/98	Owned in Fee	Bond (Open Space)
Soos Creek Park and Trail	9906160081	0322059266	R-1	5.54	11/01/98	Owned in Fee	Bond (Open Space)
Soos Creek Park and Trail		0422059011	R-1	13.48	12/15/98	Owned in Fee	Bond (Open Space)
Soos Creek Park and Trail	9812160974	2823059042	R-8	1.13	12/16/98	Easement	Bond (Open Space)
Soos Creek Park and Trail	9812160974	2473381320	R-4	0.08	12/16/98	Easement	Bond (Open Space)
Soos Creek Park and Trail	9812160974	2823059093	R-8	0.17	12/16/98	Easement	Bond (Open Space)
Soos Creek Park and Trail	9812241384	2823059059	RC	0.85	12/24/98	Owned in Fee	
Soos Creek Park and Trail	9812241384	2823059031	RC	7.67	12/24/98	Owned in Fee	
Soos Creek Park and Trail		road row	R-6	0.75	01/01/99	Implied Responsibility	
Soos Creek Park and Trail	199704260791	2473400720	R-6	0.25	01/01/99	Easement	Fairwood Div 11, Tract C
Soos Creek Park and Trail	0827001051	3323059099	R-4	0.15	06/27/99	Easement	
Soos Creek Park and Trail	19991109000562	2622059185	R-1	0.23	11/09/99	Owned in Fee	Unknown
Soos Creek Park and Trail	19991109000562	2622059042	R-1	0.19	11/09/99	Owned in Fee	Unknown
Soos Creek Park and Trail	19991109000562	2622059015	SR-1	0.63	11/09/99	Owned in Fee	Unknown
Soos Creek Park and Trail	19991122000116	3323059062	R-4	7.48	11/22/99	Owned in Fee	4 A Dev/TDR
Soos Creek Park and Trail	19991122000116	2823059101	R-6	1.80	11/22/99	Owned in Fee	4 A Dev/TDR
Soos Creek Park and Trail	19991122000116	3323059002	R-4	20.23	11/22/99	Owned in Fee	4 A Dev/TDR

Park Name	Recording Number	Parcel Number	Zoning	Acreage	Date Acquired	Ownership Type	Best Funding Source Info
Soos Creek Park and Trail	20000912001083	3323059003	RC	39.47	09/12/00	Owned in Fee	Unknown
Soos Creek Park and Trail	20010424000307	2333230400	R-6	0.17	04/24/01	Owned in Fee	Emerald Vista Plat Ded./TDR
Soos Creek Park and Trail	20010424000307	2333230400	R-6	0.81	04/24/01	Owned in Fee	Emerald Vista Plat Ded./TDR
Soos Creek Park and Trail	20010424000307	2333230400	R-6	6.15	04/24/01	Owned in Fee	Emerald Vista Plat Ded./TDR
Soos Creek Park and Trail	20011224001916	2223059028	RC	0.67	12/24/01	Owned in Fee	CFT, REET
Soos Creek Park and Trail	20011224001916	2223059012	RC	0.94	12/24/01	Owned in Fee	CFT, REET
Soos Creek Park and Trail	20011224001910	2223059164	RC	23.05	12/24/01	Owned in Fee	CFT, REET
Soos Creek Park and Trail	20011224001910	2223059015	R-4	62.33	12/24/01	Owned in Fee	CFT, REET
Soos Creek Park and Trail	20011224001910	2223059015	R-4	0.37	12/24/01	Owned in Fee	CFT, REET
Soos Creek Park and Trail	20011224001910	water body	R-4	0.12	12/24/01	Implied Responsibility	CFT, REET
Soos Creek Park and Trail	20011224001910	2223059017	R-4	0.06	12/24/01	Owned in Fee	CFT, REET
Soos Creek Park and Trail	20011224001910	2223059017	R-4	15.70	12/24/01	Owned in Fee	CFT, REET
Soos Creek Park and Trail	20020625001453	3705000170	RA-5	15.85	06/25/02	Owned in Fee	Jerry's Place Plat Dedication
Soos Creek Park and Trail	20070621002212	0422059161	R-1	0.31	06/21/07	Owned in Fee	
Soos Creek Park and Trail	20070621002212	0422059162	R-1	0.15	06/21/07	Owned in Fee	Parks CIP
Soos Creek Park and Trail	20070621002212	0422059024	R-1	0.87	06/21/07	Owned in Fee	Parks CIP
Soos Creek Park and Trail	20080827000392	1022059089	RA-5	5.51	08/27/08	Owned in Fee	TDR/NWParks Foundation
Soos Creek Park and Trail	20080827000392	1022059182	RA-5	10.57	08/27/08	Owned in Fee	TDR/NWParks Foundation
Soos Creek Park and Trail	20080827000392	1021059045	RA-5	13.24	08/27/08	Owned in Fee	TDR/NWParks Foundation
Soos Creek Park and Trail	20091203000529	2473400740	R-4	0.04	12/03/09	Owned in Fee	REET
Soos Creek Park and Trail	20110228000800	3323059073	R-4	4.62	02/28/11	Owned in Fee	Parks Expansion Levy
Soos Creek Park and Trail	20120103001258	147306TRCT	R-4	0.37	01/03/12	Easement	Parks Expansion Levy
Soos Creek Park and Trail	20120831000182	3323059085	R-1	15.06	08/31/12	Owned in Fee	Parks Expansion Levy