



GENERAL GOVERNMENT & PUBLIC SAFETY COMMITTEE
NOVEMBER 9, 2015
5:30 P.M.
COUNCIL CHAMBERS

1. **YEARLY REVIEW OF PROPERTY RETAINED BY POLICE DEPARTMENT**
JOE UPTON, POLICE COMMANDER
(STAFF REPORT ATTACHED)

2. **PLEASANT GLADE FOREST MANAGEMENT PLAN**
LORI FLEMM, PARKS AND RECREATION DIRECTOR
(STAFF REPORT ATTACHED)



GENERAL GOVERNMENT & PUBLIC SAFETY COMMITTEE
November 9, 2015

SUBJECT: Yearly review of property retained by the Police Department.

RECOMMENDATION: RCW 63.32.01 requires a yearly review of property retained by the Police Department by the City's Mayor or Council.

STAFF CONTACT: Scott Spence, City Manager 
Dusty Pierpoint, Police Chief 
Joe Upton, Police Commander 

ORIGINATED BY: Police Department

ATTACHMENTS: 1. [2015 Police Department Retained Property List](#)

**BUDGET IMPACT/
SOURCE OF FUNDS:** None.

**PRIOR COUNCIL/
COMMISSION/
COMMITTEE REVIEW:** None.

BACKGROUND:

RCW 63.32.010(2) states Police Departments may:

“Retain the property for the use of the police department subject to giving notice in the manner prescribed in RCW 63.32.020 and the right of the owner, or the owner's legal representative, to reclaim the property within one year after receipt of notice, without compensation for ordinary wear and tear if, in the opinion of the chief of police, the property consists of firearms or other items specifically usable in law enforcement work: PROVIDED, That at the end of each calendar year during which there has been such a retention, the police department shall provide the city's mayor or council and retain for public inspection a list of such retained items and an estimation of each item's replacement value.”

The attached “retained property list” complies with this RCW instruction and provides the Mayor and City Council with the list of items currently retained by the Police Department along with their current location and estimated value. This list is exactly the same as the 2014 retained property list as there have been no items added in 2015.

ADVANTAGES:

1. Compliance with RCW 63.32.010(2).
2. Retention of selected items assists the Police Department in the performance of official duties and helps decrease the expenditure of public funds.

DISADVANTAGES:

1. None.

2015

Lacey Police Department Retained Property List

<u>Case #</u>	<u>Description</u>	<u>Location</u>	<u>Approx. Value</u>
2006-3914	Two tree limb cutters	Response Trailer	\$40
2007-1322	24" bolt cutters	Sgt. Vehicle	\$20
2008-4414	"Dakine" brand backpack	Bait Vehicle	\$15
2008-4751	Coleman Generator	Response Trailer	\$300
2009-2055	"Nextar" brand GPS unit	Bait Vehicle	\$60
2009-2905	"Rosetti" brand purse	Bait Vehicle	\$20
2009-4680	"Garmin" brand GPS unit	Bait Vehicle	\$80
2011-0750	"LG" brand 55" LED TV	Briefing Room	\$600
2011-0750	Honda Generator ES6500	Impound Yard	\$900
2011-4190	24" bolt cutters	Sgt. Vehicle	\$20
2013-6829	128GB Apple i-pad air 174	Detectives	\$400
2013-6829	128GB Apple i-pad air 174	Detectives	\$400
2013-6829	128GB Apple i-pad air 174	Detectives	\$400



GENERAL GOVERNMENT COMMITTEE MEETING
November 9, 2015

SUBJECT: Pleasant Glade Neighborhood Park Forest Management Plan

RECOMMENDATION: No action necessary. Staff is advising the Committee Members of the recommendations in the Forest Management Plan and need for hazard tree removals, and the status of the park planning.

STAFF CONTACT: Scott Spence, City Manager 
Lori Flemm, Parks and Recreation Department Director 

ORIGINATED BY: Parks and Recreation Department

ATTACHMENTS:

1. [Pleasant Glade Park Forest Management Plan.](#)
2. [Authorization from Thurston County to remove hazard trees.](#)

FISCAL NOTE: The City was awarded a \$9,000 grant provided by the USDA Forest Service, administered through the Washington State Dept. of Natural Resources (DNR). The Hazard Tree Removal Other Administrative Action Supplemental Application fee of \$181.16 is included in the 2015 approved budget, account 302.0102.519.6416, which includes funds if necessary to contract tree removal.

PRIOR REVIEW: Board of Park Commissioners reviewed the plan on September 23, 2015, and formally approved on October 28, 2015.

BACKGROUND:

The Washington State Recreation and Conservation Office (RCO) advised the City of Lacey that it needed to allow public access to the 32 acre property, known as Pleasant Glade Open Space, acquired in 2002 with a Washington Wildlife and Recreation Program

grant by December 31, 2015. Allowing public access requires removal of latent hazards, including trees. Staff applied for and received a \$9000 grant from DNR to prepare a forest management plan, which includes the identification of hazard trees. Washington Forestry Consultants, Inc. was retained with the grant funds to prepare the plan. Twenty-one hazard trees were identified as priority and recommended for removal by Galen Wright and Ben Maccoll of WFCI.

At its regular meeting held on September 23, 2015, Galen Wright presented the findings and recommendations in the draft plan to the Board of Park Commissioners and seven citizens. The citizens participated in the discussion. The citizens expressed concern about the use of herbicides to control invasive plants and noxious weeds. At its regular meeting held on October 28, 2015, the Board of Park Commissioners considered approval of the plan. Four citizens attended this meeting and participated in the discussion, leading to an additional revision. The Board of Parks Commissioners approved the plan as revised at that meeting. The copy included in this agenda packet reflects this revision.

Staff submitted a master application to Thurston County Resource Stewardship for approval to remove 20 of the 21 hazard trees. Thurston County staff visited the site to inspect the hazard trees, and the application was approved on October 29.

ADVANTAGES:

1. Hazard trees are those trees, which are likely to fail and hit a target. Removal or remediation of the 21 hazard trees alleviates this concern.
2. Downed logs provide habitat and nutrients for the forest floor. Wherever possible, snags are created from hazard trees, allowing for opportunities for cavity nesting birds.

DISADVANTAGES:

1. Dying trees provide habitat for cavity nesting bird species, and removal leads to less nesting opportunity.

PLEASANT GLADE NEIGHBORHOOD PARK

Forest Management Plan

Approved by the Board of Park Commissioners
on October 28, 2015



Prepared by
WASHINGTON FORESTRY CONSULTANTS, Inc.
Olympia, WA
(360) 943-1723



Funds for this project were provided by the USDA Forest Service Urban and Community Forestry Program, administered through the State of Washington Department of Natural Resources Urban and Community Forestry Program.

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PLEASANT GLADE NEIGHBORHOOD PARK

5011 Pleasant Glade Road NE
Lacey, WA

Introduction

The City of Lacey has requested that Washington Forestry Consultants, Inc. (WFCI) perform an inventory and assessment of trees and vegetation, and wildlife habitat potential and to prepare a 'Forest Management Plan' for the new Pleasant Glade Park.

The assessment will evaluate the overall health of the forest and make management recommendations to enhance forest health and wildlife habitat in the park, while protecting the values that patrons of the park desire.

Pleasant Glade Neighborhood Park Location

Located northwest of Lacey, the 31.85 acre Pleasant Glade Neighborhood Park includes 17.1 acres of native woodland and 13 acres of grassy meadows with a 1 acre pond. A caretaker residence (Farm house and outbuildings is 0.88 acre) abuts Pleasant Glade Road NE. The Pleasant Glade Neighborhood Park is situated on Pleasant Glade Road NE, in the urban growth area (UGA) of Lacey just east of Sleater-Kinney Road NE (see map below).

The park is currently undeveloped, with limited improvements to be done in the fall of 2015. Recreation amenities in the park will include a pedestrian entrance with kiosk and

There are four (4) legal tax parcels in Pleasant Glade Neighborhood Park:

11804330400 – 10.26 acres, #11804340501 – 0.09 acres, #11804340900 – 9.94 acres, and #11804341000 – 11.26 acres for a total of 31.85 acres. All parcels are located in Section 4, Township 18 North, Range 1 West (see Appendix II).

Park Master and Management Plan

Most parks in the City of Lacey’s park system have a master plan. A master plan is a ‘map’ drawn to show the existing and proposed uses and areas such as athletic fields, picnic areas, trails, restrooms, parking lots, play equipment, tennis and basketball courts, trails, open playfields, cultural resources, wildlife habitat, forested areas, wetlands and buffers.

A management plan identifies how each park will be managed and maintained, including the purpose or program for the park, any special rules in addition to adopted park rules, hours of park use, and best management practices for the man-made, cultural and natural features as well as the natural resources in the park. The management plan must be continually updated, may vary with the seasons, and usually does not address emergency repairs due to vandalism.

The conceptual master plan for Pleasant Glade Neighborhood Park was prepared in 2001, and includes open field play areas, passive trails, children’s play areas, ropes course, restroom, and multi-purpose shelters for environmental education and picnicking, an amphitheater, and an arboretum. Prior to development of the park, the master plan will be reviewed to include current needs of the planning area (See map below). Future amenities that could be compatible include interpretive signs, wildlife observation, and picnic tables in the open fields.

The Forest Management Plan is the first phase in the holistic approach to the master and management planning process for both the Pleasant Glade Neighborhood Park and surrounding city owned properties. It may take a few years to address all natural resources in a management plan, but with each successive planning phase, the groundwork is laid for improved stewardship of Pleasant Glade Neighborhood Park.

Park Acquisition and Development Plans

In the summer of 2002, 31.85 acres of land were purchased by the City of Lacey from two landowners at a cost of \$777,430. The purchase was funded with a Washington Wildlife and Recreation Program (WWRP) grant from the Washington State Interagency Committee for Outdoor Recreation (IAC) in the amount of \$388,586, a donation of \$60,000 from the sellers, and \$328,586 in city funds. The IAC is the state agency now known as the Recreation and Conservation Office (RCO).

Since 2002, the city has leased the land to a tenant farmer who serves as caretaker. Almost immediately after purchase the Stream Team began leading school

class field trips to conduct water quality monitoring in Woodland Creek. School buses park in the driveway of the caretaker's residence. The park will be fully open for public use, with the exception of the caretaker's residence, by December 31, 2015, per the requirements of the RCO. The City has \$10,000 in its 2015 budget to make minimal improvements in order to open this property to public use and enjoyment.

