



Appendix D - PLANTS and ANIMALS TECHNICAL REPORT ADDENDUM

**Plants and Animals
Technical Report Addendum
Yesler Terrace Redevelopment Project
Seattle, Washington**

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Prepared for

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1.0 INTRODUCTION

Landau Associates previously prepared the *Plants and Animals Technical Report* (Landau Associates, 2010; see Appendix G of DEIS) to provide background information and analysis to support the preparation of the Plants and Animals section of the Draft Environmental Impact Statement (DEIS) for redevelopment of the Yesler Terrace site located on the southern slope of First Hill in Seattle, Washington (Figure 1). This addendum presents the following:

- Section 2.0: Analysis of the Preferred Alternative
- Section 3.0: Update of the EIS Analysis
- Section 4.0: Errata for minor changes to the information and analysis presented in the October 12, 2010 Plants and Animals Technical Report.

This addendum describes the affected environment and existing environmental conditions at the Yesler Terrace site for the Preferred Alternative, the impacts to plants and animals related to potential future site redevelopment under the Preferred Alternative, additional mitigation measures that may be implemented to address these impacts, and significant unavoidable adverse impacts, as applicable.

2.0 ANALYSIS OF THE PREFERRED ALTERNATIVE

The Preferred Alternative represents an assumed 5.47 million square feet of housing-based/mixed use redevelopment built over the assumed 20-year horizon. Land uses under the Preferred Alternative would include approximately:

- 26 mid-rise residential buildings and 12 high-rise residential and office/hotel buildings
- 5,000 residential units, consisting of 4,500 in the West of Boren Sectors, 250 in the East of Boren Sector and 250 units in the East of 12th Sector
- 900,000 square feet of single-use office space (a portion of this could be hotel)
- Approximately 88,000 square feet of neighborhood commercial/retail space (including 9,000 square feet of neighborhood retail/office in the East of Boren Sector and 4,000 square feet of neighborhood commercial in the East of 12th Sector)
- Approximately 65,000 square feet of neighborhood service space (including the Yesler Community Center and Steam Plant)
- 6.4 acres of public open space (including the existing 1.4-acre Yesler Community Center parcel, and a 1.7-acre Commons Park west of the Community Center) and 10.8 acres of semi-private open space
- 5,100 parking spaces within/under buildings.

A 1.7-acre Commons Park would be provided in the core of the Yesler Terrace site, adjacent to the existing 1.4-acre City of Seattle (City) parcel containing the Yesler Community Center. The Commons Park would serve as the community's central gathering place, containing both active and passive recreational opportunities to attract and serve different facets of the community. Each sector would contain one larger Sector Park that would serve as the sector's hub, except for the East of 12th Sector, which would contain only semi-private open space on the redeveloped King County Archives site. Sector parks would focus on passive recreation activities, such as open lawn and picnic areas, as well as children's play areas and community gardens.

Residential buildings would typically include semi-private open space in courtyards or on roofs for use by the building occupants. Additional private open space in the form of balconies, building roofs, and courtyards not accessible from grade would be provided at each building for building residents' exclusive use. Open space for public use would be provided equitably across all sectors of the Yesler Terrace site within reasonable proximity to all residential buildings. Open space for residential tenants would be provided in the East of 12th Sector.

The Preferred Alternative includes 17.2 acres of parks and open space that comprises 6.4 acres of public open space (including the existing 1.4-acre Yesler Community Center parcel as well as the 1.7-acre Commons Park) and 10.8 acres of semi-private open space (including 1.3 acres in the East of 12th Sector). An additional 0.5 acres of public parks and open space would be located immediately adjacent to the Yesler Terrace site boundary in the vacated Main Street right-of-way south of the project area.

The intensity of development under the Preferred Alternative would be highest in the NW Sector and lowest in the East of 12th Sector. It is assumed that four existing onsite buildings (the approximately 8,500 square-foot Steam Plant and the approximately 22,000 square-foot City-owned Yesler Community Center, as well as the Baldwin Apartments and Urban League Building) would be retained. Street vacations and new street dedications are proposed under this alternative to provide a more connected grid network internally and to/from the surrounding community.

The Preferred Alternative would potentially require that some existing trees and other vegetation be removed. This would potentially reduce the tree canopy area from the existing conditions upon completion of construction, but when combined with future canopy projections, would still be in support of the Urban Forest Management Plan City-wide 30-year canopy goal. The Urban Forest Management Plan includes tree canopy coverage goals for land use categories present within the City, and ranges from 15 percent for commercial mixed use to 25 percent for parks on developed sites that occur within the Preferred Alternative. The canopy coverage goals set forth in the Urban Forest Management Plan are City-wide goals and are not project-specific. The Urban Forest Management Plan has not been formally adopted by the City. Any retained or new trees that would be provided at the Yesler Terrace site would potentially increase the tree canopy coverage to support Seattle's City-wide 30-year canopy goal. Therefore, there would be no significant impacts to habitat at the site under the Preferred Alternative.

The Preferred Alternative comprises the following six sectors: *NW Sector, NE Sector, SE Sector, SW Sector* (collectively referred to as the *West of Boren Sectors*), the East of Boren Sector, and the East of 12th Sector (Figure 2). The East of 12th Sector is represented only in the Preferred Alternative and the No Action Alternative. This report documents the plants and animals investigation and impact analysis procedures and results for the Preferred Alternative analysis in accordance with local, state, and federal guidelines.

A discussion of the regulatory programs that may be relevant during project planning and redevelopment activities is presented below, followed by the methodology used to investigate the Preferred Alternative project area, a summary of existing conditions for the East of 12th Sector, and a summary of the potential impacts to plants and animals as a result of the redevelopment activities under the Preferred Alternative. The summary of existing conditions for the West of Boren Sectors and the East of Boren Sector is provided in the October 12, 2010 Plants and Animals Technical Report.

2.1 METHODOLOGY

Following is a description of the methodology used for the plants and animals analysis for the Preferred Alternative.

2.1.1 Background Information Review

Landau Associates reviewed the following public domain resources to determine existing plant, animal, and habitat-related conditions, including potential wetlands and other “waters of the U.S.,” within the East of 12th Sector project area:

- U.S. Geological Survey (USGS) topographic map (Attachment 1)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory map (Attachment 1)
- Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) database (WDFW, 2010)
- WDFW SalmonScape (WDFW website, 2010)
- Washington Department of Natural Resources (WDNR) Natural Heritage Program data (WDNR, 2009)
- National Oceanic and Atmospheric Administration (NOAA) Fisheries Endangered Species Act Salmon Listings (see DEIS)
- USFWS Listed and Proposed Endangered and Threatened Species and Critical Habitat; Candidate Species and Species of Concern in King County (Attachment 2)
- January 4, 2011 Yesler Terrace Extended Area Tree Evaluation (Attachment 3)
- King County iMap (Attachment 1)
- *City of Seattle Urban Forest Management Plan* (City of Seattle, 2007)
- *Wildlife-Habitat Relationships in Oregon and Washington* (Johnson and O'Neil, 2001)
- City of Seattle Department of Planning and Development (DPD) Geographic Information System (GIS) website (City of Seattle website, 2007).

The results of the background information review for habitat, animals, and plants are presented in Section 4.0.

2.1.2 Tree and Canopy Evaluation

Two tree surveys completed by certified arborists from Urban Forestry Services, Inc. in June 2010 and January 2011 identified a variety of native and non-native tree species within the project area, including exceptional trees. The existing conditions of the trees at the site are discussed in Section 2.2. An impact assessment of exceptional trees, valuable trees, and their respective tree canopies was performed to demonstrate project impacts on the goals of the City's Urban Forest Management Plan (see DEIS for summary of the Urban Forest Management Plan and goals) and the results are presented in Section 2.3.

An assessment of trees surveyed within the East of 12th Sector was completed through coordination with Urban Forest Services in January 2011. The assessment identified any exceptional trees and evaluated the health and relative value of trees within the East of 12th Sector (Attachment 3).

Any tree impacted by the project that is not considered an exceptional tree or a valuable tree should not be considered a hindrance for new site planning design and could be removed for consideration of public health and safety and/or as a result of further decline of hazardous and unhealthy trees (see DEIS for descriptions of exceptional tree and valuable tree). Per Chapter 25.11.090 of the Seattle Municipal Code (SMC), any exceptional trees that cannot be preserved based on the information in Attachment 5 should be evaluated for transplanting within the project area at a later design stage. In addition, the valuable trees that cannot be preserved based on the information in Attachment 5 should be evaluated for transplanting within the project area at a later design stage in support of the City-wide canopy coverage goals.

The critical root zone (CRZ) of valuable trees was used to determine the impact on valuable trees. The CRZ is an area equal to 1 foot radius for each 1 inch diameter of a tree measured at breast height (see Attachment 3). To assess impacts, a potential massing concept was formulated, which depicts potential building footprints and features under the Preferred Alternative. For this analysis, CRZ outlines of exceptional and valuable trees were overlaid onto the potential building footprints and their associated site features for the Preferred Alternative to calculate the potential area of impact. An existing tree is not considered to survive construction activities if more than 30 percent of the CRZ is impacted, with the exception of a tree that may be retained based on specific site conditions (Fite and Smiley, 2008). The analysis of impacts to the CRZ of exceptional and valuable trees was based on the potential location of architectural features and their associated site features and necessary grading. Specific determinations can be made at a later design stage.

An impact analysis for tree canopy cover of existing exceptional and valuable trees was conducted to determine the approximate extent of tree canopy for the Preferred Alternative as of June 2010 for all sectors except the East of 12th Sector and for January 2011 for the East of 12th Sector. An impact analysis was also conducted for an approximate 25-year timeframe following the dates the arborist evaluations were conducted. The canopy polygons of trees that could potentially be retained were estimated using 2007 aerial photography from GoogleEarth Professional (2007). These polygons were overlaid onto the potential building footprints and their associated site features for the Preferred Alternative to assess potential impacts to tree canopy. The area of the polygons surrounding the exceptional and valuable trees that could potentially be preserved was added together. Additional canopy area was added for the potential growth between July 2007 and June 2010 for all sectors except the East of 12th Sector, and between July 2007 and January 2011 for the East of 12th Sector. This provided the potential canopy coverage for existing exceptional and valuable trees under the Preferred Alternative at the time the arborist evaluations of the trees were conducted. Canopy of existing and valuable trees within the approximate 25-year timeframe was determined using an average growth rate as described below.

Tree canopy coverage assumptions for trees that could potentially be installed within available open space areas under the Preferred Alternative were established by SvR (SvR, 2011). Classifications of tree sizes and canopy coverage by tree size were taken from the 2010 Seattle Green Factor Score Sheet and Green Factor Tree List. Green Factor values are calculated at "maturity," which is approximately 15 to 25 years (SvR, 2011). It is assumed that this approximate 15- to 25-year timeframe is within the 30-year timeframe of when the goals of the Urban Forest Management Plan could be formally adopted by the City. The estimate of canopy cover of exceptional and valuable trees to remain was based on applying an average growth rate for an approximate 25-year timeframe to the existing canopy coverage, which is also assumed to be within the 30-year timeframe of when the goals of the Urban Forest

Management plan could be formally adopted by the City. The average growth rate was calculated by comparing a subset of the 2010/2011 surveyed trees in each sector with aerial photographs from 2002 and 2007 (GoogleEarth Professional, 2002 and 2007). Tree growth is finite, and the approximate 25-year projected growth rate of the existing canopy is assumed to be the upper limit of expected canopy coverage. The average growth rate assumes routine maintenance will be performed on the retained trees. Tree canopy that extends into public rights-of-way and/or beyond sector boundaries was included in calculations of total canopy coverage, as long as the tree is rooted within the project area.

A minimum 15 to 25 percent goal for all areas within the project area is assumed for compliance with the City-wide goals set forth in the Urban Management Plan. The goals of the Urban Forest Management Plan have not been adopted by the City and are not applicable on a project-specific scale.

2.1.3 Field Investigation

A Landau Associates biologist completed a field reconnaissance of the East of 12th Sector on December 30, 2010. The field reconnaissance was completed to characterize existing habitats and species that use the site. The field reconnaissance was limited to readily accessible onsite areas. Habitat/species observations on private properties were made from public rights-of-way. Descriptions of observations made during the field investigation for habitat, animals, and plants are provided in Section 4.0.

2.2 EXISTING CONDITIONS

The summary of existing conditions for the West of Boren Sectors and the East of Boren Sector is presented in the October 12, 2010 Plants and Animals Technical Report. The existing conditions for these sectors remain the same as those presented in the DEIS. This section describes the East of 12th Sector, the results of the background information review, the tree survey, and the field investigation, and summarizes the existing conditions for the East of 12th Sector.

2.2.1 Site Description

The proposed project and the West of Boren and East of Boren Sectors are described in Sections 1.0 and 4.1 of the October 12, 2010 Plants and Animals Technical Report. The project area is divided into six sectors, shown on Figure 1. The East of 12th Sector is approximately 2.36 acres in size and is generally bordered by 14th Avenue to the east, Yesler Way to the south, East Fir Street to the north, 12th Avenue to the west, and includes the Baldwin Apartments, Urban League Building, and King County Records site.

Yesler Terrace, including the East of 12th Sector, is located in a highly urbanized area of the City of Seattle. Approximately 95 percent of the East of 12th Sector is made up of built environments that include building footprints, streets, sidewalks, parking, and hardscaped public and private open space. The remaining approximately 5 percent of the project area is made up of landscaped and non-impervious areas. Site photographs of the East of 12th Sector are included in Attachment 4.

2.2.2 Plants

The plants located in the East of 12th Sector are typical of an urbanized, developed site. Vegetation common in the East of 12th Sector consists of street trees, shrubs, and groundcover and includes such species as ferns, salal, oaks, and cedar. Trees, as inventoried by Urban Forestry Services, in the East of 12th Sector are listed in Attachment 3.

No endangered or threatened plant species as defined by City, state or federal regulations, are located on or in the vicinity of the East of 12th Sector. As indicated in Appendix G of the DEIS, USFWS identifies the historical presence of the federally listed golden paintbrush (*Castilleja levisecta*) in King County (see Attachment 2). The WDNR Natural Heritage Program indicates the historical presence of golden paintbrush approximately 5 miles west of the project site, and does not identify any rare plants in the project area (WDNR, 2009).

A survey completed by Urban Forestry Services identified 20 onsite trees consisting of a variety of native and non-native species in the East of 12th Sector. No groves of trees were identified. Deciduous and conifer species were identified and included species and varieties of ash, tulip tree, oak, pear, and cedar (Attachment 3). No exceptional trees were identified in the East of 12th Sector (Figure 3).

Of the 20 trees identified in the East of 12th Sector, 18 were classified as valuable trees as defined in Section 2.1.2, Tree and Canopy Evaluation. A list of all of the valuable trees in the East of 12th Sector is provided in Attachment 5.

2.2.3 Habitat

The East of 12th Sector is located in a highly urbanized area of the City of Seattle. Habitat on the site, as classified by Johnson and O'Neil (2001), is Urban and Mixed Environs. More specifically, the East of 12th Sector is a high-density zone within the Urban and Mixed Environ, and characterized as a high-density zone with minimal non-impervious surface. Vegetation characteristics in this zone are typically non-native species located in planting strips along sidewalks and roads, and native plants represent only a limited range of the natural diversity of the area. Characteristics of this zone are manicured lawns and street trees (Johnson and O'Neil, 2001). The project area, as observed in the field, consists of urban residential and institutional development. A typical roadway section in the project area includes sidewalk, curb, gutter, roadway, and any associated infrastructure. Residential areas consist of relatively small landscaped areas associated with the Baldwin Apartment building. Typical vegetation observed in the East of 12th Sector within the maintained residential areas is described in Section 2.2.2 of this addendum.

The USGS topographic map, City of Seattle DPD GIS website, and King County iMap do not identify any waterways within the East of 12th Sector (Attachment 1; City of Seattle website, 2007).

Furthermore, the National Wetlands Inventory Map (Attachment 1), City of Seattle DPD GIS website, and King County iMap do not identify any wetlands in the East of 12th Sector (Attachment 1, City of Seattle website, 2007).

No critical habitat listed under the Endangered Species Act or protected habitat as defined by City, state, or federal regulations is located in the East of 12th Sector.

Stormwater runoff from developments can affect water quality offsite, and has the potential to affect the waterbodies, fish species, and habitats listed in the DEIS. The public storm drain system consists of catch basins and inlets located along the public streets to collect stormwater runoff and convey stormwater to the public combined sewer main, which is then pumped to the West Point Treatment Facility. Conveyance to and treatment of this runoff at the West Point Treatment Facility avoids water quality impacts to offsite waterbodies that contain critical habitat (i.e., Puget Sound, Lake Washington, and Lake Union).

The WDNR Natural Heritage Program does not identify any high quality ecosystems in the East of 12th Sector (WDNR, 2009).

WDFW PHS data do not identify any priority habitats within the East of 12th Sector (WDFW, 2010). The nearest priority habitat to the project area is the East Duwamish Greenbelt, which is located approximately 1,500 feet south of the project area, south of I-90, and is identified as a biodiversity area and corridor.

2.2.4 Animals

Wildlife observed at the Yesler Terrace site is consistent with other highly urbanized sites in the City and includes, but is not limited to, the animals listed in Table 4.1.4-1 of the Plants and Animals report in Appendix G of the DEIS. At the time of the field investigation of the East of 12th Sector, only grey squirrel (likely nest), rock dove, glaucous-winged gull, and domestic cat were observed in this sector. The species listed, including those described in the DEIS, may not be all inclusive of species present in all sectors at any given time during the year.

Suitable habitat in the East of 12th Sector is not available for any of the federally listed species described in the DEIS. No endangered or threatened wildlife as defined by City, state, or federal regulations is located on or in the vicinity of the Yesler Terrace project area.

2.2.5 East of 12th Sector Vegetated Area vs. Developed Area

Of the total 2.36-acre East of 12th Sector, approximately 0.13 acres, or 5 percent, are vegetated area representing pervious areas of the Urban and Mixed Environ capable of supporting plants and vegetated habitat. The remaining approximately 95 percent represents the built environment consisting of building footprints and surface parking.

2.2.6 Plants and Animals Unique to East of 12th Sector

For species-specific details of valuable trees, birds, and mammals observed within the East of 12th Sector, see Section 3.1.3 above and Attachment 5. No exceptional trees were identified within the East of 12th Sector.

2.3 IMPACTS OF PREFERRED ALTERNATIVE

This section describes potential impacts to plants and animals as a result of the proposed Yesler Terrace redevelopment activities under the Preferred Alternative. A description of the

potential impacts to plants and animals as a result of the redevelopment activities under Alternatives 1 through 4 is presented in the October 12, 2010 Plants and Animals Technical Report.

A summary of the impacts to tree canopy for the Preferred Alternative is provided in Table 2.3-1 and 2.3-2 below.

**Table 2.3-1
REMAINING EXISTING TREE CANOPY AREA – PREFERRED ALTERNATIVE**

| Sector | Sector Area (sq. ft) | Remaining Tree Canopy¹ (sq. ft) | Remaining Tree Canopy (%) |
|--------------------------|---------------------------------|---|--|
| NW | 525,211 | 8,988 ² | 1.7% |
| NE | 249,042 | 15,409 ² | 6.2% |
| SE | 268,499 | 14,679 ² | 5.5% |
| SW | 471,433 | 15,026 ² | 3.2% |
| East of Boren | 76,558 | 4,732 ² | 6.2% |
| East of 12 th | 102,641 | 19,335 ³ | 18.8% |
| Total | 1,693,384 | 78,169 | 4.6% |

¹ Remaining canopy coverage includes only exceptional and valuable trees.

² Analysis date is June 2010 to match the time of the June 2010 arborist study.

³ Analysis date is January 2011 to match the time of the January 2011 arborist study.

**Table 2.3-2
FUTURE TREE CANOPY AREA – PREFERRED ALTERNATIVE**

| Sector | Sector Area (sq. ft) | Future Tree Canopy (sq. ft) | Future Tree Canopy (%) |
|--------------------------|---------------------------------|--|-----------------------------------|
| NW | 525,211 | 103,037 | 19.6% |
| NE | 249,042 | 64,918 | 26.1% |
| SE | 268,499 | 74,547 | 27.8% |
| SW | 471,433 | 106,764 | 22.6% |
| East of Boren | 76,558 | 22,586 | 29.5% |
| East of 12 th | 102,641 | 55,159 | 53.7% |
| Total | 1,693,384 | 427,011 | 25.2% |

All other impacts to plants, animals, and habitat within the East of Boren and West of Boren Sectors resulting from implementation of the Preferred Alternative would be the same as those impacts described as a result of Alternatives 1 and 1A, detailed in the October 12, 2010 Plants and Animals Technical Report. For alternative-specific details of the assessments for exceptional trees, valuable trees, and tree canopies, see Table 2.3-1 and Attachment 5.

2.3.1 Summary of Impacts

This section discusses the specific impacts of the Preferred Alternative that apply to the West of Boren, East of Boren, and East of 12th Sectors.

Habitat

Construction and operation impacts from the Preferred Alternative are described below.

Construction

Development under the Preferred Alternative would impact the potential wetlands identified in the SW Sector (see Figure 3). The potential wetlands could be impacted by fill associated with the proposed development.

Some existing vegetation would potentially be removed under the Preferred Alternative, which could reduce the tree canopy area of the existing exceptional and valuable trees to 4.6 percent upon completion of construction activities, but could potentially be as much as 25.2 percent within an approximate 25-year timeframe. Animal species that use this vegetation as habitat are species generally adapted to an urban environment and will likely utilize remaining habitat onsite or find similar habitat at adjacent sites during construction. Additionally, any new vegetation that would potentially be provided at the site would provide new habitat for these species, as well as potentially increase the tree canopy coverage in support of Seattle's City-wide 30-year canopy coverage goal. Therefore, there would be no significant impacts to habitat at the site under the Preferred Alternative.

Sedimentation and erosion resulting from construction activities could result in impacts to water quality and habitat. However, no significant impacts would be anticipated due to the use of standard Best Management Practices, which would include temporary sediment and erosion control measures required by the City of Seattle, state regulations and permits.

Operation

Under the Preferred Alternative, an estimated 25 percent of the project area would be landscaped, which could serve as potential habitat. This is a 13 percent reduction of potential habitat from existing conditions. Animal species that use these trees and vegetation as habitat are species generally adapted to an urban environment and will utilize remaining habitat onsite or find similar habitat at adjacent sites. Additionally, any new vegetation that would potentially be provided at the site would provide new habitat for these species, as well as potentially increase the tree canopy coverage in order to support Seattle's City-wide 30-year canopy coverage goal. Therefore, there would be no significant impacts to habitat at the site under the Preferred Alternative.

Once construction is completed, it is anticipated that all stormwater runoff will be treated, as it is under existing conditions, prior to discharge to Puget Sound and/or its tributaries. As a result, no impacts are anticipated to critical habitat Primary Constituent Elements as described in the DEIS.

Plants

Construction

Construction activities would impact some of the exceptional trees and valuable trees in the project area. During any future site design process, a tree impact assessment would need to be conducted to determine potential impacts. A preliminary assessment of exceptional trees and valuable trees that could potentially be preserved for the proposed development alternatives is provided in Attachment 5. Construction activities would also potentially impact some of the understory vegetation, such as shrubs, annuals, grasses, and groundcovers. Since there are no known regulations that require an analysis for impacts to vegetation other than trees, an impact analysis for understory vegetation was not conducted for this report.

As shown in Table 2.3-1, under the Preferred Alternative, approximately 25.2 percent canopy coverage could be anticipated as a result of redevelopment provided an approximate 25-year timeframe. This canopy coverage would support Seattle's City-wide 30-year canopy coverage goal.

Operation

There would be no significant operational impacts to plant species at the site with redevelopment under the Preferred Alternative.

Animals

Construction

Existing animal species at the site have adapted to a highly urbanized environment. Construction impacts due to habitat removal would likely result in animal relocation to remaining habitat onsite or to adjacent sites until construction activities were finished and new landscaping had been installed.

Noise impacts due to construction activities may cause animals to temporarily relocate; however, once construction activities were completed, animals would likely return to the site.

Operation

The reduction in landscaped area that is proposed under the Preferred Alternative would result in a small reduction of potential habitat for animals and, therefore, may result in fewer individuals of existing species at the site; however, due to the small reduction and the general ability for existing animals in this area to adapt to urban environments, this impact is not considered significant. Furthermore, since the site will remain as Urban Mixed Environ, no new species are anticipated to colonize the project site as a result of redevelopment. It is anticipated that all stormwater runoff will be treated prior to discharge to Puget Sound and/or its tributaries. As a result, water quality and water quantity impacts are not anticipated to affect federally listed bull trout, Chinook salmon, and steelhead trout in Puget Sound and/or its tributaries.

2.4 CUMULATIVE IMPACTS

Cumulative impacts of the proposed Yesler Terrace project in combination with other foreseeable offsite actions in and adjacent to the project area are discussed in the October 12, 2010 Plants and Animals Technical Report, and apply to the Preferred Alternative.

2.5 MITIGATION

Mitigation measures recommended in the October 12, 2010 Plants and Animals Technical Report to reduce potential impacts to plants, animals, and their habitat during and after the construction phase for all redevelopment alternatives also apply to the Preferred Alternative. Mitigation provided in Section 3.0 of this document also applies to the Preferred Alternative.

2.6 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

No significant unavoidable adverse impacts are expected for the Preferred Alternative.

3.0 UPDATE OF THE EIS ANALYSIS

The following provides an update to the analysis provided in the DEIS as a result of the addition of the East of 12th Sector as part of the Preferred Alternative and response to comments received on the DEIS. Analysis of the Preferred Alternative is provided in Section 2.0 of this document.

3.1 NO ACTION ALTERNATIVE AND EAST OF 12TH SECTOR

The East of 12th Sector is an addition to the Yesler Terrace project area, and the analysis of the No Action Alternative in the DEIS requires update.

The existing conditions and impact described in Section 2.0 for the Preferred Alternative apply to the No Action Alternative. The No Action Alternative assumes continued use of the Yesler Terrace site as it currently exists and would entail repair, remodeling, and replacement of existing buildings and infrastructure when systems and structures fail. Under the No Action Alternative, construction impacts to habitat, plants, and animals would be the same as those described in the October 12, 2010 Plants and Animals Technical Report for Alternatives 1 and 1A, and the Preferred Alternative as described above due to repair, remodeling, and replacement activities; however, these impacts would likely occur at a lower intensity.

During periods in which no repair, remodeling, and replacement would be taking place, plants, animals, and habitat onsite would continue under existing conditions.

3.2 TREE CANOPY ANALYSIS FOR NO ACTION ALTERNATIVE AND ALTERNATIVES 1 THROUGH 4

In response to comments, an analysis of future canopy cover for each alternative discussed in the DEIS is provided below.

3.2.1 Methodology for the Future Tree Canopy Analysis

The methodology provided in the Preferred Alternative described above was applied to all the alternatives. Tree canopy coverage assumptions for trees that could potentially be installed within available open space areas under Alternative 1 through 4 were established by SvR (SvR, 2011).