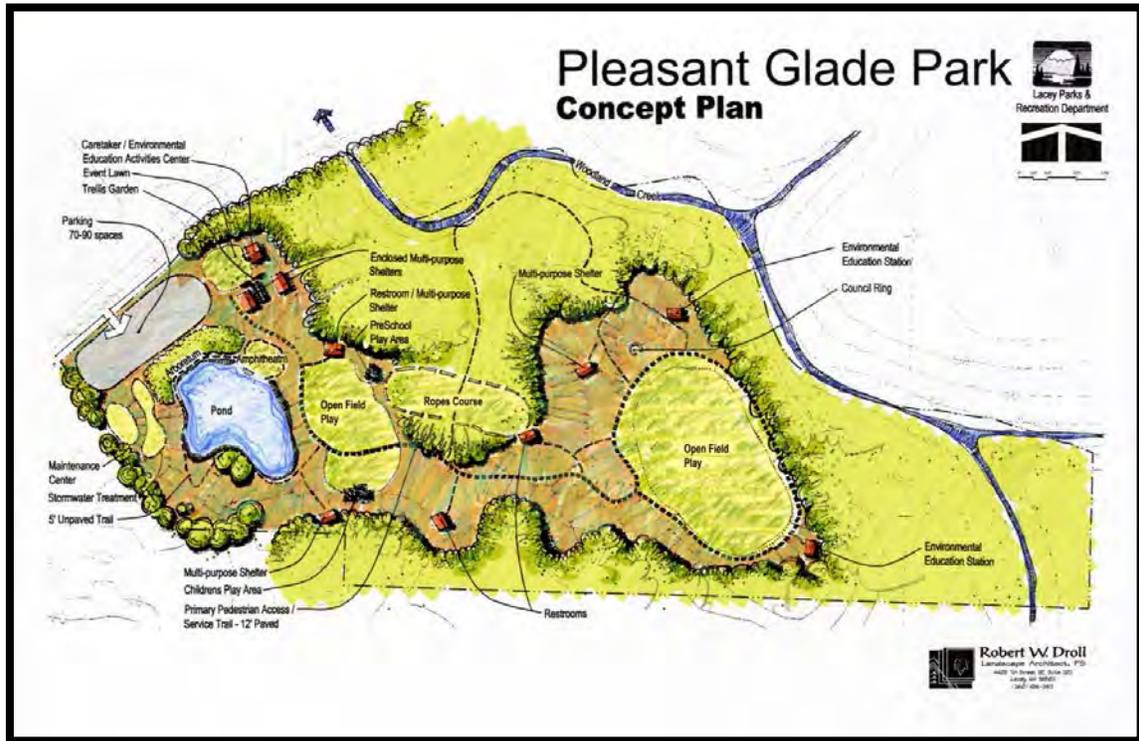


Figure 2. Pleasant Glade Park Concept Plan developed by Robert W. Droll, Landscape Architect, in order to secure a grant to purchase the property.

In 2009, a 10.5 acre parcel across the creek was purchased with \$169,800 of city water resources/mitigation funds, but is not part of the park. In 2011, the City acquired the 67 acres due east of the park, along with 180 acres further to the north and east along Pleasant Glade Road NE. In 2012 the headwaters of Palm Creek was acquired by the City, which included 4 parcels consisting of 87 acres located directly south of Pleasant Glade Park.

Goals and Objectives - Supporting Plans

The City of Lacey has recognized the need to protect and manage its valuable urban forest. Our vision for the city is to retain as much tree canopy as possible to preserve the forested Pacific Northwest character of the city, and the riparian corridor of Woodland Creek. These goals and objectives will serve as the structure for park planning, acquisition and development, as well as management.

The need to design space for trees, encourage and enforce sound tree protection practices, facilitate tree planting, and create long-term tree planting plans is critical. A significant

element of maintaining a livable city is to instill pride in its citizens. Citizens that take pride in their city and environment will get more involved and work even harder to preserve, protect, and enhance its beauty and livability.

The Comprehensive Plan for Outdoor Recreation was adopted by the City Council on July 22, 2010 and includes many goals and objectives that are relative to Pleasant Glade Park, and specifically to the Forest Management Plan. These specific goals and objectives in the comprehensive plan (listed below) support the purpose of our project:

1. GOAL: Develop a high quality, diversified parks and recreation system that provides amenities and activities for all ages, interests and abilities.

OBJECTIVE:

- ◆ Develop improvements and new opportunities within existing parks to accommodate population growth and increased demand within planning areas.

5. GOAL: Incorporate critical areas, ecological features and natural resources into the park system to protect and preserve habitat and retain migration corridors important to local wildlife.

OBJECTIVES:

- ◆ Identify, protect, and conserve wildlife habitat including nesting sites, foraging areas, and linkages within or adjacent to natural areas, open spaces, and the developing urban area.
- ◆ Acquire and provide appropriate public access to environmentally unique areas.
- ◆ Provide for public access to observe wildlife, enjoy nature, and develop an appreciation for our natural environment.
- ◆ Interpret and provide educational opportunities to instill an appreciation of critical areas and wildlife habitat in our citizens.
- ◆ Ensure minimal or passive development of some areas in parks in order to retain natural character.

6. GOAL: Develop a high quality system of multi-purpose trails and corridors that access significant environmental features, public facilities, neighborhoods and business districts and promote physical activity and a health conscious neighborhood.

OBJECTIVES:

- ◆ Extend appropriate types of trails through natural area corridors or greenways such as Woodland Creek and around natural features that will

provide a high quality, diverse representation of area environmental resources.

- ◆ Actively promote the use of the developed trails systems in ways that encourage physical activity and a health conscious neighborhood.

8. GOAL: Continue to maintain parks and recreational facilities at a high standard of care.

OBJECTIVES:

- ◆ Ensure that adequate resources for maintenance accompany development.
- ◆ Work in cooperation with utility providers to extend municipal utilities, such as sewer service and drinking water, to all public parks whenever possible.
- ◆ Encourage and support local volunteer participation in park maintenance and security.

9. GOAL: Encourage public involvement when planning for park development and management, and for recreational opportunities.

OBJECTIVES:

- ◆ Encourage public participation in planning efforts through citizen surveys, public meetings and informal discussions.
- ◆ Minimize land use conflicts between parks and neighboring land by locating parks on public roads or adjacent to compatible land uses. Parks with less than 50% of a continuous park border along street frontage may experience misuse. Encourage citizen surveillance through a Park Watch Volunteer Program.
- ◆ Encourage volunteer stewardship of recreational and natural resources.

11. GOAL: Develop, staff, train and support a professional parks and recreation department that effectively serves the neighborhood in the realization of the identified goals and objectives.

The City of Lacey Urban Forest Management Plan was prepared and adopted on July 25, 2013. The technical review conducted during preparation of the Urban Forest Management Plan revealed 43% of our city is currently covered with native forest and planted ornamental tree canopy, compared to 48% tree canopy cover in 1966 when our city was incorporated.

Our goal is to insure no net loss of trees to reduce our carbon footprint in Pleasant Glade Park. The loss of forest canopy, individual trees, and the increase in urban development has ecological consequences. Loss of green infrastructure leads to declining ability to sustain ecosystem services for water, air and carbon.

The City of Lacey Urban Forest Management Plan provides a detailed Goal and Policy section, including the following goals that support this project:

SUMMARY GOAL: The goal of managing city trees is to improve canopy cover and the aesthetic and physical benefits of trees to a neighborhood, while protecting the infrastructure from tree damage. This can have positive environmental and economic benefits to the neighborhood. In short, the urban trees should be compatible and functional, while minimizing maintenance costs.

GOAL 2. Preserve and maintain native forest components in areas conducive to the lifestyle of native plants such as critical areas (wetland and habitat areas and buffers), conservation parks, large tracts of open space and other areas that can be naturalized while maintaining compatibility with the anticipated land use of the surrounding area.

GOAL 4. Recognize the benefits of tree cover in consideration of drainage and watershed planning, habitat management, passive recreation opportunities, urban aesthetics, and pedestrian benefits for street design and maintain and improve Lacey’s overall tree canopy for these benefits and purposes.

GOAL 5. Provide significant habitat value in Lacey’s urban forest.

The Urban Forester’s Technical Review and Recommendations include, “Solicit grant funding, corporate donations and other funds to expand tree planting.”

In pursuit of these goals, the \$9,000 Community Forestry Grant has made it possible for the City to move forward with the preparation of a forest management plan for Pleasant Glade Neighborhood Park, and retain the services of a consulting forester. Washington Forestry Consultants, Inc. was selected based on their past involvement and familiarity with the parks and habitat reserves managed by the City as well as the Urban Forest Management Plan.

Forest Management Plan Purpose and Objectives

The City of Lacey would like to practice good forest management that will improve the general health and wildlife value of the forest stands while providing passive recreational opportunities for the surrounding neighborhood.

The purpose of this effort is to generate a Forest Management Plan for Pleasant Glade Neighborhood Park that provides a sound approach to improving the health and sustainability of the forest, completes the inventory of existing trees, conducts an assessment of the health of the individual trees, the wildlife habitat in the forest, identifies trees that provide food and shelter, and develops an implementation plan that prescribes the necessary current and future work along with timelines to complete this work.

Public Participation

The City of Lacey Board of Park Commissioners held a public meeting on January 28, 2015 at the Pleasant Glade Elementary Gym and invited property owners in the planning area to attend the meeting. Lori Flemm, City of Lacey staff member, gave a presentation discussing the need to fully open the park to public access, state granting requirements, the 2015 approved City budget of \$10,000, the \$9,000 grant application to prepare a Forest Management Plan, park rules, and summarized comments received from citizens who could not attend the meeting.

Forty citizens attended the meeting. Suggestions included:

1. Trespass: Need signs defining park vs. private property lines. Need fencing along property lines.
2. Annexation into city limits: Current policy is that the park won't be fully developed until the area is annexed into the city.
3. Storm water run-off and water quality: Need to address storm water run-off from park property onto Pleasant Glade Road (floods when rains), and the catch basin outflow does not percolate. Any parking lot that is constructed should be permeable surface materials. Water quality in Woodland Creek should be of utmost concern. The use of pesticides should be minimized.
4. Lighting: Any lighting provided should be eco-friendly and use cut off fixtures so it doesn't spill over onto adjacent property.
5. Farming: Disappointed that the cows have to leave, as they are part of the rural character of the neighborhood. Prefer that it remain as a working farm for education/student learning experience.
6. Fire Danger: Smokers who drop cigarette butts could start a brush fire. Fire fighter access in rugged back terrain difficult. Fireworks are dangerous too.
--Note Fireworks are not allowed in City of Lacey parks, even when the parks are located in Thurston County/unincorporated areas.
7. Trail: Weeds will grow up through trail, making it difficult to use. Trail should respect buffers of pond. Horses are allowed on the Chehalis Western Trail. Horses are not allowed in Lacey Parks or on Lacey Trails.
8. Wildlife habitat: Habitat should be considered a sacred area. Raptors, raccoons, beavers, salmon, etc.
9. Environmental concerns: Riparian buffer, native trees, hazard trees, etc.
10. Adjacent Parks: Concerns expressed by neighbors about Palm Creek Headwaters and Greg Cuoio Neighborhood Park. Put up fence on property lines.