3.2.2 Future Tree Canopy Analysis Results

Based on the future tree canopy assessment, the approximate total tree canopy within the project area as of the approximate 25-year timeframe ranged from 327,060 square feet to 329,958 square feet under Alternatives 1 through 4, and ranged from 429,460 square feet to 748,799 square feet under the Preferred Alternative and No Action Alternative as a result of the addition of the East of 12th Sector. Under all alternatives, this ranges from approximately 23 percent to 44 percent of the respective project areas. Future tree canopy for the No Action Alternative in an approximate 25-year timeframe could be 748,799 square feet, assuming a constant growth rate and appropriate maintenance activities will occur. This estimate may be an over-representation of canopy coverage, as tree growth is finite and there are limiting conditions to tree growth in an urban setting such as the Yesler Terrace project site. For example, it may not be reasonable to assume that under the No Action Alternative that approximately 44 percent of the project site could be in canopy coverage in an approximate 25-year timeframe. A reasonable estimate could be between the 23.3 percent of the existing canopy and the 44.2 percent projected canopy. Furthermore, the projected growth rate does not consider trees that could be potentially removed over the approximate 25-year timeframe).

There are 123 valuable trees onsite as defined in Section 3.2. A list of all of the exceptional and valuable trees is provided in Attachment 5.

The following tables provide a summary of anticipated canopy coverage for each alternative assuming an approximate 25-year timeframe following project construction.

**Table 3.2.2-1
FUTURE TREE CANOPY AREA – NO ACTION ALTERNATIVE**

| Sector | Sector Area (sq. ft) | No Action Future Tree Canopy (sq. ft) | No Action Future Tree Canopy (%) |
|--------------------------|---------------------------------|--|---|
| NW | 525,211 | 232,633 | 44.3% |
| NE | 249,042 | 129,843 | 52.1% |
| SE | 268,499 | 128,502 | 47.8% |
| SW | 471,433 | 181,463 | 38.5% |
| East of Boren | 76,558 | 38,368 | 50.1% |
| East of 12 th | 102,641 | 37,990 | 37.0% |
| Total | 1,693,384 | 748,799 | 44.2% |

**Table 3.2.2-2
FUTURE TREE CANOPY AREA – ALTERNATIVES 1 & 1A**

| Sector | Sector Area (sq. ft) | Alternative 1 & 1A Future Tree Canopy (sq. ft) | Alternative 1 & 1A Future Tree Canopy (%) |
|--------------------------|---------------------------------|---|--|
| NW | 525,211 | 106,475 | 20.3% |
| NE | 249,042 | 42,805 | 17.2% |
| SE | 268,499 | 52,476 | 19.5% |
| SW | 471,433 | 112,704 | 23.9% |
| East of Boren | 76,558 | 12,600 | 16.5% |
| East of 12 th | N/A | N/A | N/A |
| Total | 1,590,743 | 327,060 | 20.6% |

**Table 3.2.2-3
FUTURE TREE CANOPY AREA – ALTERNATIVE 2**

| Sector | Sector Area (sq. ft) | Alternative 2 Future Tree Canopy (sq. ft) | Alternative 2 Future Tree Canopy (%) |
|--------------------------|---------------------------------|--|---|
| NW | 525,211 | 106,673 | 20.3% |
| NE | 249,042 | 54,864 | 22.0% |
| SE | 268,499 | 51,360 | 19.1% |
| SW | 471,433 | 102,348 | 21.7% |
| East of Boren | 76,558 | 12,605 | 16.5% |
| East of 12 th | N/A | N/A | N/A |
| Total | 1,590,743 | 327,850 | 20.6% |

**Table 3.2.2-4
FUTURE TREE CANOPY AREA – ALTERNATIVE 3**

| Sector | Sector Area (sq. ft) | Alternative 3 Future Tree Canopy (sq. ft) | Alternative 3 Future Tree Canopy (%) |
|--------------------------|---------------------------------|--|---|
| NW | 525,211 | 110,079 | 21.0% |
| NE | 249,042 | 57,878 | 23.2% |
| SE | 268,499 | 49,265 | 18.3% |
| SW | 471,433 | 100,583 | 21.3% |
| East of Boren | 76,558 | 12,153 | 15.9% |
| East of 12 th | N/A | N/A | N/A |
| Total | 1,590,743 | 329,958 | 20.7% |

**Table 3.2.2-5
FUTURE TREE CANOPY AREA – ALTERNATIVE 4**

| Sector | Sector Area (sq. ft) | Alternative 4 Future Tree Canopy (sq. ft) | Alternative 4 Future Tree Canopy (%) |
|--------------------------|---------------------------------|--|---|
| NW | 525,211 | 98,417 | 18.7% |
| NE | 249,042 | 56,360 | 22.6% |
| SE | 268,499 | 61,284 | 22.8% |
| SW | 471,433 | 100,654 | 21.4% |
| East of Boren | 76,558 | 12,151 | 15.9% |
| East of 12 th | N/A | N/A | N/A |
| Total | 1,590,743 | 328,866 | 20.7% |

3.3 WETLAND DELINEATION

The potential wetlands delineated within the Yesler Terrace project site have undergone a Preliminary Jurisdictional Determination (JD) review by the U.S. Army Corps of Engineers (USACE) to establish the classification and jurisdiction of the wetlands (Attachment 6). This Preliminary JD finds that there “may be” waters of the United States on the subject project site for the purpose of advancing permit application review. Undertaking any activity in reliance on any form of USACE permit authorization based on a Preliminary JD constitutes agreement that

the wetlands on the site affected in any way by that activity are jurisdictional waters of the United States. SHA has the option to request an Approved JD before accepting the terms and conditions of permit authorization; basing a permit authorization on an Approved JD could possibly result in less compensatory mitigation being required or different special conditions. A permit application for unavoidable impacts to the potential wetlands will occur upon development of project plans. Final determination of any required mitigation by the USACE will occur after issuance of this FEIS and submittal of a complete permit application, but prior to issuance of permits for construction activities that would impact these areas.

Additional site investigation of the potential wetland areas was completed on March 2, 2011 and March 18, 2011 to review site hydrology, and is summarized as follows:

- Wetland A: Surface water, as noted during the June 24, 2010 site investigation, was not observed on March 2 or March 11; however, saturated soils were still present. The absence of surface water indicates that the irrigation hose, which was repaired in June 2010, likely contributed to the hydrology of this potential wetland. Saturated conditions are required for at least 5 percent of the growing season in most years (50 percent probability of occurrence) (USACE, 1987 and 2010). The beginning of the growing season, based on Natural Resources Conservation Service (NRCS) WETS tables (NRCS website, 2002), is February 7, and 5 percent of the growing season for the project site is 15.25 days. Based on the saturated conditions observed in March 2011, wetland hydrology appears to be present and the area is currently classified as wetland.
- Wetland B: Soil saturation, as noted during the June 24, 2010 site investigation, was observed at the March 2 and March 11 site review, satisfying the wetland hydrology parameter. In addition, shallow surface water was observed throughout the potential wetland during the March 2011 site investigations. This area is currently classified as wetland. The irrigation hose upslope of potential Wetland A and B likely did not influence the hydrology of Wetland B. At the time of the site investigation, surface water was observed flowing from the base of the slope on the east-northeast edge of potential Wetland B. The drainage pattern of this potential wetland is from east to west. Flows intersect the gravel driveway entering the site and appear to flow toward the garden plot located south of the potential wetlands. It appears that the surface runoff infiltrates in the garden plot as no drainage patterns were observed exiting the garden plot.

Conditions for USACE Nationwide Permits (USACE, 2007) include, in part, the following: “For wetland losses of 1/10 acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment.” Determination of mitigation requirements would be made during project plan development and permitting. Stormwater ponds and/or low impact development (LID) features by themselves are not accepted as mitigation by the USACE for mitigation under Section 404 of the Clean Water Act. If mitigation is required by the USACE, the potential wetlands are within the Duwamish-Green River Watershed, and any offsite mitigation could include areas within the Duwamish-Estuary Subwatershed. A number of restoration sites along the Duwamish River in the subwatershed have been identified in the Green/Duwamish and Central Puget Sound Watershed Salmon Habitat Plan (King County, 2005), which may provide appropriate mitigation. In addition, any City/SHA properties in the subwatershed could be considered for use in mitigation if appropriate.

Once redevelopment plans are prepared that identify specific impact to the potential wetlands, applicable regulations may require wetland mitigation to offset impacts to wetland functions. Mitigation could consist of any combination of strategies provided in the USACE/Washington State Department of Ecology (Ecology) joint guidance (Ecology et al., 2006) on wetland mitigation in Washington State. The mitigation strategies include:

- **Re-establishment:** The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historical functions to a former wetland. Re-establishment results in rebuilding a former wetland and results in a gain in wetland acres and functions.
- **Rehabilitation:** The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural or historical functions and processes of a degraded wetland. Rehabilitation results in a gain in wetland function but does not result in a gain in wetland acreage.
- **Creation** (also referred to as “Establishment”): The manipulation of the physical, chemical, or biological characteristics present to develop a wetland on an upland or deepwater site, where a wetland did not previously exist. Establishment results in a gain in wetland acreage and function.
- **Enhancement:** The manipulation of the physical, chemical, or biological characteristics of a wetland to heighten, intensify, or improve specific function(s) or to change the growth stage or composition of the vegetation present. Enhancement is undertaken for specified purposes such as water quality improvement, flood water retention, or wildlife habitat. Enhancement results in a change in wetland function(s) and can lead to a decline in other wetland functions, but does not result in a gain in wetland acreage.
- **Preservation:** The removal of a threat to, or preventing the decline of, wetland conditions by an action in or near a wetland. This term includes the purchase of land or easements, repairing water control structures or fences, or structural protection. Preservation does not result in a gain of wetland acreage but may result in a gain in functions over the long term.

As presented in the DEIS, mitigation standards for the City per SMC 25.09.160C3 includes wetland creation among other strategies. The mitigation standards in SMC 25.09.160C3 allow the City more flexibility in approving mitigation for the relatively small size and low quality of the potential wetlands located in the SW Sector of the Yesler Terrace project site, such that installation of native plantings, stormwater bioretention/infiltration facilities, and/or LID features could apply as mitigation. If mitigation is required by the USACE, mitigation strategies and ratios pursuant to USACE/Ecology joint guidance (Ecology et al., 2006) would be pursued and the mitigation requirements of SMC 25.09.160E would apply. The requirements of SMC 25.09.160E are consistent with, and incorporate by reference, a previous version of the Ecology/USACE joint guidance (Ecology, 1994).

3.4 IMPACTS OF ALL ALTERNATIVES

This section provides updates to potential impacts for each alternative to the anticipated canopy coverage analysis.

An update to Table 5.1.1-1 in the DEIS is provided below in Table 3.4-1. Changes to this table are a result of a more thorough analysis of the existing vegetation and potential grading activities associated with proposed redevelopment designs, and an expanded project boundary

for the No Action Alternative. The numbers in Table 3.4-1 should replace any mention of the numbers throughout the DEIS.

Under the No Action Alternative, approximately 285 of the 430 trees (66.3 percent) could be removed intentionally for consideration of public health and safety and/or as a result of further decline of hazardous and unhealthy trees. Removal of these hazardous or unhealthy trees could reduce the overall tree canopy coverage to 133,566 square feet, or 7.9 percent. Replacing hazardous or unhealthy trees with new trees would more than likely assist in maintaining the existing tree canopy area, but analysis of tree replacement for the No Action Alternative was not conducted.

**Table 3.4-1
REMAINING EXISTING TREE CANOPY AREA BY ALTERNATIVE (IN SQUARE FEET)**

| Sector | No Action¹ | Alt 1 & 1A² | Alt 2² | Alt 3² | Alt 4² |
|---------------------------------------|------------------------------|-----------------------------------|--------------------------|--------------------------|--------------------------|
| NW | 122,566 | 13,538 | 11,540 | 11,540 | 9,239 |
| NE | 68,410 | 6,688 | 9,735 | 10,648 | 11,971 |
| SE | 67,703 | 5,172 | 4,653 | 4,996 | 8,365 |
| SW | 95,606 | 13,685 | 9,599 | 9,801 | 9,923 |
| East of Boren | 20,215 | 0 | 0 | 0 | 0 |
| East of 12 th | 20,667 | N/A | N/A | N/A | N/A |
| Total | 395,167 | 39,083 | 35,527 | 36,985 | 39,498 |
| Coverage of Total Project Area | 23.3%⁴ | 2.5%³ | 2.2%³ | 2.3%³ | 2.5%³ |

¹ Canopy coverage is based on all existing trees within the project area regardless of their condition. However, under the No Action Alternative, approximately 285 of the 430 trees (66.3 percent) could be removed intentionally for consideration of public health and safety and/or as a result of further decline of hazardous and unhealthy trees. Removal of these hazardous or unhealthy trees could reduce the overall tree canopy coverage to 133,566 square feet, or 7.9 percent. Replacing hazardous or unhealthy trees with new trees would more than likely assist in maintaining the existing tree canopy area, but analysis of tree replacement for the No Action Alternative was not conducted.

² Remaining canopy coverage only includes existing exceptional and valuable trees, as it is assumed that hazardous and unhealthy trees would be removed upon redevelopment.

³ Percentage is based on a total area of 1,590,743 square feet, which covers all sectors except the East of 12th Sector.

⁴ Percentage is based on a total area of 1,693,384 square feet, which covers all sectors.

3.4.1 Alternatives 1 and 1A

Massing concepts for Alternatives 1 and 1A would likely avoid impacts to the potential wetlands.

Alternatives 1 and 1A would potentially require that some existing trees and other vegetation be removed. This would potentially reduce the tree canopy area from the existing conditions upon completion of construction, but when combined with future canopy projections, would potentially result in approximately 20.6 percent canopy cover, which would be in support of the Urban

Forest Management Plan City-wide 30-year canopy goal. Animal species that use these trees and vegetation as habitat are species generally adapted to an urban environment and will utilize remaining habitat onsite or find similar habitat at adjacent sites during construction. Additionally, any new landscaping that would potentially be provided at the site would provide new habitat for these species, as well as support Seattle's City-wide 30-year canopy goal. Overall, there would be no significant impacts to canopy cover or habitat at the site under Alternatives 1 and 1A.

3.4.2 Alternatives 2 and 3

Massing concepts for Alternatives 2 and 3 would likely impact the potential wetlands due to proposed filling activities. Applicable regulations would require wetland mitigation.