A second public meeting with the Board of Park Commissioners was held on April 22, 2015. Thirteen (13) citizens attended the meeting. Discussion focused on parking for school buses and park patrons, perimeter fencing and removal of internal fencing, park amenities, best management practices for dogs and waste, concern about fecal coliform in the creek, and management of invasive species. Citizens preferred that invasive species be managed by mowing, weed whacking, and volunteers pulling by hand or hand tools. Amenities were prioritized by the citizens in attendance for this phase of development:

- Recreation amenity Priorities: Park name sign, rules sign, no parking signs, fencing, trash can, dog bag station, bike rack, culvert, fencing and gate
 - Bags in the Dog bag station will be installed as long as they aren't vandalized or littered around the site.
 - Citizens suggested the picnic table be low priority, constructed of recycled lumber and perhaps an Eagle Scout project.
- Best management practices have been established by WSDOT and should be followed while managing this park property.

A third public meeting with the Board of Park Commissioners was held on September 23, 2015 primarily to review and discuss the draft Forest Management Plan. Seven citizens attended the meeting, as did Galen Wright and Ben MacColl of Washington Forestry Consultants, Inc. (WFCI) to present the draft forest management plan. Everyone present was given a hard copy of the draft plan; many had obtained and reviewed the draft plan prior to the meeting. Galen summarized the scope of services, inventory and health of the trees, invasive plants, and recommended management practices. Discussion focused on use of herbicides to control the invasive plants because many citizens who attended the meeting expressed concern with the recommendations to use herbicide near Woodland Creek. The age and predominance of alder trees and the need to under plant with conifers in the near future was discussed. City staff will discuss the concerns with the Commissioners and WFCI prior to the October monthly meeting.

Scope of Services

The following is a brief summary of the scope of services performed by WFCI for this project:

1. Perform an inventory and assessment of trees 6 inches and larger in the park.
2. Perform a basic visual assessment of other habitat values including snags and downed logs.
3. Perform an assessment of desirable understory plant cover, invasive plant cover and prescribe necessary management to improve desirable understory plant stocking, while eliminating undesirable or invasive plants.
4. Prepare a 'Forest Management Plan' that summarizes our findings and recommendations for short and long-term management of trees and vegetation in the park.

Methods

An inventory of the trees in the park was performed using variable area plots installed on a systematic grid across the forested Types I, II, and III. Information on tree species, size, crown class, tree health, and necessary cultural care was collected. The presence of snags and downed logs was observed and noted in order to assess existing wildlife habitat values. Understory plant cover, invasive plants, encroachments and other issues were documented. No tree inventory was conducted in the non-forested Type IV, or the pond and farm house areas, though species present were noted.

Mitigation was prescribed for trees that were determined to be hazard trees. The assessment methodology used for high risk trees is detailed in Harvey and Hessburg's U.S. Forest Service publication¹, specifically developed for parks and campgrounds.

Observations

Park Description

The park has rolling topography that slopes towards water including Woodland Creek and its tributaries, as well as the small pond. Along a portion of Pleasant Glade Road NE frontage, especially in the vicinity of the large black walnut tree, some of the park property drains to the road ditch. There is no prevailing aspect. Woodland Creek is considered to be a resource of the state. In addition there are 2 other streams, and the small pond that provide high habitat value. We did not see and are not aware of any threatened or endangered plant, animal, or bird species in the park, and no raptor nest sites were found.

¹ Harvey, R.D. and P. F. Hessburg. 1992. Long-Range Planning for Developed Sites and the Pacific Northwest: The Context of Hazard Tree Management. USDA Forest Service Publication FPM-TP039-92. Portland, Oregon.

The forested area (contiguous tree canopy) covers approximately 17.1 acres. The farmhouse and its immediate surroundings include 0.88 acres, the grassy meadows make up about 13 acres, and the pond with its surrounding vegetation comprises the remaining 1 acre. Woodland Creek flows along the northerly and easterly property line, for approximately 2,150 linear feet, and is a salmon bearing stream. A 2nd perennial stream (Palm Creek) flows north from the park into Woodland Creek through forest cover Type II. A 3rd perennial stream flows north into Woodland Creek through forest cover Type III.

The watershed for the small pond is entirely grassy meadow and forested fragments. There are no streams or other drainages with a defined channel that feed the pond. Drought conditions have nearly dried up the pond in 2015. Local residents indicated that the pond used to be stocked with bass and blue catfish and was a good fishing pond. In the past, the pond was drained each fall via an existing man-made ditch, and potatoes planted, but this has not been practiced since the city acquired the property. The depth of the pond when full is projected to be 10 feet or less.

The majority of the park is forested (54%) with an older second and third-growth deciduous-conifer forest stand. Conifers are a minor component of the stands, confined primarily along the streams. Some planted ornamental landscape trees occur in the vicinity of the farm house and the pond. The remainder of the park is open, grassy meadows (previously pastured) and the 1-acre pond.

The northerly boundary of the park is Woodland Creek. Most of the properties north and east of Woodland Creek are also owned by the City of Lacey. The northwestern edge of the park is bordered by Pleasant Glade Road NE. Residential properties border the southwest side of the park.

Soils

There are three soil types (Figure 3) on the parcel according to the Natural Resource Conservation Service Soil Survey.

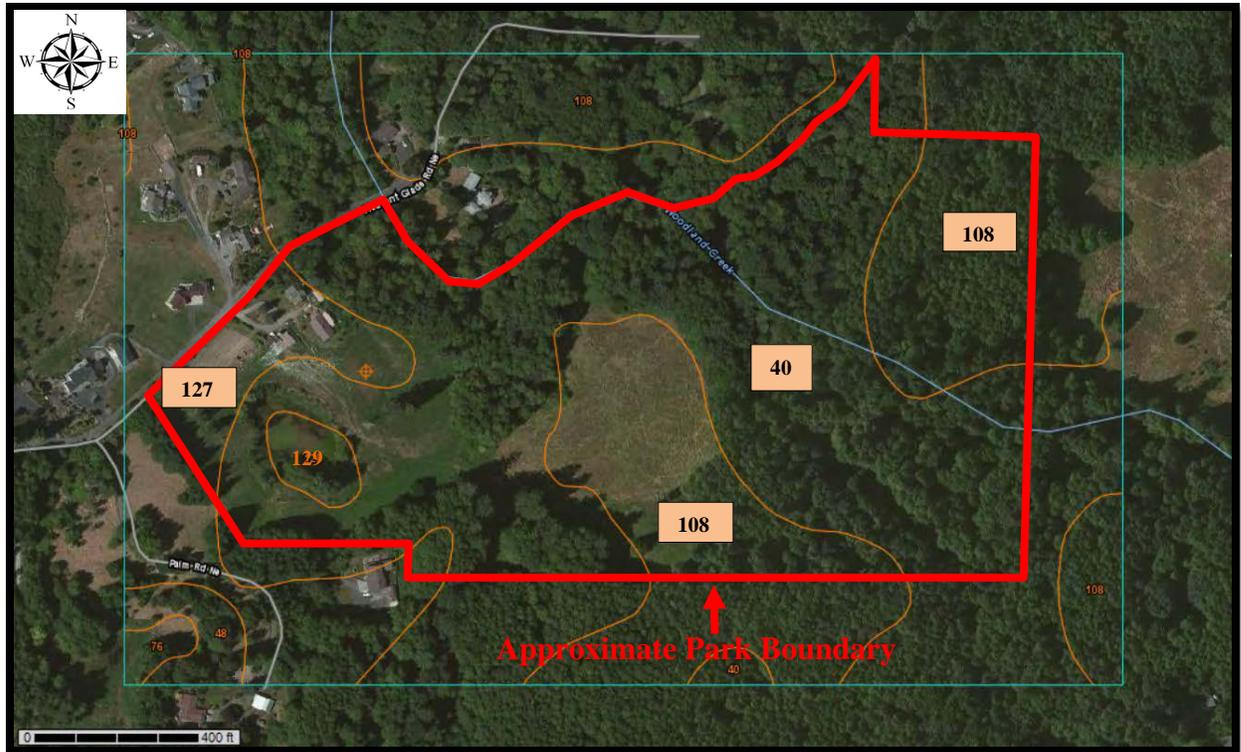


Figure 3. Soil types in Pleasant Glade Park.

Type 40 - Giles Silt Loam
Type 108 - Skipopa Silt Loam
Type 127 - Yelm Sandy Loam
Type 129 - Water/Wetland

The largest soil type is the Giles silt loam. This is a deep, well-drained soil found on terraces. It formed in glacial outwash and volcanic ash. Permeability is moderate. Plant available water capacity is high. The effective rooting depth for trees is 40 to 60 inches. The hazard of runoff and erosion is slight. The soil is not suited to year-round logging because of the muddiness caused by seasonal wetness. The potential for windthrow of trees is considered to be ‘slight’ under normal conditions.

The second largest soil type is the Skipopa silt loam. It is a moderately deep, somewhat poorly drained soil found on terraces. It formed in volcanic ash and loess over glaciolacustrine sediment. Permeability is moderate in the subsoil and very slow in the substratum. Plant available water capacity is moderate. The effective rooting depth for trees is 15 to 30 inches. A perched water table fluctuates between depths of 12 to 24 inches from November to May. The hazard of runoff and erosion is slight. The soil is not suited to year-round logging because of seasonal wetness of the soils. The chance of windthrow is ‘slight’ under normal conditions.

The third type is the Yelm fine sandy loam, a deep, moderately well drained soil on terraces. It formed in volcanic ash and glacial outwash. Permeability is moderately rapid. Available water capacity is high. The effective rooting depth for trees is 40 to 60 inches. A seasonal high water table fluctuates between depths of 18 to 36 inches from December to March. Runoff is slow and the erosion hazard is slight. Windthrow potential is rated as ‘slight’.

Forest Cover

The forest cover was stratified into four forest cover types (see aerial photo in Appendix I) for the purposes of description, including 2 non-forest (pond and farm house) areas. The following is a general discussion of tree health by species across the park:

Red Alder: This is the dominant tree species in the park. The red alder trees range from 9 to 26 inches DBH. The trees in the riparian areas are generally in fair condition, but will soon begin to decline as they are reaching maturity (40 years is considered mature for red alder). Scattered dead trees occur, with many trees showing evidence of epicormic branches which is an indicator that the tree is under stress. The mode of failure of red alder is from the top down. As a red alder tree matures and growth slows, epicormic branches (sprouts) develop on the lower stem. Top dieback and thinning of the branches begins to occur. Mortality follows.

The red alder trees in the upland portions of the park are generally smaller in diameter, and are expected to mature at an earlier age, with mortality following. Some red alders in the grassy meadows that were pastured exhibit severe livestock injury (decay) to roots, with low vigor. These will be short-term trees.



Photo A. View of livestock on the root system of bigleaf maple tree (6/16/15).



Photo B. View of red alder in pastured area – note decayed root from livestock hoof damage (WFCI 9/16/15).