Alternatives 2 and 3 would potentially require that some existing trees and other vegetation be removed. This would potentially reduce the tree canopy area from the existing conditions upon completion of construction, but when combined with future canopy projections, would potentially result in approximately 20.6 percent canopy cover for Alternative 2 and 20.7 percent canopy cover for Alternative 3, which would be in support of the Urban Forest Management Plan City-wide 30-year canopy goal. Animal species that use these trees and vegetation as habitat are species generally adapted to an urban environment and will utilize remaining habitat onsite or find similar habitat at adjacent sites during construction. Additionally, any new landscaping that would potentially be provided at the site would provide new habitat for these species, as well as support Seattle's City-wide 30-year canopy goal. Overall, there would be no significant impacts to canopy cover or habitat at the site under Alternatives 2 and 3.

3.4.3 Alternative 4

Massing concepts for Alternative 4 would likely impact the potential wetlands due to proposed filling activities.

Alternative 4 would potentially require that some existing trees and other vegetation be removed. This would potentially reduce the tree canopy area from the existing conditions upon completion of construction, but when combined with future canopy projections, would potentially result in approximately 20.7 percent canopy cover, which would be in support of the Urban Forest Management Plan City-wide 30-year canopy goal. Animal species that use these trees and vegetation as habitat are species generally adapted to an urban environment and will utilize remaining habitat onsite or find similar habitat at adjacent sites during construction. Additionally, any new landscaping that would potentially be provided at the site would provide new habitat for these species, as well as support Seattle's City-wide 30-year canopy goal. Applicable regulations would require wetland mitigation. Overall, there would be no significant impacts to canopy cover or habitat at the site under Alternative 4.

3.5 MITIGATION FOR ALL REDEVELOPMENT ALTERNATIVES

The following mitigation measures are recommended to reduce potential impacts to plants, animals, and their habitat during and after the construction phase. These are in addition to the mitigation measures described in the DEIS. Some of these measures are also updates to the mitigation measures described in the DEIS so that regulatory requirements are shown

separately. Therefore, this section replaces Section 7.0 in the October 12, 2010 Plants and Animals Technical Report.

3.5.1 Proposed Mitigation Measures (Regulated)

The following mitigation measures are recommended to reduce potential impacts to plants, animals, and their habitat during and after the construction phase.

- Incorporate techniques that could preserve or prevent existing exceptional trees from being damaged or destroyed by construction activities, which would potentially minimize the quantity of exceptional trees that require mitigation. Prevention and preservation are considered mitigation techniques. Also, incorporate design techniques that could increase tree survivability over time. Techniques could include:
 - a. Incorporate creative site planning and architectural design.
 - i. Set the lower levels of the buildings away from the trees and their CRZ (a cantilever or balcony effect).
 - ii. Design the edges or portions of buildings and underground structures to avoid trees and their CRZ.
 - iii. Install porous pavement (concrete, asphalt, pavers, or cells) or landscape areas in urbanized areas that will potentially assist in tree preservation.
 - iv. Design sidewalks, roads, streets, and other impervious hardscape elements such that they avoid trees and their CRZ.
 - v. Locate existing overhead and proposed utilities underground, to the extent practicable, to avoid maintenance pruning and removal of trees in conflict with overhead utilities.
 - vi. Consider future growth patterns of trees so that they will not need to be pruned to prevent harm to architectural features.
 - b. Incorporate practical and creative landscape design and installation practices.
 - i. New trees and other plant material should be installed in areas that will not conflict with the health of the remaining trees.
 - ii. New trees and other plant material should be installed such that they do not conflict with each other or architectural features.
 - iii. Consider the vertical and horizontal layering of the vegetation as it grows over time. A varied vertical and horizontal layering is ideal.
 - iv. Design should consider incorporating elements of Seattle's Green Stormwater Infrastructure (GSI)/Green Factor program.
 - c. Implement construction methods and sequencing to preserve trees proposed to be retained onsite. Examples include:
 - i. Install chain-link fencing around trees before mobilization to prevent damage from construction activities.
 - ii. Locate root systems visually or by other means (such as using underground radar equipment) to determine where construction activities should not occur.
 - iii. Consider the following when selecting vegetation species for the site:
 - 1. Invasive species, noxious weeds, and/or vegetation that contain allelochemicals that cause detrimental effects to other vegetation should not be planted within or near the project boundaries.
 - 2. Native plants have a higher chance of surviving regional weather conditions and are more suited for attracting native animals.

3. Certain trees are considered harmful to hardscape surfaces. Trees that should be avoided in areas that have hardscape within the CRZ at maturity include, but are not limited to species of maples, American elm, tulip tree, pin oak, sweetgum, ash, cottonwood, and willows (Rindels, 1995).
 4. Native evergreen species are ideal (especially evergreen conifers) for LID concepts in terms of assisting in matching pre-existing conditions and mimicking the hydrologic cycle.
- A 1:1 or greater replacement ratio for all exceptional trees damaged or destroyed during construction activities is required by the City. Mitigation techniques that could potentially assist in matching or exceeding the 1:1 replacement ratio for exceptional trees damaged or destroyed during construction activities include:
 - a. Install trees per the required 1:1 or greater ratio within the project boundaries (first priority).
 - b. Install trees per the required 1:1 or greater ratio within the project boundaries and in off-site areas or areas adjacent to the project site, assuming that off-site mitigation is acceptable.
 - Nest removal for species protected under the Migratory Bird Treaty Act should occur outside of nesting season after birds have fledged.
 - Install native plants, as possible, and remove invasive plants, in accordance with Washington State Executive Order 13112, to provide habitat for native animals.
 - For exceptional trees that cannot be preserved in place, transplant within the project area as a means of preservation. Transplanting should occur only if feasible and per the direction of the City.
 - If the potential wetlands are permanently impacted, mitigation is required. If the USACE does not require mitigation, the City's mitigation requirements under its critical areas regulation (SMC 25.09.160C3) for unavoidable impacts to wetlands would apply. Potential mitigation techniques for Category IV wetlands under City regulations include:
 - Construct a wetland of equal function to the lost wetland function.
 - Plant an area of native vegetation equal or greater in size to the area of the developed wetland, and remove invasive species in the area to be planted.
 - Construct a bioengineered/infiltration facility, such as a bioretention cell or bioretention plant, that replicates the hydrologic and/or water quality benefit of the developed wetland. This facility shall be designed according to the requirements of Chapters 22.800 through 22.808 of the Stormwater Code and associated Director's Rules.
 - Construct a green roof or roof garden that replicates the hydrologic and/or water quality benefit of the developed wetland. These facilities shall be designed according to the requirements of Chapters 22.800 through 22.808 of the Stormwater Code and associated Director's Rules.
 - If mitigation is required by the USACE, the potential wetlands are within the Duwamish-Green River Watershed, and any offsite mitigation could include areas within the Duwamish-Estuary Subwatershed. Mitigation could consist of any combination of wetland creation, restoration, enhancement, and/or preservation on one or more sites within the subwatershed. Mitigation ratios vary depending on the type of wetland

impacted and mitigation strategy undertaken. In this case, the following could apply as taken from the USACE/Ecology joint guidance (Ecology et al., 2006) on wetland mitigation in Washington State:

- a. 1.5:1 Re-establishment or Creation
- b. 3:1 Rehabilitation only
- c. 1:1 Re-establishment or Creation and 1:1 Rehabilitation
- d. 1:1 Re-establishment or Creation and 2:1 Enhancement
- e. 6:1 Enhancement
- f. Preservation of existing wetlands is also a recognized mitigation strategy. Ratios of mitigation credit provided by preservation vary between 10:1 and 20:1 and are determined on a case-by-case basis. Preservation ratios depend on the significance of the preservation project and the quality of the wetland resources lost. Preservation is used only after the other mitigation strategies have been considered and is approved on a case-by-case basis by the agencies.

If mitigation is required by the USACE, the mitigation ratios cited in SMC 25.09.160E5a would apply for City critical area approval. In the case of the potential wetlands onsite, these ratios would include:

- i. 1.5:1 Restoration or Creation
- ii. 6:1 Enhancement

Per Ecology/USACE guidance, “restoration” includes re-establishment and rehabilitation as described above. If restoration were used, in whole or in part, as a mitigation strategy, the higher mitigation ratio between City and USACE standards would be applied (e.g. 3:1 for Rehabilitation only).

3.5.2 Proposed Mitigation Measures (Non-Regulated)

The following mitigation measures are recommended to reduce potential impacts to plants, animals, and their habitat during and after the construction phase.

- Incorporate techniques that could preserve or prevent existing valuable trees from being damaged or destroyed by construction activities, which would potentially minimize the quantity of valuable trees that would be damaged or destroyed by construction activities. Prevention and preservation are considered mitigation techniques. Also, incorporate design techniques that could increase tree survivability over time. Techniques include all items listed as mitigation techniques for exceptional trees, with the exception of any discussion regarding a 1:1 or greater mitigation ratio.
- Exceed a 1:1 replacement ratio for all exceptional trees damaged or destroyed during construction activities. Also, meet or exceed a 1:1 ratio for valuable trees damaged or destroyed during construction activities. Mitigation techniques that could potentially assist in exceeding a 1:1 required ratio for exceptional trees and meeting or exceeding a 1:1 ratio for valuable trees include:
 - Install tree quantities that exceed the required 1:1 ratio within the project boundaries, such as a 1:2 replacement ratio.
 - Install tree quantities that exceed the required 1:1 ratio within the project boundaries and in off-site areas or areas adjacent to the project site in an effort to increase tree populations and create canopy beyond the project area, assuming that off-site mitigation is acceptable.

- For valuable trees that cannot be preserved in place, transplant within the project area as a means of preservation. Transplanting should occur only if feasible and per the direction of the City.
- Establish a thorough landscape maintenance program during and after construction to ensure the vegetation remains healthy and free of invasive/undesirable plants.
- Apply arboriculture practices to all plants to ensure a prolonged and healthy life.

4.0 ERRATA

- Page 3.4-9 of the DEIS states "The addition of the new landscaping and trees provided as mitigation for tree removal would increase tree canopy coverage and support Seattle's 30-year goal of 20 percent coverage for all sites zoned as multi-family residential or 15 percent coverage for all sites zoned commercial/mixed use."

This statement is revised as follows: "The addition of new trees would mitigate for exceptional trees and/or tree canopy lost and support Seattle's 30-year goal of 20 percent coverage for all multi-family residential sites, 15 percent coverage for all commercial/mixed use sites, or 25 percent for newly developed parks."

5.0 USE OF THIS REPORT

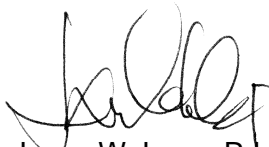
Landau Associates has prepared this plants and animals technical report for the exclusive use of the Seattle Housing Authority and the CollinsWoerman project team for specific application to preparation of the Plants and Animals section of the Draft Environmental Impact Statement for the proposed Yesler Terrace Redevelopment project in Seattle, Washington. Use of this report by others or for another project is at the user's sole risk. Within the limitations of scope, schedule, and budget, Landau Associates' services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. Landau Associates makes no other warranty, either express or implied.

This document has been prepared under the supervision and direction of the following key staff.

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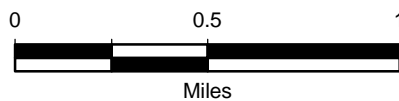
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Data Source: ESRI 2008