Douglas-fir: The largest trees in the park are Douglas-firs. Some trees exceed 150 feet tall and are nearly 50 inches DBH. The Douglas-firs generally are in good condition and are scattered as individuals or small clusters throughout Type II. There were no signs of significant insect or disease problems in the Douglas-fir. Evidence of livestock damage and resulting tree decline was observed to select trees.

Bigleaf Maple: The bigleaf maples are primarily ‘residual’ trees, retained during the past logging episode. Younger bigleaf maples also occur, that are the same age as the surrounding red alder trees. The older maples have significant structural defects and are beginning to show signs of decline as well. They are classified as being in fair to poor condition. Many are multi-stemmed trees. This is a structural defect; however the risk of failing and impacting a target is currently ‘Low’ in this undeveloped park setting.

Western redcedar: The redcedars occur as large old trees up to about 50 inches DBH. Tree condition is fair to good, though many will have internal decay. Even with substantial internal stem decay, western redcedar will survive to an old age. Most of the redcedars occur in the riparian corridors, taking advantage of the moist soils, and are more prevalent on the north-facing slopes. Some redcedar was cut in the most recent episode of logging; however a few small clusters of trees were left.

Other Species: Other species that occur as scattered individual trees across the park including the pond and farm house area include: Western hemlock (*Tsuga heterophylla*), cascara (*Rhamnus purshiana*), flowering dogwood (*Cornus florida*), Colorado blue spruce (*Picea pungens*), Scouler willow (*Salix scouleriana*), weeping willow (*Salix*

babylonica), bitter cherry (*Prunus emarginata*), black locust (*Robinia pseudoacacia*), Port Orford cedar (*Chamaecyparis lawsoniana*), goldenrain tree (*Koelreuteria paniculata*), Ponderosa pine (*Pinus ponderosa*), and black cottonwood (*Populus trichocarpa*). Tree quality is variable – individuals that are open grown are generally in good condition, and trees overtopped by larger trees are generally in poor condition. Most of the planted ornamentals are unmaintained and in some cases overgrown with blackberry.



Photo C. Riparian corridor along Woodland Creek adjacent to Type II (9/16/15).

The following is a description of the forest cover types:

Type I

This is the smallest forest type in the park at 1.6 acres. The predominant tree species is red alder (*Alnus rubra*) with over 122 trees/acre. Bigleaf maple (*Acer macrophyllum*) and scattered large Douglas-fir (*Pseudotsuga menziesii*) trees are also present in this type. The tree diameters range from 9 to 47 inches DBH with an average of 17 inches. The stand is considered to be fully stocked, though some small gaps with understory shrub species occur.

Table 1. Summary of the tree conditions in Type I.

Species	Trees Per Acre	Average DBH (in)
Red Alder	122	15
Douglas-fir	5	37
Bigleaf Maple	12	25
Sum	139	17

Stand Condition. – This is a mature stand of red alder. Where livestock have been allowed to graze around the trees, tree condition is fair to poor. Soil compaction and

damage at the tree root collars has caused reduced tree vigor. Where livestock were not allowed to get into the trees, tree quality is fair to good. Selective removal of marked hazard trees will need to be done to remove potentially unstable trees that would threaten users of the park. In the more dense areas of this stand, selective tree removal would benefit overall tree health.

Understory Shrubs. -- The understory shrub cover is sparse to barren (some broadleaf weeds and scattered invasive English holly) in areas where livestock have grazed. Where livestock were excluded, stinging nettles (*Urtica dioica*), broadleaf weeds, some grasses, invasive English holly (*Ilex aquifolium*) and black hawthorn (*Crataegus douglasii*) trees and plants are present.



Photo D. Pastured red alder trees in Type I on left, neighboring unpastured forest on right. Note contrast in understory vegetation (WFCI 9/16/15).

Type II

This 7.7 acre forest type occurs in the southeast corner of the park, south of Woodland Creek. Palm Creek flows from south to north (into Woodland Creek) through this type. It is a natural stand with more species diversity than Type I. Red alder is still the dominant tree species in numbers, though the red alder trees are smaller with scattered residual bigleaf maple, western red cedar (*Thuja plicata*) and Douglas-fir. The trees in this type range from 7 to 50 inches DBH with an average DBH of 16 inches.

Table 2. Summary of the tree conditions in Type II.

Species	Trees Per Acre	Average DBH (in)
Bigleaf Maple	18	24
Red Alder	72	10
Douglas-fir	1	23
Western Red Cedar	2	45
Sum	93	16



Photo E. View of forest stand and understory in Type II. Left side pastured and right side protected (WFCI 9/16/15).

Stand Condition. -- The forest stand is considered to be fully stocked with some small gaps where natural regeneration failed after logging in the mid-1990's. The larger trees are all residuals – i.e. they are dominant and codominant trees that were left during the last episode of logging activity. Red alder seeded into the disturbed soils and now dominates the type.



Photo F. View of pastured woodland in Type II.
Note: Red alders in photo are overmature trees (WFCI 9/16/15).



Photo G. Western redcedar trees in a small grove in Type II (WFCI 9/16/15).

This is largely a riparian forest community growing on the slopes above the creeks with narrow upland benches in between. The western redcedar trees have also benefitted from the moist soils in this type. Generally, the western redcedar and scattered Douglas-firs in this type are in good condition. The redcedars are considered to be mature, however

since the potential lifespan of a western redcedar can reach to ages of 800 to 1,000 years, the Pleasant Glade Park trees are relatively young. The quality of the residual bigleaf maples is poor.

Understory Shrubs. -- The forest floor is heavily stocked with stinging nettle, sword fern (*Polystichum munitum*), salmonberry (*Rubus spectabilis*), vine maple (*Acer circinatum*), devils club (*Oplopanax horridus*) and other broadleaf weeds and grasses. Skunk cabbage (*Lysichiton americanus*) and red elderberry (*Sambucus racemosa*) were also present in wet areas adjacent to Woodland and Palm Creeks.

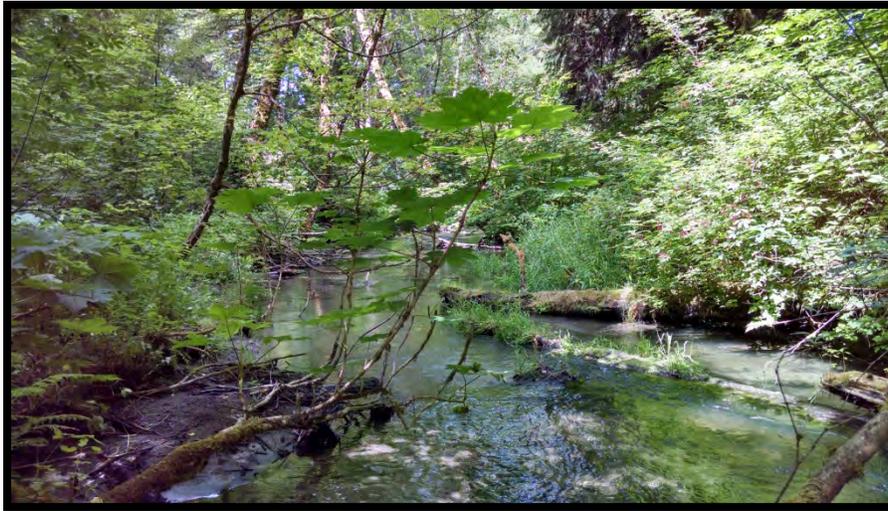


Photo H. View of woodland Creek and the riparian corridor (WFCI 9/16/15).

Type III

This 7.8 acre forest cover type is bordered by Woodland Creek along the north and east sides, and by the grassy meadows to the south. Nearly all trees are in the riparian areas along Woodland Creek and the swales feeding the creek from the meadows. Red alder also dominates this type, with lesser numbers of bigleaf maple, Douglas-fir, western redcedar, bitter cherry, and western hemlock. Most all of the scattered conifers are large. The diameter of the trees in this type ranges from 16 to 40 inches.

Stand Condition. – Most of the trees in this type are physically mature. The red alders are considered to be large, on average for the species. Their expected 40 year lifespan will be longer on this site due to the moist soils and location along the riparian corridor. Tree condition will generally decline over time since most trees are physically mature.

Table 3. Summary of the tree conditions in Type III.

Species	Trees Per Acre	Average DBH (in)
Red Alder	40	20
Bigleaf Maple	15	25
Douglas-fir	2	30
Western red cedar	1	28
Western hemlock	<1	24
Bitter cherry	<1	12
Sum	59	21

Understory Shrubs. -- The understory shrub layer is similar to the other types; however, the portion that was grazed by livestock is much less diverse and more lightly stocked with native plants.

The areas outside of the grazed area are typical for the soil type, with lush understory vegetation. Stinging nettle is still a large component, as well as sword fern, Indian plum, salmonberry, vine maple, and other broadleaf weeds and grasses. There is more vine maple in this type than the other types and English holly is scattered throughout the type. Large patches of Himalayan blackberry occur along the southerly edges of the type.



Photo I. View of invasive black hawthorn along the edge of Type IV (WFCI 9/16/15).

Type IV

This 12.73 acre non-forest type includes the grassy meadows in the central and westerly portions of the park. A few isolated trees or small patches (2-6 tree clusters) of trees occur. The tree species include Douglas-fir, red alder, Austrian pine (*Pinus nigra*), black walnut (*Juglans nigra*), and an English walnut (*Juglans regia*) tree. Most notably, there is a dead standing Douglas-fir tree (34 inches DBH and 88 feet tall) just uphill from the small pond that could become a hazard once the park is open to the public.

Invasive Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), Himalayan blackberry, black hawthorn, and English holly occur in this type. The Canada thistle stocking is very high in the meadows. Canada thistle is listed on the Washington State Noxious Weeds list as a Class C Noxious Weed.



Photo J. View of extensive Canada thistle infestation in meadow (WFCI 9/16/15).

Pond

The small pond and its perimeter vegetation occupies approximately 1 acre. The pond is nearly dry today. What water that is left is choked with water weeds (not identified). The pond is surrounded by a mix of black cottonwood (*Populus trichocarpa*), red alder, Scouler and weeping willow, and Colorado blue spruce (*Picea pungens*).



Photo K. View from west to east of small pond in meadow (9/16/15).

Shrub species included black hawthorn (*Crataegus douglasii.*), Indian plum (*Oemleria cerasiformis*), bracken fern (*Pteridium aquilinum*), other non-native woody shrubs, grass, and Himalayan blackberry (*Rubus armeniacus*), an invasive species.

Farm House

The 0.88 acres farm house and outbuilding area is stocked with a number of ornamental species of trees, landscape plants, and turf. The predominant tree species include Colorado blue spruce, Ponderosa pine, black locust, juniper (*Juniperus* spp.), cherry (*Prunus* spp.), goldenrain tree, Port Orford cedar, flowering dogwood, cascara, and apple (*Malus domestica*).



Photo L. Colorado blue spruce trees in front of the farm house (WFCI 6/16/15).

Past Forest Management Practices

Past forest management has been passive with the exception of the logging that occurred in the mid-1990's. Property lines and fences have been maintained, but no other management is apparent since the last episode of timber harvesting over 20 years ago. It appears that all regeneration has been natural, with red alder being the pioneer species that restocked the logged areas. There is no evidence of replanting with commercial tree species.

Discussion and Recommendations

Tree Inventory

The forest cover in the park was stratified by forest cover type or land-use into 3 forest cover types, a meadow non-forest cover type, plus the pond and the farm house areas. The trees in Types I-III were then inventoried using variable area plots located on a systematic design across the entire park ownership. All trees in sample plots that were 6 inches DBH (measured at 4.5 ft. above the ground line) and larger were measured.

The inventory found that the park has at least 1,539 trees that are 6 inches DBH and larger. The predominant tree species in the park is red alder at 77%. Bigleaf maple (18%) is the next most dominant species. Table 4 below shows the species composition for forest cover types I-III in the park. There are likely a few other species in the forested portion of the park that were outside of our sample plots.

Table 4. Species composition and size of trees in Types I, II, and III.

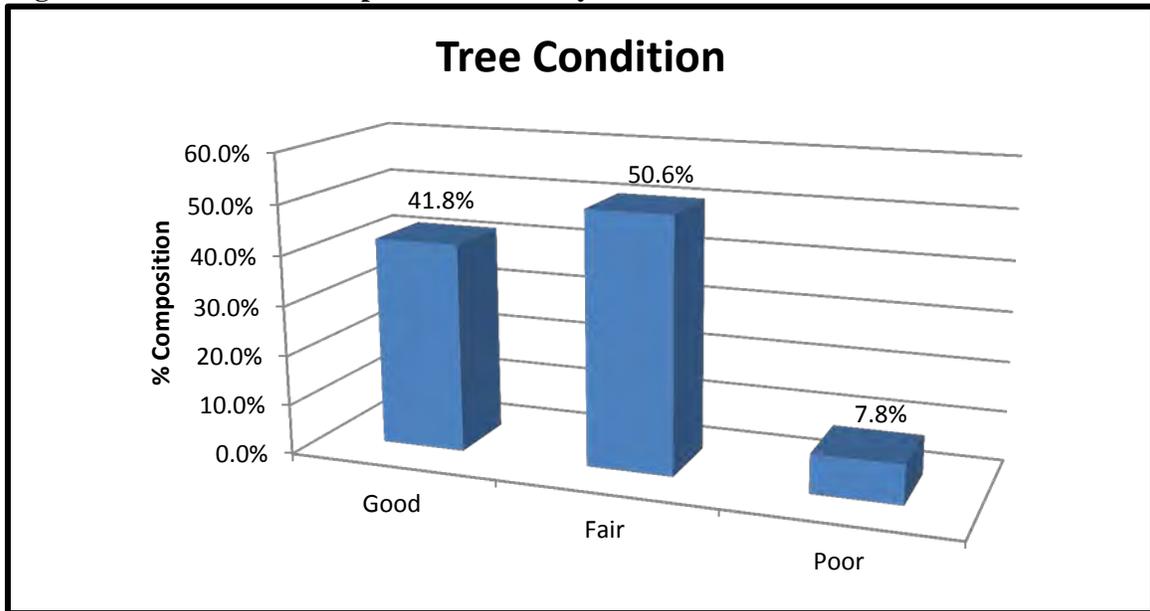
Species	DBH Range (in)	# of Trees	% Composition
Red Alder	6-40	1,180	76.7%
Bigleaf Maple	17-36	274	17.8%
Douglas-fir	32-47	25	1.6%
Western Red Cedar	42-50	30	1.9%
Other*	6-28	30±	1.9%
Summary	6-50	1,539	100%

**cherry, cascara*

The inventory found that the park is moderately to heavily stocked with red alder. The stocking levels are contiguous in some areas of the stands to patchy in others where natural regeneration failed due to brush competition. Within the forested areas of the park, the snag population is low (68+), but the downed log component is very high. The downed logs include dead or broken bigleaf maple and red alder trees. The many downed logs are in all stages of deterioration.

The condition of the trees was classified as 'Good, Fair, or Poor' condition. The following Figure 4 provides a summary of the tree condition rating across the park.

Figure 4. Illustration of the percent of trees by tree condition class.



The majority of the larger trees in the park are considered to be 'mature' and are classified as being in 'Fair' condition. Forty-one percent were classified as being in 'Good' condition and the balance 'Poor' (7.8%). The number of dead trees is less than 1%. The factors assessed included foliage color and density, bark vigor, lateral and terminal branch growth, and tree structure.

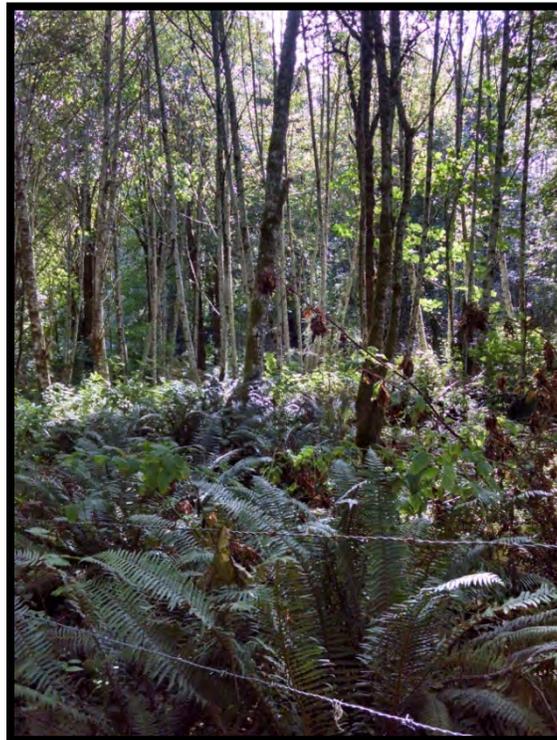


Photo M. Photo of typical red alder forest within the park (WFCI 9/16/15)

In summary the condition of the trees in the park is typical and indicative of a healthy forest stand. It is, however, considered to be mature, so stand health is expected to decline from now forward.

Summary of the Significant Insect and Disease Problems Found

Older second-growth forests support many insects and diseases some of which are just part of the process of aging and are secondary pathogens. The list below includes some forest pathogens that were found in the park and are the species that can be the primary cause of tree failure:

Red Ring Rot	<i>Porodaedalea pini</i>
Brown Cubical Butt Rot	<i>Phaeolus schweinitzii</i>
Pencil Rot	<i>Postia sericiomollis</i>
Ganaderma Trunk Rot	<i>Ganaderma tsugae</i>
Brown Trunk Rot	<i>Fomitopsis officinalis</i>
Brown Crumbly Rot	<i>Fomitopsis pinicola</i>
Verticillium wilt	<i>Verticillium dahliae</i>
Laminated Root Disease	<i>Phellinus sulphurescens</i> (not found but likely present)
Shoestring Root Disease	<i>Armillaria ostoyae</i> (not found but likely present)
Annosus Root Disease	<i>Heterobasidion annosum</i> (not found but likely present)

Red ring rot was found in 2 western hemlocks and 1 Douglas-fir tree in Type II. Each fungal conk will have severe stem decay behind it. When targets are placed within reach of the tree, the risk may need to be mitigated. This disease will likely cause tree failure or mortality in the short-term (next 15 years). The recommended option for management of trees infected with red ring rot is to create a 20-30 ft. tall wildlife snag. This will remove the crown, reducing the risk of the tree blowing down in the wind, while still providing habitat for wildlife.

Laminated root disease (LRR) is the most damaging disease to Western Washington conifer trees and is found in virtually all Douglas-fir forests. Keeping the forest healthy is the only way to reduce the risk of the disease infecting trees. At this time however, no evidence of this pathogen was found within the park.

Verticillium wilt causes the dieback in the crowns of the bigleaf maples. It may start with dieback of a few branches, then spreading to kill major scaffold branches, then to killing the entire crown of the tree. This disease is present in many of the older maples in the park and will be a major cause of tree loss. There is no control for this disease, other than sanitation pruning of infected branches or entire trees.



Photo N. View of red ring rot fungi on the stem of a Douglas-fir (WFCI 6/20/15).

Most of the insect problems that were observed are secondary, that is, insects attacking trees stressed by other organisms, physical damage, or weather. There were no insect problems found that are of concern.

Snags and Down Woody Debris

Dead and dying trees are an important component of a forest for wildlife foraging, nesting, loafing, and resting. Larger trees (greater than 12 inches DBH) are more likely to be used by cavity nesting birds and animals. Also, the more defects such as multiple or failed large tops and large stem wounds the better. The larger trees will also stand in a

deteriorated condition longer. Depending on the species and type of defect, snags can stand and provide habitat for decades.

Once they fall, the hollows within the log provide cover and foraging opportunities for amphibians, small mammals, and birds. New trees and other plants will also colonize the log as it decays, creating its own little ecosystem. These are often called 'nurse logs'. Trees growing out of these logs, with long roots descending down the stump appear to be an engineering miracle of nature as they defy gravity and continue to stand even as the stump or log decays.

The Washington Department of Fish and Wildlife prescribes retention of **at least 2** snags and 2 downed logs per acre for adequate wildlife habitat potential. Few dead standing trees (snags) were observed on site, and included some broken red alder trees as well as small suppressed understory coniferous trees. This supports the general health of the forest as being in fair to good condition.



Photo O. View of a broken red alder snag.

Figure 5 below illustrates what the deteriorating trees might look like and assigns a 'Deterioration Class' number to them.

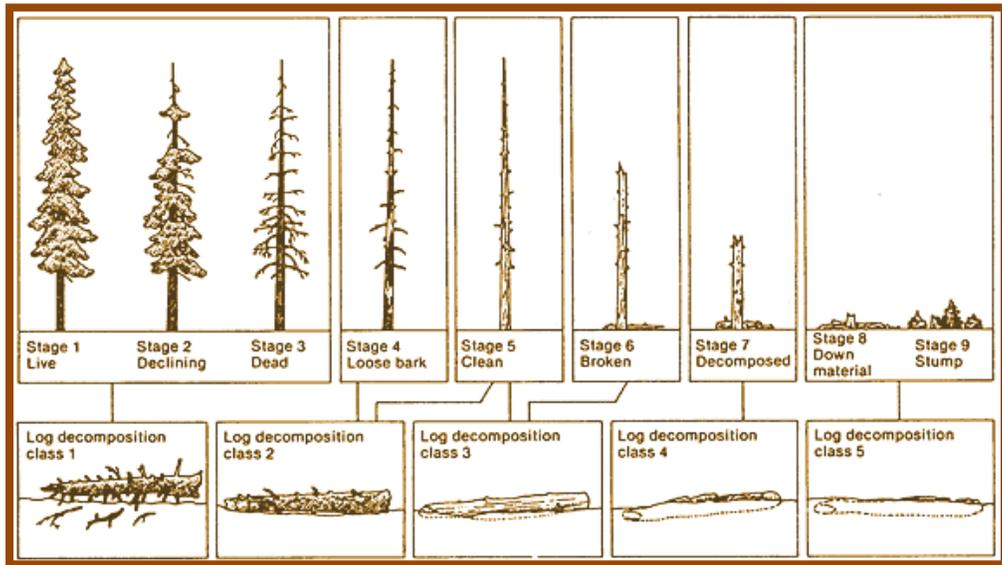


Figure 5. Illustration of Snags and Logs by Deterioration Class from WA Dept. of Fish and Wildlife.