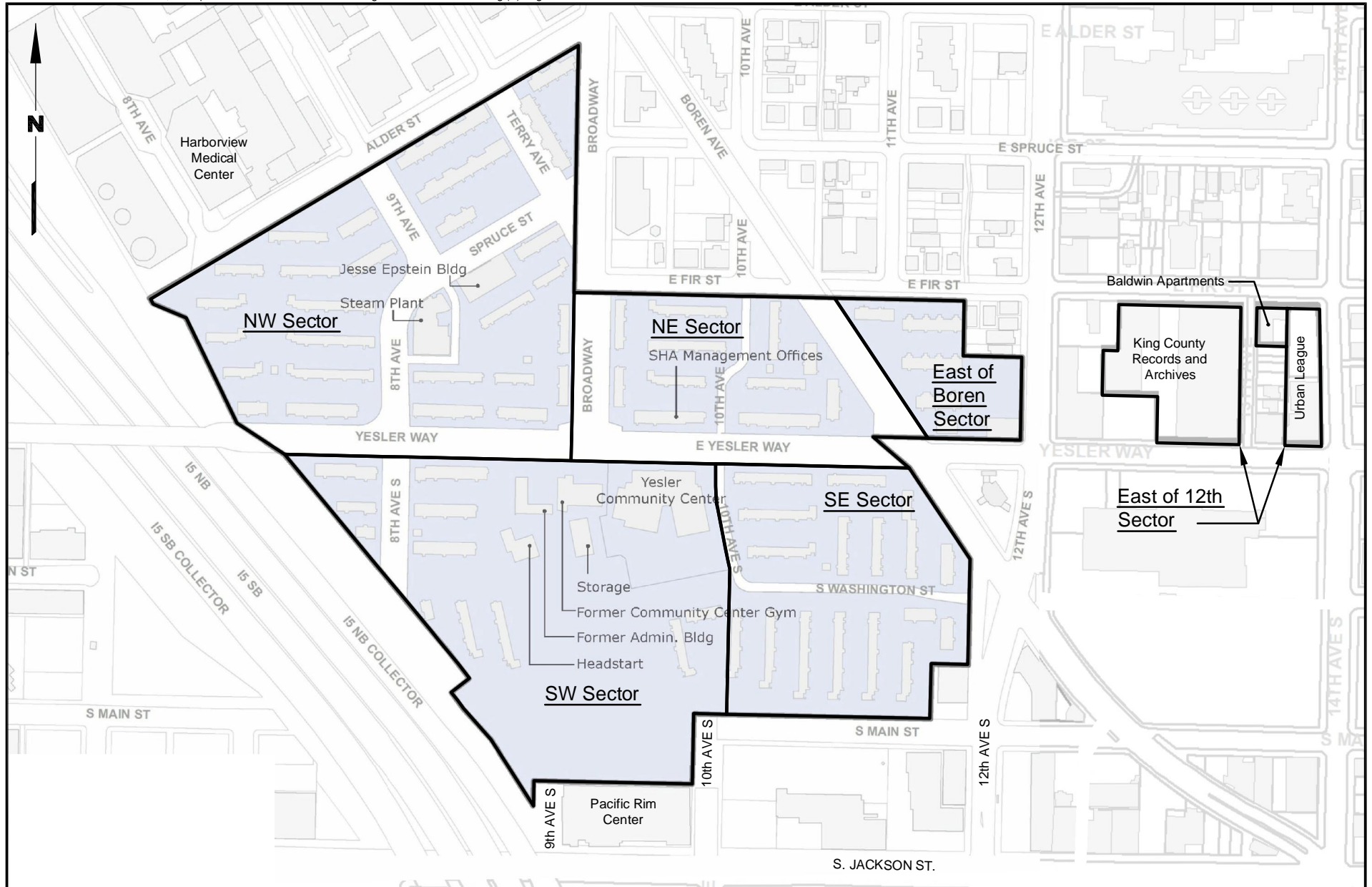
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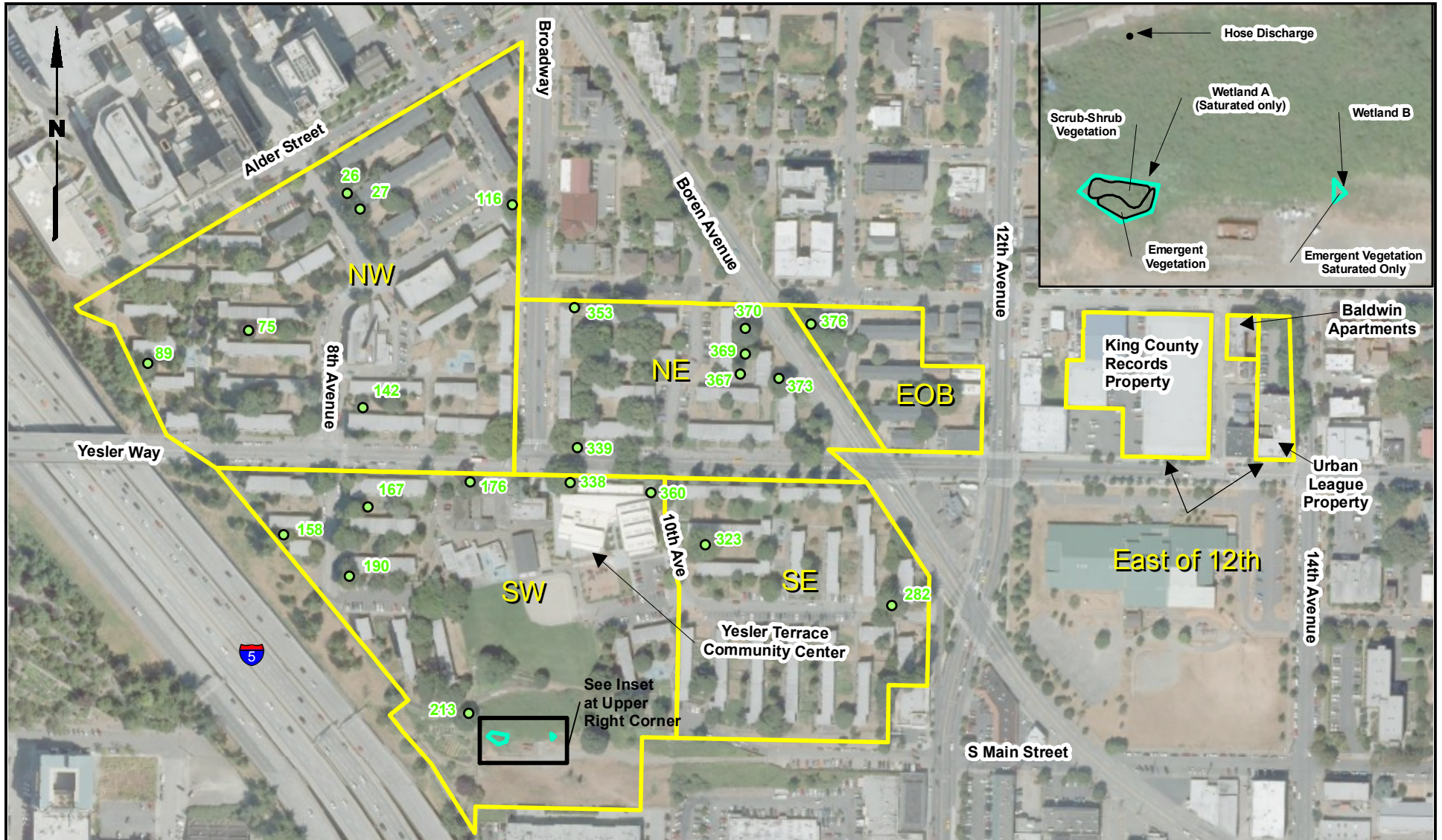
Yesler Terrace Redevelopment
Seattle, Washington

Vicinity Map

Figure
1



Adapted from: Collins Woerman, 2011

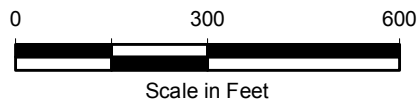


Legend

- Tree Tag for Exceptional Trees



Sector



Data Source: King County, Bing Maps Aerial

Yesler Terrace Redevelopment
Seattle, Washington

Environmental Features Map

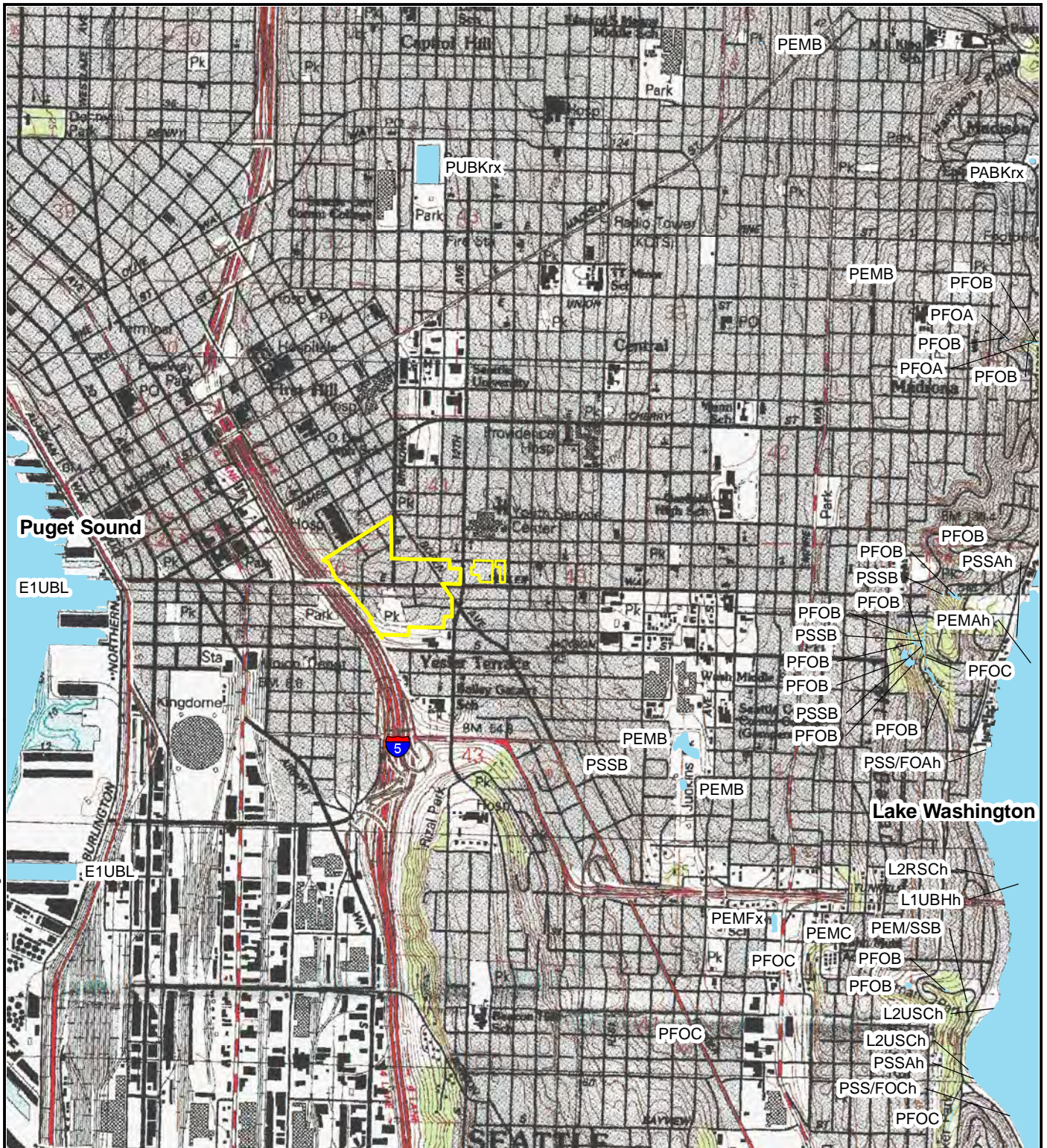
Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.
2. EOB = East of Boren



Figure
3

Project Area Maps

Y:\Projects\818003\MapDocs\MapA-Plants_wild.mxd 3/4/2011 NAD 1983 StatePlane Washington North F PS 4601 Feet

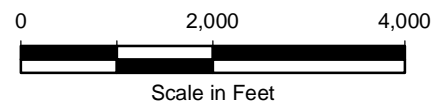


Legend

-  National Wetlands Inventory
-  Project Area

Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.



Data Source: USGS 1939-2001, USFWS 1981-present



(C) 2010 King County

0 1474ft

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Date: 3/7/2011

Source: King County iMAP - Sensitive Areas (<http://www.metrokc.gov/GIS/iMAP>)

King County

iMAP

Legend

| | | | | | |
|---|-------------------|---|------------------------|---|--------------------------------|
|  | County Boundary |  | Unclassified |  | SAO Wetland |
|  | Mountain Peaks | Shoreline Management Designation | |  | Chinook Distribution |
|  | Highways | | |  | Critical Aquifer Recharge Area |
|  | Incorporated Area |  | Conservancy |  | Category 1 |
|  | Streets |  | Natural |  | Category 2 |
|  | Highway |  | Rural |  | Category 3 |
|  | Arterials |  | Rural/Conservancy | | |
|  | Local |  | Urban | | |
|  | Parcels |  | Urban/Rural | | |
|  | SAO Stream |  | Lakes and Large Rivers | | |
|  | Class 1 |  | Streams | | |
|  | Class 2 Perennial |  | Floodway | | |
|  | Class 2 Salmonid |  | 100 Year Floodplain | | |
|  | Class 3 | | | | |
|  | (cont) | | | | |

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Date: 3/7/2011

Source: King County iMAP - Sensitive Areas (<http://www.metrokc.gov/GIS/iMAP>)



King County

Endangered Species Act Background Information

**LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES AND CRITICAL
HABITAT; CANDIDATE SPECIES; AND SPECIES OF CONCERN
IN KING COUNTY
AS PREPARED BY
THE U.S. FISH AND WILDLIFE SERVICE
WASHINGTON FISH AND WILDLIFE OFFICE**

(Revised December 15, 2010)

LISTED

Bull trout (*Salvelinus confluentus*) – Coastal-Puget Sound DPS

Canada lynx (*Lynx canadensis*)

Gray wolf (*Canis lupus*)

Grizzly bear (*Ursus arctos* = *U. a. horribilis*)

Marbled murrelet (*Brachyramphus marmoratus*)

Northern spotted owl (*Strix occidentalis caurina*)

Major concerns that should be addressed in your Biological Assessment of project impacts to listed animal species include:

1. Level of use of the project area by listed species.
2. Effect of the project on listed species' primary food stocks, prey species, and foraging areas in all areas influenced by the project.
3. Impacts from project activities and implementation (e.g., increased noise levels, increased human activity and/or access, loss or degradation of habitat) that may result in disturbance to listed species and/or their avoidance of the project area.

Castilleja levisecta (golden paintbrush) [historic]

Major concerns that should be addressed in your Biological Assessment of project impacts to listed plant species include:

1. Distribution of taxon in project vicinity.
2. Disturbance (trampling, uprooting, collecting, etc.) of individual plants and loss of habitat.
1. Changes in hydrology where taxon is found.