It is projected that there are 68+ snags in various stages of decomposition within Pleasant Glade Park. The majority of the snags are located in Type II. This is equivalent to 4 snags per acre, double the minimum recommended threshold.



Photo P. View of recently broken redcedar snag. This will develop into a high quality wildlife snag (WFCI 9/16/15).

We did not record the number of downed logs on the property. However it is projected that the numbers of recommended downed logs per acre (two logs per acre set by the WA Department of Fish and Wildlife) are greatly exceeded as well as the snags.

As time goes on and more trees begin to decline, larger hazard trees that are suitable to be converted to 20-30 ft. tall snags will be beneficial for wildlife habitat.

Invasive Plant Control

Himalayan blackberry (*Rubus armeniacus*) is prevalent along the edges of many of the forest stands on the property. This species is non-native to western Washington and if not properly managed, will overgrow the more sunny areas of the park. There are a number of dense patches of blackberry near the edges of the forests and in open areas within the forest.

Control of Himalayan blackberry is best accomplished using a foliar application of Garlon 3A plus Escort at labeled rates, applied using high volume foliar techniques. This provides better penetration of the canopy of the blackberry and better control. The blackberry patches can then be mowed 2 weeks after treating. The following growing season, retreatment of escapes will need to be done and likely in successive years as well. Eventually control can be achieved for these large patches. Observe at least a 10 foot buffer on any water.



Photo Q. Blackberry patch at edge of meadow by Type III (WFCI 9/16/15).

Locations of many of the major infestations of Himalayan blackberry are noted on the attached map in Appendix I. Most of the infestations are in gaps in the stands and along the edges of the meadow. This plant will prevent establishment of new trees and desirable native shrubs. It cannot be eradicated, but could be controlled so new trees and desirable shrubs can establish. Once established, the desirable plants will help to control the blackberry. Himalayan blackberry is considered a Class C noxious weed (WAC Chapter 16-750) by the State of Washington.

The other invasive species we found within the park include English holly, hawthorn, and Canada thistle. All of these species require control due to the aggressive nature and potential to cause significant damage to the park. The holly and hawthorn is scattered throughout both the meadow areas and forested areas. The Canada thistle is prevalent in the meadow areas, but can spread into the forest edges if not controlled.



Photo R. Meadow covered with thistle. (WFCI 9/16/15)

Canada thistle is also a Class C noxious weed by the State of Washington. Canada thistle and the other thistle species in the meadows can be controlled with clopyralid at labeled rates and directions. The tradename for the product is Stinger. Mowing will not control any thistle species.

English holly should also be considered “invasive” and removed wherever encountered. To control larger, tree size English holly and hawthorn, cut the plant stem to the groundline and immediately treat the stump with a 50% solution of Garlon 3A with water. Small trees could also be treated with Garlon 3A plus Escort at labeled rates using low volume foliar applications with a backpack.

Table 5. List of noxious weeds found in the park.

Common Name	Scientific Name	Noxious Weed Class
English holly	<i>Ilex aquifolium</i>	--
Himalayan blackberry	<i>Rubus armeniacus</i>	C
Canada thistle	<i>Cirsium arvense</i>	C
Black hawthorn	<i>Crataegus douglasii</i>	--

If any of these noxious weeds are pulled or excavated with mechanical equipment, they must be destroyed to prevent spread onto other sites. They cannot be composted. All pieces of the plant need to be placed in plastic garbage bags and taken to the landfill or burned. The holly and hawthorn can be piled and left on site to decompose or could be chipped and the chips blown on site.

Multiple treatments will be necessary to control this extensive stocking of invasive plants. Annual patrol and retreatment will be required in perpetuity.

If any excavation is done, all disturbed soils must be reseeded with a grass seed mix to slow invasion by other pioneer weed species such as Scotchbroom, Tansy ragwort, gorse, and blackberry.

Tree Planting

There are 5 areas marked on the aerial photo in Appendix I as blackberry control/Tree planting areas. These 5 areas plus Type I should be the highest priority for restoration tree planting. Forest type I is a declining red alder stand due to heavy root and soils damage from the livestock. This should be the highest priority for tree planting. Underplanting the stand will provide tree cover as the red alders die out over the coming years.

The 5 blackberry areas have no trees and will require control of the blackberry before tree planting, which will take at least 2 growing seasons. The recommended tree species for planting include:

Table 6. Trees for replanting.

Species	Seedling Type	Spacing	Seed Zone	Type of Area
Douglas-fir	1+1	10 ft. OC*	232-0.5 or 241-0.5	Full to Partial Sun
Western redcedar	Plug+1	10 ft. OC	232-0.5 or 241-0.5	Full sun to full shade
Grand fir	Plug+1, 1+1, 2-1	10 ft. OC	241-0.5 or 241-0.5	Full sun to full shade
Western hemlock	Plug+1	10 ft. OC	232-0.5 or 241.05	Full sun to full shade

**include existing conifer trees in the spacing.*

After the noxious vegetation has been controlled, trees can be planted on 10 ft. centers in mid-February to late March. The trees should be planted according to industry standards (Appendix V). After planting, pull duff from the forest floor around the seedling to provide a mulch layer, or provide bark or other composted mulch by placing 2-3 inches of mulch in an 18 inch radius circle around the newly planted tree. This mulch will improve survival and early growth of the new trees.

In full sun areas, plant Douglas-fir and any of the other 3 tree species. In shaded areas, plant western redcedar, grand fir and western hemlock since they are shade tolerant.

Spot treat noxious vegetation annually around and among the trees for at least the first 5 years of life, or as necessary.

Hazard Trees

A hazard tree is defined as: 1) a tree that is dead, dying, diseased, damaged, or structurally defective, and 2) the tree or parts of the tree are at risk to fail, and 3) there is a target within reach of the tree or tree parts.

The tall, dead Douglas-fir snag near the pond on the western side of the park is the most obvious and likely hazard tree once the park is opened. Due to the advanced state of decay (Stage 4), this tree will need to be removed.

There are other dead or defective red alders, bigleaf maples, or cottonwoods along the edges of the forest stands bordering the meadows. These trees should be felled prior to opening the park. Where possible, chips should be broadcast (blown) back on the site.

A list of 21 hazard trees is provided in Appendix IV along with a map of their approximate locations. The trees are marked in the field with orange paint dots at eye level and on the stump and have orange painted numbers. The branches should be chipped or lopped and scattered. The tree stems should be bucked to lie flat on the ground and left for wildlife ‘downed logs.’



Photo S. View of Douglas-fir snag near the pond.

WFCI should re-inspect the park for hazard trees at least every two years thereafter.

As trees begin to decline, 20 ft. tall wildlife snags should be created for conifer or bigleaf maple trees larger than 12 inches DBH and for red alders larger than 20 inches DBH. Where the tree cannot be climbed or a snag created safely, just fell the tree.

Do not create snags where they will target trails, recreation amenities and fixed structures as they deteriorate. The potential to work on the tree safely will impact the decision as to whether a snag can be created from some trees.



Photo T. View of Ganderma conks on base of a red alder.



Photo U. View of uprooted red alders overhanging the meadow.

Encroachments

No encroachments were observed along the perimeter of the park property. The easterly edges of the park are bordered by other City of Lacey properties, such as the proposed Greg J. Cuoio Community Park and Palm Creek Headwaters to the south. Other neighboring parcels are well fenced or separated by Woodland Creek.

Fences

Currently the perimeter of the park is fenced with barbed wire fences constructed to keep livestock in the pastures. Many fences, both barbed wire and electric crisscross the previously pastured areas and in some cases go through the woodlands.

The perimeter fences appear to be in good condition, though are overgrown with blackberry or brush in some cases. The perimeter fences should all be hand-cleared to expose the fence, and any necessary brush treatment and fence repairs made as soon as possible.

There are interior fences previously used to segregate and manage livestock grazing. These include both barbed wire and high tensile strength electric fencing. In many cases these fences are overgrown with blackberry and other brush. To facilitate control of the invasive blackberry, eliminate obstacles to users of the park, and reduce liability for injury to parks users trying to cross these fences, it is recommended that all interior fences be removed as soon as possible.

Signage

To prevent trespass by park users onto neighboring properties, it is recommended that ‘Private Property No Trespassing’ signs be hung on the top strand of the barbed wire every 100 feet by adjacent property owners. This will alert park users of the park perimeter. The signs can be made of materials similar in size and type to a motorcycle license plate. They will be durable for many years. Where there is no fence, but a park boundary exists, the signs can be placed on small fence posts. Due to the number of internal fences, and the confusion over property lines that these internal fences may cause the public park patrons, the City will place signs wherever it is not clear that the fence is a boundary/property line fence.

Conclusions

Recommended Management Practices - the Action Plan

The following Table 6 provides an action plan for the necessary management activities in the park. These activities are designed to control invasive plants, prevent encroachments on park boundaries, maintain safety for park users, improve the stocking levels of desirable tree and shrub species, maintain the layers of trees and shrubs used by different species of wildlife, and maintain forest health and diversity.

Table 6. Recommended action plan for forest management activity.

YEAR*	MONTH	TYPE	ACTIVITY	PRODUCT/TECHNIQUE
2015	September- Early October	IV	Blackberry, holly, and black hawthorn control	Foliar application of Garlon 3A (triclopyr amine) plus Escort (metsulfuron methyl) at labeled rates to leaves of all undesirable blackberry and trees; Perform work prior to the onset of significant fall rains and before leaf abscission. Maintain 10 ft. buffer on all water. Handcut in these buffers and treat the fresh cut surfaces of stumps with Garlon 3A (50%) with water.
2016- 2018	Mid- February to Late March	I and black- berry patches	Tree Planting (see Appendix I for locations)	Under plant trees in Type I and replant blackberry restoration areas after noxious vegetation is brought under control. Other gaps in the stands could be replanted after these higher priority areas are done.
2015	November- December	I, II, III, IV, & pond	Hazard tree removal	Remove the 21 marked hazard trees in Type I and on the perimeters of the meadows.

YEAR*	MONTH	TYPE	ACTIVITY	PRODUCT/TECHNIQUE
2015	October-December	I-IV	Sign the park perimeter	Place 'Private Property No Trespassing' signs on the park perimeter to prevent park users from climbing through or over fences onto private lands.
2015	Sept-Nov	All	Park Entry	Entry by black walnut – place rubber mats on new trail within dripline of tree plus 15 ft. to avoid soil compaction over roots - Cover mats with wood chips. See Appendix III.
2016	June-September	I-IV	Remove interior fences	Interior barbed wire fences are an obstacle to the control and maintenance of noxious vegetation in the park and should be removed.
2016	Mid-May**	IV	All thistle and other broad leaf weeds	Broadcast foliar application of Stinger (clopyralid) plus Garlon 3A (triclopyr amine) at labeled rates.
2016	May-June	I - IV	Spot treat all invasives	Low-volume foliar backpack application using Garlon 3A plus Escort to treat all blackberry, hawthorn, and English holly invasives that were not controlled previously.
Annually	March and September	All	Inspection 2x per year	Maintain property lines and inspect for encroachments. Look for winter storm damage that requires maintenance.
Annually	May-June	All	Noxious Weed - Spot Treatment	Spot treat all noxious weeds with appropriate herbicide formulation – by prescription. Contact WFCI for any new or other weed management conditions.
Bi-Annually	June	All	Hazard Tree Evaluation	Conduct a hazard tree evaluation every 4 years.
2021	January	All	Revise Mgt. Plan	Contact WFCI to revise forest management plan.

* Adjust schedule if activity is delayed/accelerated.

**Initial thistle control could be done in 2015 if treatment is done prior to 1st heavy frost.

The City of Lacey staff includes two Certified Arborists® who are qualified to lead the implementation of the proposed management recommendations. Staff receives training in the most current arboricultural practices annually. When necessary, staff may request input from WFCI as special disease, weed, or other unusual conditions arise.

Detailed records should be kept on the work activity so that the success of herbicide treatments can be evaluated, and future work prescriptions can be refined.

Summary

An inventory and assessment of the trees and vegetation in the park was completed. We found 1,559+ trees ranging from 6 to 50 inches DBH on approximately 17 acres of forested area. Three (3) forest cover types (I-III) were delineated along with a meadow cover type (IV), the farm house and outbuilding area, and the pond area.

The forest stands were created by high-grade timber harvesting practices with no replanting. Red alder is the predominant tree species, having naturally seeded into the forested areas after disturbance after logging in Type II in the mid-1990's and earlier logging in Types I and III. Bigleaf maple is the second most prevalent species, but older trees are residuals from the old logging and tree quality is poor. Scattered large, old, second-growth conifers occur as individuals and in clusters – with some developing old-growth characteristics. Unfortunately, few conifer trees exist in the forested portions of the park and most occur along the streams.

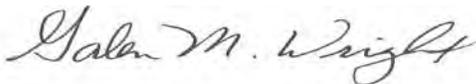
There are adequate numbers of downed logs and snags – exceeding the minimums suggested by the Washington Department of Fish and Wildlife. Additional snags can be created as tree work is conducted in the park.

While forest health is currently considered to be fair to good, most trees in the park are physically mature. Future projects in the forest will need to focus on underplanting declining stands (such as the pastured woodlands with livestock damage) and gaps in the stands that support only brush or noxious vegetation today. These areas will require new prescriptions for management as funding becomes available.

The most important initial activity will be control of noxious vegetation which should be started as soon as possible.

Respectfully submitted,

Washington Forestry Consultants, Inc.



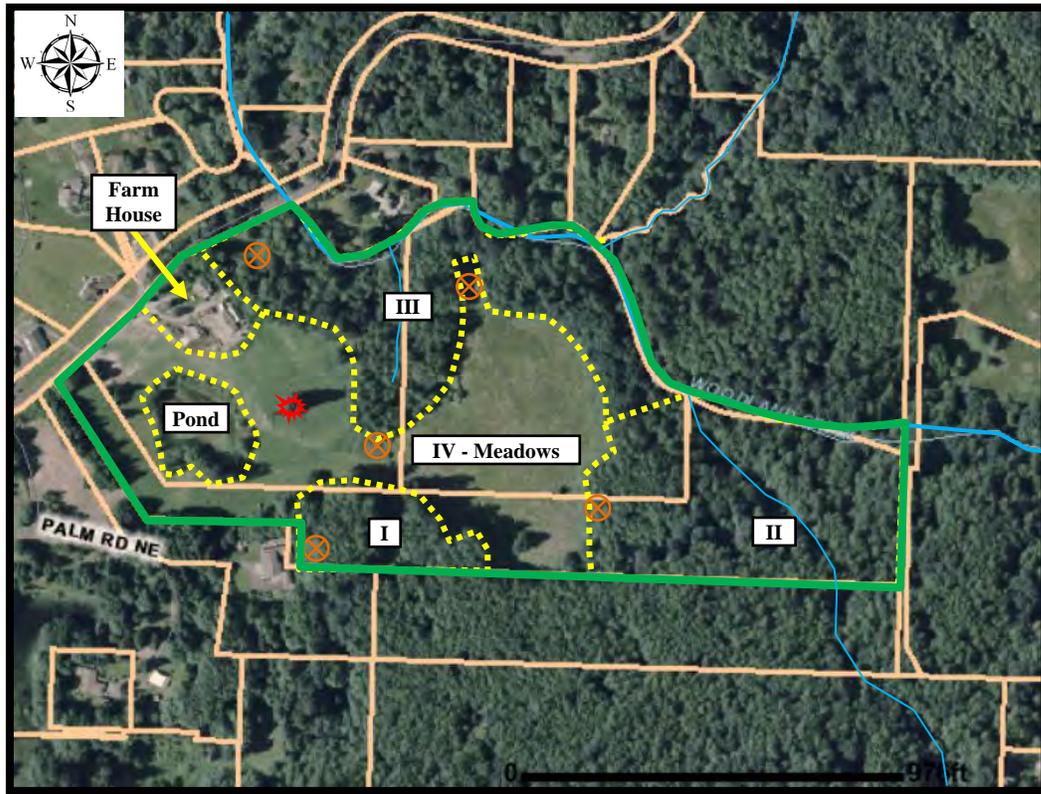
Galen M. Wright, ACF, ASCA
ISA Bd. Certified Master Arborist PN-129BU
Certified Forester No. 44
ISA Tree Risk Assessor Qualified



Ben MacColl, ISA, SAF
ISA Certified Arborist® -
No. PN-7972A
Professional Forester

APPENDIX I

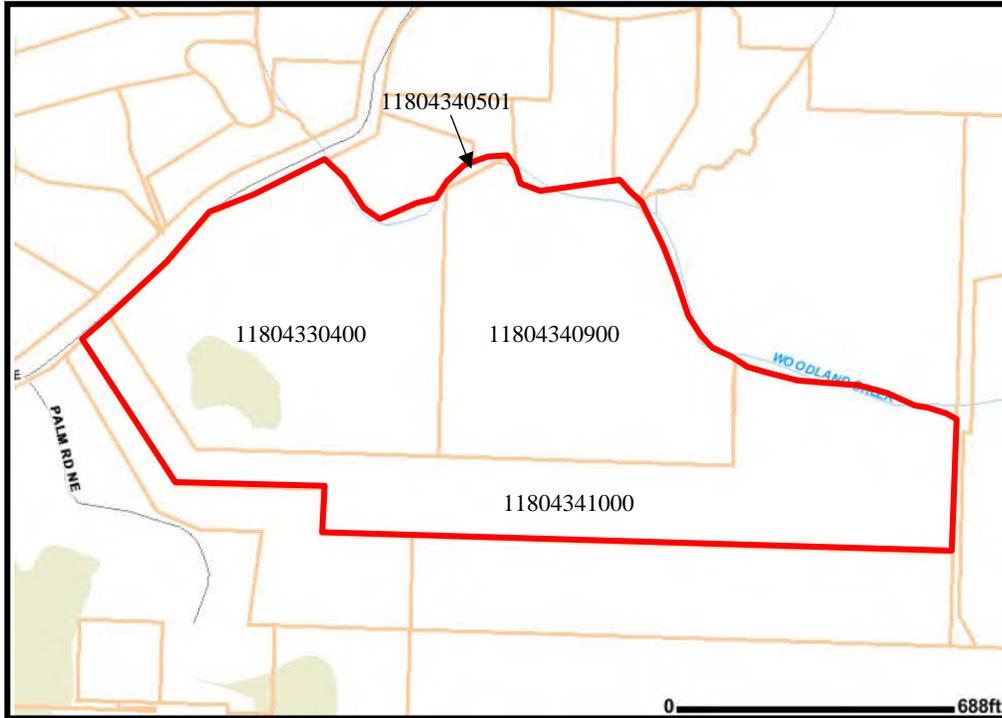
Aerial Photo of Pleasant Glade Park with Forest Cover Types, Hazard Tree and Noxious Weed Locations (Thurston County Geodata 2009)



- Legend:**
-  Park Boundary
 -  Parcel Boundaries
 -  Forest Cover Type Line
 -  Stream (Approximate Location)
 -  Himalayan Blackberry Patch/Tree Planting Areas

APPENDIX II

Pleasant Glade Park Parcel Map Thurston County Geodata - June 2015



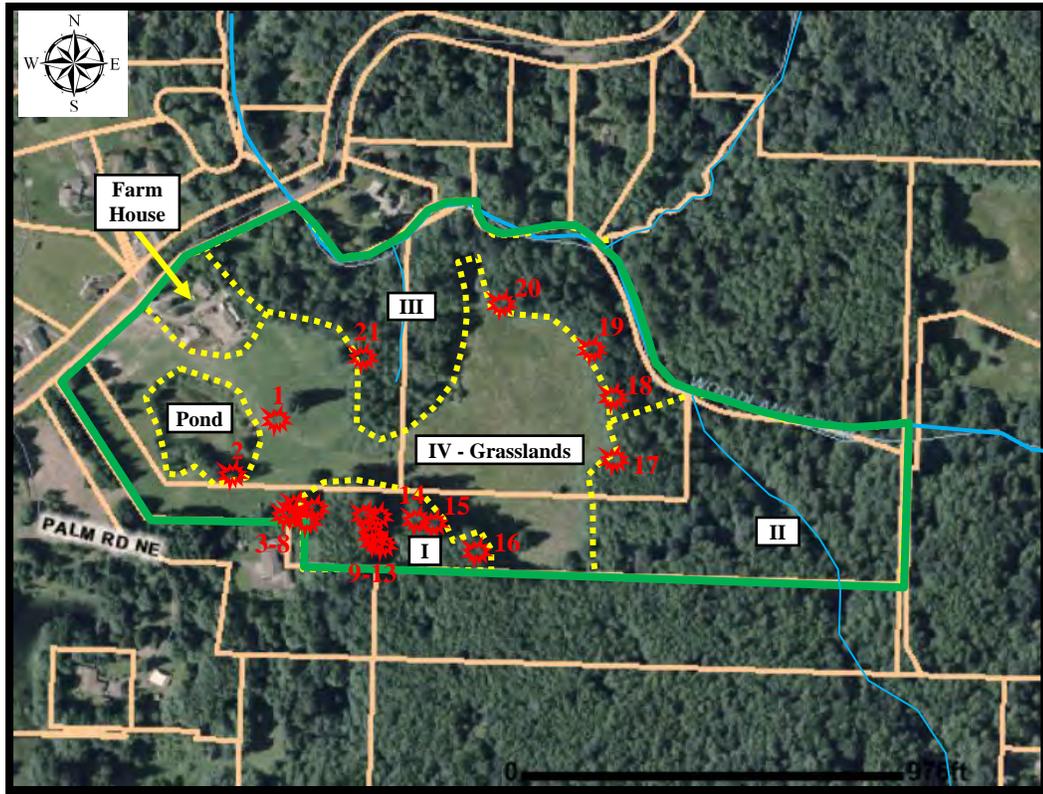
APPENDIX III

Grasspave² Mat for Root Protection of Black Walnut
(mat to be placed in the critical root zone to 15 ft. beyond
dripline – then cover with wood chips)