DESIGNATED

Critical habitat for bull trout

Critical habitat for the marbled murrelet

Critical habitat for the northern spotted owl

PROPOSED

Revised critical habitat for bull trout

CANDIDATE

Fisher (*Martes pennanti*) – West Coast DPS
North American wolverine (*Gulo gulo luteus*) – contiguous U.S. DPS
Oregon spotted frog (*Rana pretiosa*) [historic]
Yellow-billed cuckoo (*Coccyzus americanus*)

SPECIES OF CONCERN

Bald eagle (*Haliaeetus leucocephalus*)
Beller's ground beetle (*Agonum belleri*)
Cascades frog (*Rana cascadae*)
Hatch's click beetle (*Eanus hatchi*)
Larch Mountain salamander (*Plethodon larselli*)
Long-eared myotis (*Myotis evotis*)
Long-legged myotis (*Myotis volans*)
Northern goshawk (*Accipiter gentilis*)
Northern sea otter (*Enhydra lutris kenyoni*)
Northwestern pond turtle (*Emys* (= *Clemmys*) *marmorata marmorata*)
Olive-sided flycatcher (*Contopus cooperi*)
Pacific lamprey (*Lampetra tridentata*)
Pacific Townsend's big-eared bat (*Corynorhinus townsendii townsendii*)
Peregrine falcon (*Falco peregrinus*)
River lamprey (*Lampetra ayresi*)
Tailed frog (*Ascaphus truei*)
Valley silverspot (*Speyeria zerene bremeri*)
Western toad (*Bufo boreas*)
Aster curtus (white-top aster)
Botrychium pedunculatum (stalked moonwort)
Cimicifuga elata (tall bugbane)

Urban Forestry Services, Inc. Tree Evaluation

Yesler Extension
E. Yesler Way 14th Street

January 4, 2011

| Tree # | Species | dbh (in.) | CRZ | Vigor | Structure | Defects / Comments | Probability of Failure (1-5 pts) | Size of Part (1-3 pts) | Target Rating (1-4 pts) | Overall Risk Rating (3-12 pts) | Preservation Value | Maintenance Recommendations | Action Completed (date & init) |
|--|---|--------------|-----|-----------|-----------|---|--|------------------------------------|----------------------------------|--------------------------------------|-----------------------|---|--------------------------------------|
| #6 - King County Records Site | | | | | | | | | | | | | |
| 1551 ^a | Flame Ash (<i>Fraxinus angustifolia</i> 'Flame') | 8.7 | 9 | Good | Good | Maintained street tree. | 1 | 0 | 4 | Low (5) | High | | |
| 1552 ^a | Flame Ash (<i>Fraxinus angustifolia</i> 'Flame') | 6.5 | 7 | Fair-Good | Good | Maintained street tree. | 1 | 0 | 4 | Low (5) | High | | |
| 1553 | Flame Ash (<i>Fraxinus angustifolia</i> 'Flame') | 5.9 | 6 | Good | Good | Maintained street tree. | 1 | 0 | 4 | Low (5) | High | | |
| 1554 | Flame Ash (<i>Fraxinus angustifolia</i> 'Flame') | 12.3 | 13 | Good | Poor | Maintained street tree. Included bark with open split on main trunk. | 3 | 2 | 4 | High (9) | Moderate-Low | Recommend bracing and cabling to reduce failure potential or complete tree replacement. | |
| 1555 | Flame Ash (<i>Fraxinus angustifolia</i> 'Flame') | 10.5 | 11 | Good | Poor-Good | Maintained street tree. Included bark on main trunk. | 2 | 2 | 4 | Moderate (8) | Moderate | Monitor on 2-5 year cycle. | |
| 1556 | Flame Ash (<i>Fraxinus angustifolia</i> 'Flame') | 10.1 | 11 | Good | Good | Maintained street tree. | 0 | 0 | 4 | Low (4) | High | | |
| #5 - Urban League Building Site | | | | | | | | | | | | | |
| 1557 | Columnar tulip tree (<i>Liriodendron tulipifera</i> 'Fastigiatum') | 7.4 | 8 | Fair-Good | Good | Maintained street tree. | 0 | 0 | 4 | Low (4) | High | | |
| 1558 | Columnar tulip tree (<i>Liriodendron tulipifera</i> 'Fastigiatum') | 10.6 | 11 | Good | Good | Maintained street tree. | 0 | 0 | 4 | Low (4) | High | | |

Yesler Extension E. Yesler Way 14th Street

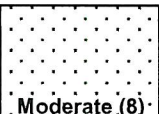
January 4, 2011

| | | | | | | | | | | | | | |
|------|--|------|----|------|-----------|--|---|---|---|--------------|---------------|---|--|
| 1559 | Ornamental pear (<i>Pyrus calleryana</i> 'Redspire') | 8.6 | 9 | Good | Good | Maintained street tree. | 0 | 0 | 4 | Low (4) | High | | |
| 1560 | Flame Ash (<i>Fraxinus angustifolia</i> 'Flame') | 4.5 | 6 | Good | Fair | Maintained street tree. | 0 | 0 | 4 | Low (4) | Moderate | | |
| 1561 | Red oak (<i>Quercus rubra</i>) | 22.3 | 23 | Good | Good | Maintained street tree. Old basal wound 2"x12". Has been pruned on west side for building clearance. | 2 | 3 | 4 | High (9) | High | Monitor annually. | |
| 1562 | Red oak (<i>Quercus rubra</i>) | 16.3 | 17 | Good | Fair-Good | Maintained street tree. Old basal wounds, 5"x8", 6"x7" 2"x6". Has been pruned on west side for building clearance. | 2 | 2 | 4 | Moderate (8) | High | Monitor on 2-5 year cycle. | |
| 1563 | Red oak (<i>Quercus rubra</i>) | 18.0 | 18 | Good | Good | Maintained street tree. Has been pruned on west side for building clearance. | 0 | 0 | 4 | Low (4) | High | | |
| 1564 | Red oak (<i>Quercus rubra</i>) | 24.0 | 24 | Good | Good | Dead branches in crown. | 1 | 1 | 4 | Moderate (6) | High | Crown clean. | |
| 1565 | Red oak (<i>Quercus rubra</i>) | 16.8 | 17 | Good | Good | Dead branches in crown. | 1 | 1 | 4 | Moderate (6) | High | Crown clean. | |
| 1566 | Red oak (<i>Quercus rubra</i>) | 28.2 | 29 | Good | Good | Dead branches in crown. | 1 | 1 | 4 | Moderate (6) | High | Crown clean. | |
| 1567 | Red oak (<i>Quercus rubra</i>) | 17.5 | 18 | Good | Good | Dead branches in crown. | 1 | 1 | 4 | Moderate (6) | High | Crown clean. | |
| 1568 | Red oak (<i>Quercus rubra</i>) | 18.9 | 19 | Good | Good | Dead branches in crown. | 1 | 1 | 4 | Moderate (6) | High | Crown clean. | |
| 1569 | Red oak (<i>Quercus rubra</i>) | 22.1 | 23 | Good | Good | Lacks normal root flare on the north side of the trunk. | 1 | 3 | 4 | Moderate (8) | High | Crown clean. | |
| 1570 | Red oak (<i>Quercus rubra</i>) | 21.6 | 22 | Good | Good | | 1 | 3 | 4 | Moderate (8) | High | Crown clean. | |
| 1571 | Red oak (<i>Quercus rubra</i>) | 29.7 | 30 | Good | Good | Leans toward north, stable. Old history of root pruning along sidewalk evident at root flare. Sidewalk is slightly heaved. | 2 | 3 | 4 | High (9) | Moderate-High | Crown clean. Monitor on 2-5 year cycle. | |

Yesler Extension
E. Yesler Way 14th Street

January 4, 2011

1B - Baldwin Apartments

| | | | | | | | | | | | | | |
|------|--|------|-----|------|------|---|---|---|---|--|-------------------|--|--|
| 1572 | Port Orford Cedar (<i>Chamaecyparis lawsoniana</i>) | 17.4 | N/A | Poor | Poor | Severely topped. Large ragged wound on upper trunk. Low live crown ratio. | 2 | 2 | 4 |  Moderate (8) | None ^b | | |
|------|--|------|-----|------|------|---|---|---|---|--|-------------------|--|--|

a = Outside of East of 12th Sector boundaries.
b = Per arborist, preservation value for this tree is Low.

DEFINITIONS AND NOTES:

- (1) **d.b.h.** = Diameter at breast height (approximately 4.5 ft. above surface grade).
- (2) **Critical Rootzone (CRZ)** = A circular area under a tree to be protected from construction activities. This area is equal to 1 ft. radius for every 1 in. diameter of tree measured at 4.5 ft. above ground.
- (3) **Vigor** = Health based on size and color of leaf or needle and length of twig growth.
- (4) **Structure** = Trunk and branch development and it's estimated susceptibility to failure.
- (5) **Comments Explanation:**
 - (a) Included Bark = Junction just below two branches where bark ridge is curled inward towards center of tree creating high probability of failure.
 - (b) Live Crown Ratio = Size of the canopy relative to total tree height..

Tree Risk Assessment information provided in the table and listed below are as described in 'Tree Risk Assessment in Urban Areas and the Urban/Rural Interface', Dunster, J. 2009. Pacific Northwest Chapter, International Society of Arboriculture.

(6) **Probability of failure** = The estimate of tree stability or limb attachment based on its present condition.

- | | |
|--------------|--|
| 1 = Low | Defect(s) not likely to lead to imminent failure. No further action required. |
| 2 = Moderate | Well established defects, not typical to lead to failure for several years. Retain and monitor. |
| 3 = Mod-High | Well established defects, but not yet high priority for management. Retain and monitor. |
| 4 = High | Defect is serious with imminent failure likely. Corrective action is required within days to weeks. |
| 5 = Extreme | The tree or a component part is already failing. An emergency situation where treatment is required today. |

(7) **Size of defective parts**

- 1 = branches or stems up to 4-inch diameter.
- 2 = branches or stems 4 to 20-inch diameter.
- 3 = branches or stems larger than 20-inch diameter.

Yesler Extension
E. Yesler Way 14th Street

January 4, 2011

(8) Target rating

- 1 = Low. Site has low relative occupancy within any one day. No valuable buildings or facilities within striking range.*
- 2 = Moderate. Valuable buildings at the edge of striking distance. Occupied by people less than 50% of the time span in any one day, week, or month.*
- 3 = Moderately High. Valuable buildings within striking range. People in striking range more than 50% of the time span in any one day, week, or month.*
- 4 = High. Buildings within striking range frequently accessed by people, often for longer periods of time, or by high volumes of people coming and going.*

(9) Overall risk rating and Active Thresholds

- 3 = Low 1 Insignificant - no concern at all.*
- 4 = Low 2 Insignificant - very minor issues.*
- 5 = Low 3 Insignificant - minor issues not of concern for many years yet.*
- 6 = Moderate 1 Some issues but nothing that is likely to cause any problems for another 10 years or more.*
- 7 = Moderate 2 Well defined issues - retain and monitor. Not expected to be a problem for at least another 5 - 10 years.*
- 8 = Moderate 3 Well defined issues - retain and monitor. Not expected to be a problem for at least another 1-5 years.*
- 9 = High 1 The assessed issues have now become very clear. The tree can still be reasonably retained as it is not likely to fall apart right away, but it must now be monitored annually. At this stage it may be reasonable for the risk manager/owner to hold public education sessions to inform people of the issues and prepare them for the reality that part or the entire tree has to be removed.*
- 10 = High 2 The assessed issues have now become very clear. The probability of failure is now getting serious, or the target rating and/or site context have changed such that mitigation measures should now be on a schedule with a clearly defined timeline for action. There may still be time to inform the public of the work being planned, but there is not enough time for protracted discussion about whether or not there are alternative options available.*
- 11 = High 3 The tree, or a part of it has reached a stage where it could fail at any time. Action to mitigate the risk is required within weeks rather than months. By this stage there is not time to hold public meetings to discuss the issue. Risk reduction is a clearly defined issue and although the owner may wish to inform the public of the planned work, he/she should get on with it to avoid clearly foreseeable liabilities.*
- 12 = Extreme This tree, or a part of it is in process of failing. Immediate action is required. All other less significant tree work should be suspended, and roads or work areas should be closed off until the risk issues have been mitigated. This might be as simple as removing the critical part, drastically reducing the overall tree height, or taking the tree down and cordoning off the area until final clean up or complete removal can be accomplished. The immediate action required is to ensure that the clearly identified risk of harm is eliminated. For areas hit by severe storms, where extreme risk trees can occur, drastic pruning and/or partial tree removals, followed by barriers to contain traffic, would be an acceptable first stage of risk reduction. There is not time to inform people or worry about public concerns. Clearly defined safety issues preclude further discussion.*

Yesler Extension
E. Yesler Way 14th Street

January 4, 2011

(10) Preservation Value Explanation:

LOW = Poor specimen

MODERATE = Common species with minimal character.

HIGH = Good character tree, save if possible.

SPECIAL = Unique species, save if possible.

(11) Maintenance Recommendations Explanation: These recommendations are based on the condition of the trees as they are now.

(a) Crown Clean = Selective removal of one or more of the following items: dead, dying, diseased, weak branches, and watersprouts from a tree's crown.

(b) Crown Thin = Selective removal of branches to increase light penetration, air movement, and reduce end weight.

(c) Crown Raise = Selective removal of lower branches of the tree in order to provide clearance.

(d) Crown Reduction = Reduction in size or height of tree by pruning away height or width. Arborist must be knowledgeable of the ability of the species to sustain this type of pruning.

(e) Crown Restoration = Pruning to improve the structure, form, and appearance of trees that have been severely headed, vandalized, or storm damaged.

(f) Cable and/or Brace = Cabling and/or Bracing would decrease the potential risk of failure, but not eliminate the possibility.

(g) Remove = The high to extreme risk of failure warrants that the tree shall be removed immediately.

(h) Create Wildlife Snag = Danger trees cut to wildlife snags provide perching, nesting, and a source of food for birds and other wildlife.