APPENDIX IV

Aerial Photo of Pleasant Glade Park with Marked Hazard Tree Locations and a List of the Marked Trees (Thurston County Geodata 2009)



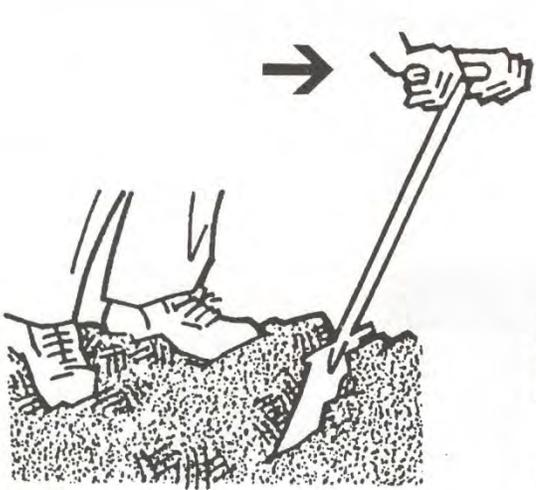
- Legend:**
-  Park Boundary
 -  Parcel Boundaries
 -  Forest Cover Type Line
 -  Stream (Approximate Location)
 -  Marked Hazard Trees

List of Marked Hazard Trees in the Pleasant Glade Park

#	Species	DBH (in)	Location	Description	Tree Work Required
1	Douglas-fir	28	Field	Dead standing snag	Removal
2	Cottonwood	20	Pond	Co-dominant stems-weak	Removal
3	Red Alder	11	Type I	Dead standing snag	Removal
4	Red Alder	10	Type I	Long, leaning whip	Removal
5	Red Alder	16	Type I	Stem decay	Removal
6	Red Alder	7	Type I	Snag	Removal
7	Red Alder	14	Type I	Dead (barbed wire attached)	Removal
8	Red Alder	8	Type I	Dead	Removal
9	Red Alder	7	Type I	Dead	Removal
10	Red Alder	8	Type I	Dead	Removal
11	Red Alder	12	Type I	Dead	Removal
12	Red Alder	8	Type I	Dead	Removal
13	Red Alder	7	Type I	Dead	Removal
14	Red Alder	26	Type I	Internal decay - dying	Removal
15	Bigleaf Maple	30	Type I	Multiple dead branches - dying	Removal
16	Red Alder	9	Type I	Dead	Removal
17	Red Alder	18	Type II	Large, deep cavity of decay	Removal
18	Red Alder	16	Type III	Dead	Removal
19	Red Alder	24	Type III	Dead	Removal
20	Red Alder	28	Type III	<i>Ganoderma applanatum</i> conks; co-dominant stem break/fall	Removal
21	Red Alder	16, 15	Type III	Two fallen, suspended stems - still alive	Removal

APPENDIX V

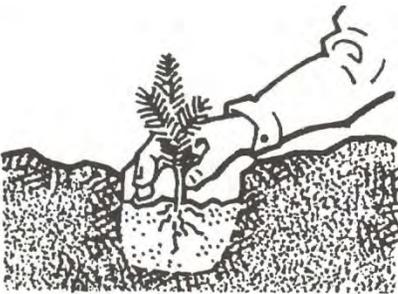
Tree Planting Guide



1 Get Ready
Remove vegetation in a 30" diameter area. Insert shovel vertically with blade scoop facing you. Push handle forward and backward 3-4 times to loosen soil and create a wedge-shaped hole.



2 Get Set
Straighten back of hole. Keep leaves, sticks, rocks and other debris out of the hole by holding shovel toward you against side of hole. Insert tree at proper depth (See Illustration 3).



3 Planting the Tree
Fill the hole halfway with soil and place tree in proper position. All roots should be in the downward position. Firm the soil around the roots by hand while filling the hole. Leave no air spaces in the soil. With seedlings which arrive as container plugs, remove container, and handling seedlings carefully, place the rootball in the hole prepared as above. Do not spread the roots.



4 Finishing Touches
Fill the hole completely, and pack soil with hand. Bring soil level 1" above the root collar (point on stem where color changes) on the loose seedlings and to top of rootball on the plug seedlings. Be careful not to plant tree stem too deep. Cover surface with mulch or loose soil.

▼ Mulch 18 inch radius around seedling by pulling in duff, or providing composted mulch.

APPENDIX VI

Glossary of Forestry and Arboricultural Terminology

DBH: Diameter at Breast Height (measured 4.5 ft. above the ground line on the high side of the tree).

Hazard tree: Tree that is dead, dying, diseased, insect infested, or structurally defective with an unacceptable risk of failure of the entire tree or tree parts onto targets.

Live Crown Ratio: Ratio of live foliage on the stem of the tree. Example: A 100' tall tree with 40 feet of live crown would have a 40% live crown ratio. Conifers with less than 30% live crown ratio are generally not considered to be long-term trees in forestry.

Canopy: The foliage in total, of a tree or stand of trees.

Crown: Portion of a trees stem covered by live foliage.

Crown Position: Position of the crown with respect to other trees in the stand.

Dominant Crown Position: Receives light from above and from the sides.

Codominant Crown Position: Receives light from above and some from the sides.

Intermediate Crown Position: Receives little light from above and none from the sides. Trees tend to be slender with poor live crown ratios.

Suppressed Crown Position: Receives no light from above and none from the sides. Trees tend to be slender with poor live crown ratios.

Cultural Care Needs:

ABBRV.	ACTIVITY	DESCRIPTION
CC	Crown Cleaning	Pruning of dead, dying, diseased, damaged, or defective branches over 1/2 inch in diameter –includes removal of dead tops
CT	Crown Thinning	Pruning of branches described in crown cleaning, plus thinning of up to 20% of the live branches over 1/2 inch diameter. Branch should be 1/3 to 1/2 the diameter of the lateral branch. Thinning should be well distributed throughout crown of tree, and should release healthy, long-term branches.
RC	Crown Reduction	Reduction of the crown of a tree by pruning to lateral branches. Generally used to remove declining branches or to lighten end weight on long branches.
CR	Crown Raising	Pruning of lower branches to remove deadwood or to provide ground or building clearances.
RMV	Remove	Remove tree due to decline or hazardous conditions that cannot be mitigated by pruning.
RS	Remove Sprouts	Remove basal sprouts from stem of tree.
Rep	Replace	Tree is small – is in decline or dead. Replace with suitable tree species.
HT	Hazard Tree	Tree is hazardous and cannot be mitigated by pruning. Recommendation is to remove tree.
None	No Work	No work necessary at this time.

APPENDIX VII

Assumptions and Limiting Conditions

- 1) Any legal description provided to the Washington Forestry Consultants, Inc. is assumed to be correct. Any titles and ownership's to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management.
- 2) It is assumed that any property is not in violation of any applicable codes, ordinances, statutes, or other governmental regulations, unless otherwise stated.
- 3) Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, Washington Forestry Consultants, Inc. can neither guarantee nor be responsible for the accuracy of information.
- 4) Washington Forestry Consultants, Inc. shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.
- 5) Loss or alteration of any part of this report invalidated the entire report.
- 6) Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of Washington Forestry Consultants, Inc..
- 7) Neither all or any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the prior expressed written or verbal consent of Washington Forestry Consultants, Inc. -- particularly as to value conclusions, identity of Washington Forestry Consultants, Inc., or any reference to any professional society or to any initialed designation conferred upon Washington Forestry Consultants, Inc. as stated in its qualifications.
- 8) This report and any values expressed herein represent the opinion of Washington Forestry Consultants, Inc., and the fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence neither of a subsequent event, nor upon any finding in to reported.
- 9) Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
- 10) Unless expressed otherwise: 1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and 2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the tree or other plant or property in question may not arise in the future.

Note: Even healthy trees can fail under normal or storm conditions. The only way to eliminate all risk is to remove all trees within reach of all targets. Annual monitoring by an ISA Certified Arborist or Certified Forester will reduce the potential of tree failures. It is impossible to predict with certainty that a tree will stand or fail, or the timing of the failure. It is considered an 'Act of God' when a tree fails, unless it is directly felled or pushed over by man's actions.



COUNTY COMMISSIONERS

Cathy Wolfe
District One
Sandra Romero
District Two
Bud Blake
District Three

RESOURCE STEWARDSHIP DEPARTMENT

Creating Solutions for Our Future

Cynthia Wilson
Director

October 29, 2015

City of Lacey
Parks & Recreation Department
Lori Flemm
420 College Street SE
Lacey WA 98503-1238

SUBJECT: Project 2015107321; Folder Sequence 15 119523 XD
Hazard Tree Removal
Tax Parcel 11804330400

Dear Ms. Flemm:

The purpose of this letter is to authorize removal of hazard trees from the above-reference parcel, based on your concern for public safety. This letter authorizes you to remove up to twenty-one (21) trees that are in danger of falling.

Although not delineated, rated, and confirmed, the parcel is mapped with a small wetland. At least one tree appears to be within the wetland or its buffer. Wetlands and their buffers are protected under Title 24 Critical Areas Ordinance. Pursuant to TCC 24.30.350, the approval authority may authorize the removal of hazard trees located within wetlands and wetland buffers.

If a tree is removed from a wetland buffer, it is required that the tree be felled and remain in place to serve as habitat. For hazard tree removal, TCC 24.30.350 requires mitigation by planting new trees at a ratio of 3:1. However, staff has reviewed the Pleasant Glade Forest Management Plan submitted October 28, 2015, and found that the overall long-term plan is adequate for mitigating the removal of the selected trees. Snags in wetland buffers are not permitted to be felled.

A Critical Area Review Permit is hereby issued to remove the hazard tree(s) identified on the approved site plan. Pursuant to TCC 24.40.080, this approval shall expire within three years of final approval. An extension of the three-year period shall not be permitted. Knowledge of the time limits and expiration of a critical area review permit is the responsibility of the applicant.