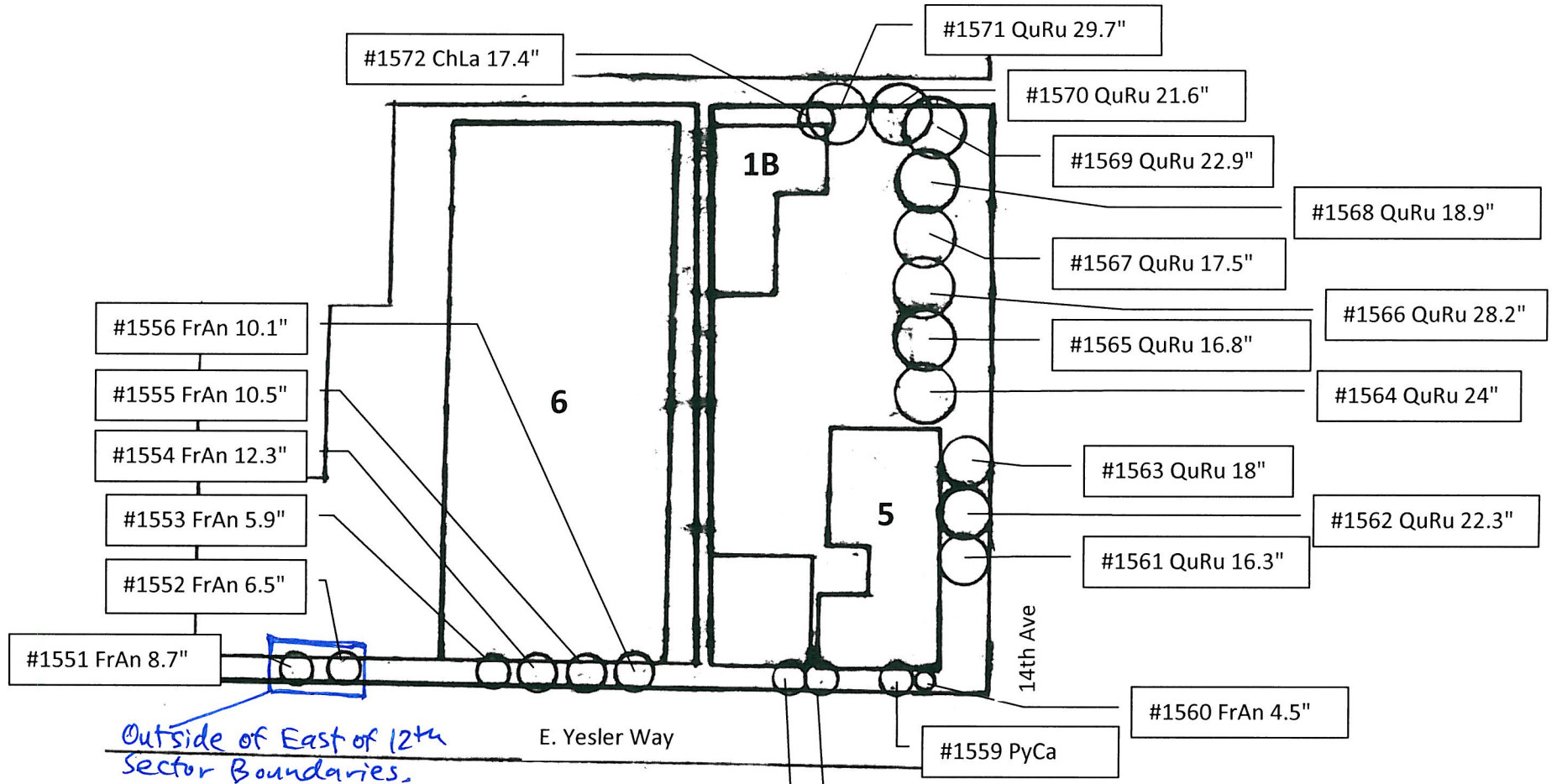
(i) Monitor = These are trees of a particular species or condition that may be prone to more rapid decline than other trees. These trees should be inspected at least annually for changing conditions, or as noted.

(12) PRUNING NOTE:

Pruning shall be performed by an ISA Certified Arborist with proven knowledge and ability using ANSI A300 Pruning Specifications.

The actual work should be bid by companies qualified to do the work.

**YESLER TERRACE EXTENDED AREA - E. Yelser Way & 14th Ave., Seattle, WA
TREE INVENTORY**



KEY

Tree# / Name / Diameter

FrAn = *Fraxinus angustifolia*, Flame Ash
 LiTu = *Liriodendron tulipifera* 'Fastigiata', Columnar tulip tree
 PyCa = *Pyrus calleryana* 'Redspire', Flowering pear
 QuRu = *Quercus rubra*, Red oak
 ChLa = *Chamaecyparis lawsoniana*, Port Orford cedar



Tree Inventory by Urban Forestry Services, Inc.
 15119 McLean Road, Mount Vernon, WA 98273

360-428-5810

January 4, 2011

Selected Site Photographs



1. Baldwin Apartments street trees along 14th Avenue.



2. Urban League street trees facing north along 14th Avenue.



3. Urban League street trees facing northwest along Yesler Way.



4. King County Archives street trees along Yesler Way facing west.



5. King County Archives facing west along E Fir Street.

Exceptional Trees and Valuable Trees Matrix

TABLE 5-1
YESLER TERRACE EXCEPTIONAL TREES*
YESLER TERRACE REDEVELOPMENT PROJECT - SEATTLE, WASHINGTON

| Tree Tag # | Sector | Species | Preservation Value | Exceptional Designation | Exceptional Trees to be Preserved under each Alternative | | | | |
|--|--------|---|----------------------------|--|--|------------|------------|------------|-----------------------|
| | | | | | Alt 1 & 1A | Alt 2 | Alt 3 | Alt 4 | Preferred Alternative |
| 26 | NW | Red oak (<i>Quercus rubra</i>) | High | Yes | | | | | |
| 27 | NW | Red oak (<i>Quercus rubra</i>) | High (+) | YES (+) | | | | | |
| 75 | NW | Purple-leaf plum (<i>Prunus cerasifera</i> 'Atropurpurea') | Moderate | Yes (+) | | | | | |
| 89 | NW | Black locust (<i>Robinia pseudoacacia</i>) | Moderate | Yes | X | X | X | | X |
| 116 | NW | English oak (<i>Quercus robur</i>) | Moderate. | Yes | X | X | X | X | X |
| 142 | NW | Horsechestnut (<i>Aesculus hippocastanum</i>) | Moderate - High | Yes | | | | | |
| 158 | SW | Japanese maple (<i>Acer palmatum</i>) | Special (+++) | Yes-very nice tree! (+++) | X | | | | |
| 167 | SW | Yellow Buckeye (<i>Aesculus octanda</i>) | Special | Yes (+++) | | | | | |
| 176 | SW | Black locust (<i>Robinia pseudoacacia</i>) | Moderate | Yes | | | | | |
| 190 | SW | Yellow buckeye (<i>Aesculus octanda</i>) | Special (+++) | Yes | | | | | X |
| 213 | SW | Norway maple (<i>Acer platanoides</i>) | Low | Yes | X | | | | |
| 282 | SE | Deodor cedar (<i>Cedrus deodara</i>) | Moderate | Yes but challenging species and location on wall | | | | | |
| 323 | SE | Silver maple (<i>Acer saccharinum</i>) | Moderate (-) | Yes | | | | | X |
| 338 | SW | Red oak (<i>Quercus rubra</i>) | High - Exceptional (++) | Yes | | X | X | X | X |
| 339 | NE | American elm (<i>Ulmus americana</i>) | Special (++) | Yes (++) | | | | X | |
| 353 | NE | Monterey cypress (<i>Cupressus macrocarpa</i>) | Special/ EXCEPTIONAL (+++) | Yes (+++) | | X | X | | X |
| 360 | NE | English elm (<i>Ulmus procera</i>) | Low | Yes with reservations | | | | | |
| 367 | NE | Westeran red cedar (<i>Thuja plicata</i>) | HIGH | Yes | | | | | |
| 369 | NE | Westeran red cedar (<i>Thuja plicata</i>) | HIGH | Yes | X | X | | | |
| 370 | NE | Norway maple (<i>Acer platanoides</i>) | Moderate (-) | Yes | | | | | |
| 373 | NE | Norway maple (<i>Acer platanoides</i>) | HIGH | Yes | | X | | | |
| 376 | EOB | Red oak (<i>Quercus rubra</i>) | Moderate - High | Yes | | | | X | X |
| TOTALS | | 22 | | | 5 | 6 | 4 | 4 | 7 |
| PERCENTAGE OF EXISTING EXCEPTIONAL TREES RETAINED | | | | | 23% | 27% | 18% | 18% | 32% |

* List of trees derived from Urban Forestry Services, Inc. tree evaluation matrices (June 2010 and January 2011). See Attachment 3 for all trees.

TABLE 5-2
YESLER TERRACE VALUABLE TREES*
YESLER TERRACE REDEVELOPMENT PROJECT - SEATTLE, WASHINGTON

| Tree Tag # | Sector | Species | Preservation Value | Valuable Trees to be Preserved under each Alternative | | | | |
|------------|--------|---|--------------------|---|-------|-------|-------|-----------------------|
| | | | | Alt 1 & 1A | Alt 2 | Alt 3 | Alt 4 | Preferred Alternative |
| 14 | NW | Port Orford cedar (<i>Chamaecyparis lawsoniana</i>) cultivar | Moderate | | | | X | |
| 17 | NW | European white birch (<i>Betula pendula</i>) | Moderate | | | | | |
| 24 | NW | Japanese white pine (<i>Pinus parviflora</i>) | Moderate | | | | | X |
| 32 | NW | Mountain pine (<i>Pinus mugo</i> ssp. <i>uncinata</i>) | Moderate | X | | X | | X |
| 42 | NW | Rocky Mountain glow maple (<i>Acer grandidentatum</i> 'Schmidt') | High | | | | | |
| 43 | NW | European white birch (<i>Betula pendula</i>) | Moderate | | | | | |
| 51 | NW | European white birch (<i>Betula pendula</i>) | Moderate | | | | | X |
| 54 | NW | Vine maple (<i>Acer circinatum</i>) | Moderate | | X | X | X | |
| 63 | NW | Norway spruce (<i>Picea abies</i>) | Moderate | | | | | |
| 73 | NW | Deodor cedar (<i>Cedrus deodara</i>) | High | | | | | |
| 88 | NW | Norway maple (<i>Acer platanoides</i>) | High | X | X | X | | |
| 95 | NW | Chinese juniper (<i>Juniperus chinensis</i>) | Moderate | X | | | | |
| 96 | NW | Lavalle Hawthorn (<i>Crataegus x lavalleyi</i>) | High | | X | | | |
| 97 | NW | European white birch (<i>Betula pendula</i>) | High | | | | | |
| 100 | NW | European white birch (<i>Betula pendula</i>) | High | | | | | |
| 102 | NW | Lavalle hawthorn (<i>Crataegus x lavalleyi</i>) | Moderate | | | | X | |
| 114 | NW | Horsechestnut (<i>Aesculus hippocastanum</i>) | High | X | | | X | |
| 115 | NW | English oak (<i>Quercus robur</i>) | High | X | | | X | |
| 117 | NW | Fruiting plum, prunus x domestica | Moderate | | | | | |
| 120 | NW | European white birch (<i>Betula pendula</i>) | High (+) | | | | | |
| 122 | NW | European white birch (<i>Betula pendula</i>) | High (-) | | | | | |
| 123 | NW | European white birch (<i>Betula pendula</i>) | Moderate | | | | | |
| 130 | NW | Purple-leaf plum (<i>Prunus cerasifera</i> 'Atropurpurea') | Moderate | | | | X | |
| 131 | NW | European white birch (<i>Betula pendula</i>) | High | | | | | |
| 132 | NW | White mulberry (<i>Morus alba</i>) | Moderate | | | | | |
| 137 | NW | Rocky Mountain glow maple (<i>Acer grandidentatum</i> 'Schmidt') | High | X | | X | X | X |
| 140 | NW | Port Orford Cedar (<i>Chamaecyparis lawsoniana</i>) cultivar | Moderate | | | | X | |
| 143 | NW | Fruiting cherry (<i>Prunus</i> sp.) | Moderate | | | | | |

TABLE 5-2
YESLER TERRACE VALUABLE TREES*
YESLER TERRACE REDEVELOPMENT PROJECT - SEATTLE, WASHINGTON

| Tree Tag # | Sector | Species | Preservation Value | Valuable Trees to be Preserved under each Alternative | | | | |
|------------|--------|--|--------------------|---|-------|-------|-------|-----------------------|
| | | | | Alt 1 & 1A | Alt 2 | Alt 3 | Alt 4 | Preferred Alternative |
| 150 | NW | Sawara falsecypress (<i>Chamaecyparis pisifera</i>) cultivar | Moderate | | | | | X |
| 159 | SW | Hinoki falsecypress (<i>Chamaecyparis obtusa</i>) | High | X | | | | |
| 162 | SW | Saucer magnolia (<i>Magnolia x soulangeana</i> , 'Rustica Rubra') | Moderate | | | | | |
| 168 | SW | Italian stone pine (<i>Pinus pinea</i>) | Moderate | | | | | |
| 169 | SW | European white birch (<i>Betula pendula</i>) | Moderate | | X | X | | X |
| 173 | SW | Douglas-fir (<i>Pseudotsuga menzeisii</i>) | Moderate | X | X | | | X |
| 174 | SW | Lavalle hawthorn (<i>Crataegus x lavalleyi</i>) | Special (+) | | | | | X |
| 175 | SW | Thundercloud flowering plum (<i>Prunus cerasifera</i> 'Thundercloud') | Moderate - High | | | X | X | X |
| 179 | SW | Western red cedar (<i>Thuja plicata</i>) cultivar | Moderate - High | | | | | |
| 185 | SW | European white birch (<i>Betula pendula</i>) | High | | | | | |
| 186 | SW | Norway maple (<i>Acer platanoides</i>) | Moderate | | | | | |
| 189 | SW | Schwedler Maple (<i>Acer platanoides</i> 'Schwedleri') | High (++) | | | | | |
| 191 | SW | European white birch (<i>Betula pendula</i>) | Moderate | | | | | |
| 192 | SW | European white birch (<i>Betula pendula</i>) | Moderate - High | | | | | |
| 193 | SW | European white birch (<i>Betula pendula</i>) | High (+) | | | | | |
| 195 | SW | Port Orford cedar (<i>Chamaecyparis lawsoniana</i>) cultivar | Moderate | X | X | X | | X |
| 199 | SW | Norway maple (<i>Acer platanoides</i>) | Moderate - High | | | | | |
| 200 | SW | Red oak (<i>Quercus rubra</i>) | Moderate - High | X | | | | |
| 206 | SW | Scots pine (<i>Pinus sylvestris</i>) | High | X | X | X | X | X |
| 207 | SW | Scots pine (<i>Pinus sylvestris</i>) | High | X | X | X | X | X |
| 208 | SW | Purple-leaf sycamore maple (<i>Acer pseudoplatanus</i> 'Atropurpureum') | Moderate | X | | | | |
| 215 | SW | Black locust (<i>Robinia pseudoacacia</i>) | Moderate | | | | | |
| 219 | SW | Fruit apple (<i>Malus</i> sp.) | Moderate | X | | | | |
| 223 | SW | Grand fir (<i>Abies grandis</i>) | High | X | | | | |
| 228 | SW | Horsechestnut (<i>Aesculus hippocastanum</i>) | Moderate - High | X | | | | |
| 231 | SW | European white birch (<i>Betula pendula</i>) | Moderate | | | | | |

TABLE 5-2
YESLER TERRACE VALUABLE TREES*
YESLER TERRACE REDEVELOPMENT PROJECT - SEATTLE, WASHINGTON

| Tree Tag # | Sector | Species | Preservation Value | Valuable Trees to be Preserved under each Alternative | | | | |
|------------|--------|--|--------------------|---|-------|-------|-------|-----------------------|
| | | | | Alt 1 & 1A | Alt 2 | Alt 3 | Alt 4 | Preferred Alternative |
| 233 | SW | Purple-leaf sycamore maple (<i>Acer pseudoplatanus</i> 'Atropurpureum') | Moderate-High | | | | | |
| 236 | SW | Norway spruce (<i>Picea abies</i>) | Moderate | | | | | X |
| 237 | SW | Sawara falsecypress (<i>Chamaecyparis pisifera</i>) | Moderate | | | | X | |
| 239 | SW | Norway maple (<i>Acer platanoides</i>) | Moderate - High | X | | | X | |
| 240 | SE | Purple-leaf sycamore maple (<i>Acer pseudoplatanus</i> 'Atropurpureum') | Moderate. | | | | | |
| 259 | SE | Norway maple (<i>Acer platanoides</i>) | Moderate | | | | | |
| 260 | SE | Fruit pear (<i>Pyrus</i> sp.) | Moderate | | | | | |
| 263 | SE | English yew (<i>Taxus bacatta</i>) | Moderate | | | | | |
| 264 | SE | Black locust (<i>Robinia pseudoacacia</i>) | Moderate | | | | | |
| 278 | SE | Japanese white pine (<i>Pinus parviflora</i>) | Special (++) | | | | X | |
| 279 | SE | Norway maple (<i>Acer platanoides</i>) | HIGH | | | | | |
| 280 | SE | Deodor cedar (<i>Cedrus deodara</i>) | HIGH | | X | | X | |
| 281 | SE | Horsechestnut (<i>Aesculus hippocastanum</i>) | Special | | | | X | |
| 290 | SE | Black locust (<i>Robinia pseudoacacia</i>) | Moderate | | | | X | X |
| 291 | SE | Sawara falsecypress (<i>Chamaecyparis pisifera</i> 'Boulevard') blue form | Moderate | | | | | X |
| 293 | SE | Chinese photinia (<i>Photinia serrulata</i>) | Moderate - High | | X | | | X |
| 294 | SE | Port Orford cedar (<i>Chamaecyparis lawsoniana</i>) | High (+) | X | | | | X |
| 295 | SE | Port Orford cedar (<i>Chamaecyparis lawsoniana</i>) | High(+) | X | | X | | X |
| 296 | SE | Port Orford cedar (<i>Chamaecyparis lawsoniana</i>) | High(+) | X | | | | X |
| 297 | SE | Port Orford cedar (<i>Chamaecyparis lawsoniana</i>) | (+) | | | | | |
| 298 | SE | Sawara falsecypress (<i>Chamaecyparis pisifera</i> 'Plumosa Aurea') | Moderate | | | | | |
| 308 | SE | Douglas-fir (<i>Pseudotsuga menzeisii</i>) | Moderate - High | | | X | | |
| 310 | SE | Norway maple (<i>Acer platanoides</i>) | Moderate | | | X | | |
| 313 | SE | Western red cedar (<i>Thuja plicata</i>) | Moderate | | | | | |

TABLE 5-2
YESLER TERRACE VALUABLE TREES*
YESLER TERRACE REDEVELOPMENT PROJECT - SEATTLE, WASHINGTON

| Tree Tag # | Sector | Species | Preservation Value | Valuable Trees to be Preserved under each Alternative | | | | |
|------------|--------|---|---------------------|---|-------|-------|-------|-----------------------|
| | | | | Alt 1 & 1A | Alt 2 | Alt 3 | Alt 4 | Preferred Alternative |
| 321 | SE | Purple-leaf sycamore maple (<i>Acer pseudoplatanus</i> 'Atropurpureum') | HIGH | | | | | X |
| 322 | SE | Silver maple (<i>Acer saccharinum</i>) | Moderate | | | | | X |
| 324 | SE | Western red cedar (<i>Thuja plicata</i>) | Moderate | | | | | |
| 329 | SE | Port Orford cedar (<i>Chamaecyparis lawsoniana</i>) | HIGH | X | | X | X | X |
| 330 | SE | Flowering plum (<i>Prunus</i> sp.) | Moderate | | | | | X |
| 332 | SE | European white birch (<i>Betula pendula</i>) | HIGH | X | X | X | X | X |
| 333 | SE | Scots pine (<i>Pinus sylvestris</i>) | Moderate | X | X | X | X | X |
| 335 | SE | Scots pine (<i>Pinus sylvestris</i>) | High | | X | X | | X |
| 341 | NE | Red oak (<i>Quercus rubra</i>) | Moderate | | | X | X | X |
| 346 | NE | Scots pine (<i>Pinus sylvestris</i>) | Moderate | | | | | |
| 351 | NE | Western red cedar (<i>Thuja plicata</i>) | HIGH | | | | | |
| 355 | NE | Norway maple (<i>Acer platanoides</i>) | Moderate | | | | | X |
| 358 | NE | Chinese photinia (<i>Photinia serrulata</i>) | Special (++) | X | X | X | | X |
| 368 | NE | Chinese photinia (<i>Photinia serrulata</i>) | HIGH | | | | | |
| 374 | NE | Chinese photinia (<i>Photinia serrulata</i>) | Moderate | X | | X | X | X |
| 375 | EOB | Norway maple (<i>Acer platanoides</i>) | Moderate | | | | | X |
| 382 | EOB | Western red cedar (<i>Thuja plicata</i>) | Moderate | | | | | |
| 391 | NE | Western red cedar (<i>Thuja plicata</i>) | Moderate - High (+) | X | | X | X | X |
| 392 | NE | Siberian elm (<i>Ulmus pumila</i>) | Low (+) | X | | X | X | X |
| 393 | NE | Norway spruce (<i>Picea abies</i>) | Moderate (+) | X | | X | X | X |
| 394 | NE | Port Orford Cedar (<i>Chamaecyparis lawsoniana</i>) | Special (+) | | | X | | X |
| 395 | NE | Rocky Mountain Ponderosa Pine (<i>Pinus ponderosa</i> var. <i>scopulorum</i>) | Moderate (+) | X | X | X | X | X |
| 401 | NE | Scots pine (<i>Pinus sylvestris</i>) | Moderate | | X | X | X | X |
| 402 | NE | Western red cedar (<i>Thuja plicata</i>) | High | X | X | | X | X |
| 403 | NE | Common or English Hawthorn, (<i>Crataegus monogyna</i>) | Moderate - High | X | X | | | X |
| 404 | NE | Norway maple (<i>Acer platanoides</i>) | Moderate - High | | | | | |
| 405 | NE | Thornless cockspur hawthorn (<i>Crataegus crus-gali</i> 'Inermis') | Moderate - High | X | X | | X | X |

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| Tree Tag # | Sector | Species | Preservation Value | Valuable Trees to be Preserved under each Alternative | | | | |
|---|--------------|---|--------------------|---|------------|------------|------------|-----------------------|
| | | | | Alt 1 & 1A | Alt 2 | Alt 3 | Alt 4 | Preferred Alternative |
| 1553 | East of 12th | Flame Ash (<i>Fraxinus angustifolia</i> 'Flame') | High | N/A | N/A | N/A | N/A | X |
| 1555 | East of 12th | Flame Ash (<i>Fraxinus angustifolia</i> 'Flame') | Moderate | N/A | N/A | N/A | N/A | X |
| 1556 | East of 12th | Flame Ash (<i>Fraxinus angustifolia</i> 'Flame') | High | N/A | N/A | N/A | N/A | X |
| 1557 | East of 12th | Columnar tulip tree (<i>Liriodendron tulipifera</i> 'Fastigiatum') | High | N/A | N/A | N/A | N/A | X |
| 1558 | East of 12th | Columnar tulip tree (<i>Liriodendron tulipifera</i> 'Fastigiatum') | High | N/A | N/A | N/A | N/A | X |
| 1559 | East of 12th | Ornamental pear (<i>Pyrus calleryana</i> 'Redspire') | High | N/A | N/A | N/A | N/A | X |
| 1560 | East of 12th | Flame Ash (<i>Fraxinus angustifolia</i> 'Flame') | Moderate | N/A | N/A | N/A | N/A | X |
| 1561 | East of 12th | Red oak (<i>Quercus rubra</i>) | High | N/A | N/A | N/A | N/A | X |
| 1562 | East of 12th | Red oak (<i>Quercus rubra</i>) | High | N/A | N/A | N/A | N/A | X |
| 1563 | East of 12th | Red oak (<i>Quercus rubra</i>) | High | N/A | N/A | N/A | N/A | X |
| 1564 | East of 12th | Red oak (<i>Quercus rubra</i>) | High | N/A | N/A | N/A | N/A | X |
| 1565 | East of 12th | Red oak (<i>Quercus rubra</i>) | High | N/A | N/A | N/A | N/A | X |
| 1566 | East of 12th | Red oak (<i>Quercus rubra</i>) | High | N/A | N/A | N/A | N/A | X |
| 1567 | East of 12th | Red oak (<i>Quercus rubra</i>) | High | N/A | N/A | N/A | N/A | X |
| 1568 | East of 12th | Red oak (<i>Quercus rubra</i>) | High | N/A | N/A | N/A | N/A | X |
| 1569 | East of 12th | Red oak (<i>Quercus rubra</i>) | High | N/A | N/A | N/A | N/A | X |
| 1570 | East of 12th | Red oak (<i>Quercus rubra</i>) | High | N/A | N/A | N/A | N/A | X |
| 1571 | East of 12th | Red oak (<i>Quercus rubra</i>) | Moderate - High | N/A | N/A | N/A | N/A | X |
| TOTALS | | 123 | | 32 | 19 | 25 | 29 | 58 |
| PERCENTAGE OF EXISTING VALUABLE TREES RETAINED | | | | 30% | 18% | 24% | 28% | 47% |

* List of trees derived from Urban Forestry Services, Inc. tree evaluation matrices (June 2010 and January 2011). See Attachment 3 for all trees.

N/A = Not applicable. Trees listed in East of 12th Sector apply only to the Preferred Alternative.

**U.S. Army Corps of Engineers
Preliminary Jurisdictional Determination**

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

- A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): March 25, 2010
- B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:
Ryan Moore, Seattle Housing Authority, P.O. Box 19028, Seattle, WA 98109
- C. DISTRICT OFFICE, FILE NAME, AND NUMBER: Seattle District, NWS-2010-1305, Moore, Ryan (Seattle Housing Authority)

PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

State: WA County: King City: Seattle
 Center coordinates of site (lat/long in degree decimal format): Lat. 47.60057°N, Long. -122.32084°W
 Name of nearest waterbody: Elliott Bay, Puget Sound
 Name of any water bodies on the site, in the review area, that have been identified as Section 10 waters:
 Tidal: _____
 Non-Tidal: _____

Identify (estimate) amount of waters in the review area (if there are multiple sites, use the table instead):

Non-wetland waters (total for site): linear feet _____ and width (ft) _____ or _____ acres.

Stream Flow: Pick List Flow path: _____

Wetlands: 0.016 acres (total for site).

Cowardin Class(es): PEM

| Name/Type of Water | Latitude | Longitude | Cowardin Class | Estimated amount of aquatic resource in review area | Class of aquatic resource |
|--------------------|----------|------------|----------------|---|---------------------------|
| Wetland A | 47.6000 | -122.32107 | PEM | 645 square ft | Category IV |
| Wetland B | 47.6000 | -122.32054 | PEM | 38 square ft | Category IV |
| | | | | | |
| | | | | | |

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- ☒ Office (Desk) Determination. Date: March 25, 2011
☐ Field Determination. Date(s): _____

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Submitted on November 19, 2010.
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report. Explain: _____
☐ Data sheets prepared by the Corps: _____
☐ Corps navigable waters' study: _____
☐ U.S. Geological Survey Hydrologic Atlas: _____
☐ USGS NHD data. ☐ USGS 8 and 12 digit HUC maps.
☐ U.S. Geological Survey map(s). Cite scale & quad name: _____
☐ USDA Natural Resources Conservation Service Soil Survey. Citation: _____
☐ National wetlands inventory map(s). Cite name: _____
☐ State/Local wetland inventory map(s): _____
☐ FEMA/FIRM maps: _____
☐ 100-year Floodplain Elevation is: _____ (National Geodetic Vertical Datum of 1929)
☐ Photographs: ☐ Aerial (Name & Date): _____
☒ Photographs: ☒ Other (Name & Date): Submitted on November 19, 2010.
☐ Previous determination(s). File no., date (and findings) of response letter (determination and coordination): _____
☐ Other information (please specify): _____

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the information in this document.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

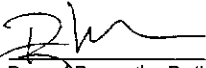
Signature:



Regulatory Project Manager

3/24/11

Date



Person Requesting Preliminary JD

3/24/11

Date

¹ Permit applicant, landowner, a lease, easement or option holder, or individual with identifiable and substantial legal interest in the property; this signature is not required for preliminary JDs associated with enforcement actions.