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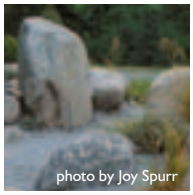

Schematic Design for

South Entry / Madrona Terrace

Washington Park Arboretum

THE PORTICO GROUP

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1. Overview

Seattle Parks and Recreation (Parks), the University of Washington (UW) and the Arboretum Foundation (Foundation) are undertaking an extensive program to improve the Washington Park Arboretum. *Renewing the Arboretum*, the master plan adopted by the City and UW in May 2001, identifies the planned improvements. The Madrona Terrace project will be the first major step to implement the Master Plan. Parks, the UW and Foundation chose this project because of its visibility and the capacity to fulfill the fundamental tenets of the master plan - conservation, education and recreation. The Arboretum Botanical Garden Committee (ABGC) approved a design program (attached) that identified the project elements, design tasks and review steps to create the schematic design. The ABGC issued a request for qualifications and selected The Portico Group to complete the work.

This report summarizes the status of the project at the conclusion of the schematic design phase. This phase provides drawings and text that fix and describe the size and character of major elements of the project in detail as to size, location, appearance, and finish. The ABGC's endorsement of this schematic design establishes it as the basis for subsequent design refinements, and ultimately construction contract documents.

Development of the schematic design included participation of UW, Parks and the Foundation staff and community stakeholders in two, two-day charrettes. Broader public participation was encouraged through two widely advertised public meetings.

2. Project Program

The master plan program elements for Madrona Terrace are to:

- **Renovate the existing rockery at the intersection of Lake Washington Boulevard and Arboretum Drive.**
  Celebrate and restore the link to the past – the alpine rock garden designed in 1938 by Otto Holmdahl.

- **Create geographic exhibits adjacent to the rockery area**
  Arrange collections based on habitat and allow visitors to compare and contrast our NW cool winter rain, summer drought climate and habitat with other similar places found around the world.

- **Build a new interpretive shelter**
  Provide a rain protected shelter as a focus for education programs, field trips and interpretation of the geographic exhibits.

- **Build a new 30 car parking lot**
  Consolidate two of the small pull-outs along Arboretum Drive to serve visitors to the geographic exhibits by locating parking in close proximity to the areas of activities and programs; in a location that does not visually impact the experience along Arboretum Drive.

- **Integrate demonstration trial gardens around the parking lot and shelter to test plants for their horticultural value**
  Showcase plants suited for hot reflective heat of parking lots, and provide horticultural demonstration of plants found in each of the geographic collections.

- **Provide interpretive and wayfinding signs**
  Share the history of the Park and Arboretum, the unique collection of woody plants with the public and explain why these plants are here; to offer trail orientation and direction.

- **Install irrigation for the exhibits**
  Provide irrigation in appropriate amounts to plants selected to showcase their adaptability to our cool winter, summer drought climate. Water-saving irrigation systems and plants appropriate to the climate will be chosen to demonstrate conservation techniques.

3. Design Criteria

The design criteria evolved from the Master Plan program. The program elements were reviewed, discussed and expanded to provide guidance for the development of the schematic design. The design criteria are organized around the following categories:

Site, Collections and Structures

- Create an immersive environment that transports the visitor from the context of a northwest forest to other places around the world that are similar to Seattle and the Pacific Northwest.
- Respond to the context of the site - Park and Arboretum, forested ridge, existing collections, native trees, high point of Arboretum, Arboretum Creek, south and west facing slopes, and views from Japanese Garden, Lake Washington Boulevard and Arboretum Drive.
- Reflect and respond to the traditions of the legacy of the Olmsted Brothers 1936 plan for the Washington Park Arboretum, the Works Progress Administration and Washington Emergency Relief Administration activities, and draw inspiration from the form and materials of existing structures (Holmdahl rockery, stone cottage, Willcox footbridge).
- Utilize the site and collections to announce the south entry to the Arboretum.
- Showcase green technologies and techniques - treatment and reuse of storm water, water efficient irrigation, slope stabilization, etc.
- Create a circulation system that is universally accessible.
- Design structures and select a natural palette of materials that are in scale to and in character with the site and do not draw too much attention to themselves.

Exhibits and Wayfinding Elements

- Draw from the Arboretum's historic elements without replicating them.
- Reference the botanical forms of each geographic garden.
- Address the character and presence of the Arboretum at an appropriate scale.

4. Interpretive Approach

The interpretive approach is based upon the organization's mission and goals. For the Arboretum, the mission and goals were developed and vetted with the creation of the Master Plan. They serve as the basis for the concept development and design of the South Entry/Madrona Terrace project. The interpretive approach includes the following:

- *Mission:* a statement of why you exist.
- *Message**:*** is what visitors should learn, and take home with them.
- *Thematic Approach/Concept Development:* is a design approach or framework, derived from the elements above (specifically the main message) and is present in the physical design of the exhibits and interpretive elements.

Arboretum Mission
Below is the Arboretum's mission as stated in the Master Plan. To clarify the mission we have separated it into a less narrative format that fits an outline format.

> *"The Washington Park Arboretum is a living plant museum emphasizing trees and shrubs, hardy in the maritime Pacific Northwest. Plant collections are selected and arranged to display their beauty and function in urban landscapes, to demonstrate their natural ecology and diversity, and to conserve important species and cultivated varieties for the future. The Arboretum serves the public, students at all levels, naturalists, gardeners, and nursery and landscape professionals with its collections, educational programs, interpretation and recreational opportunities."*

The mission was further evaluated and stated as a primary focus and goals:
The mission of the Washington Park Arboretum is to be a museum of living plants, emphasizing trees and shrubs that are hardy in the maritime Pacific Northwest.

Goals to achieve our mission:
- Our plant collections are selected and arranged to display their beauty and function in an urban landscape.
- Our plant collections are selected to demonstrate their natural ecology and diversity.
- Our plant collections are selected to conserve important species and cultivated varieties for the future.
- Our plant collection and surrounding landscapes and amenities are to serve the public in appropriate educational, interpretation and recreational opportunities.

Main Message(s)
The Washington Park Arboretum has multiple audiences. This necessitates that there be several "main messages" that are accessible to the range of visitors including gardeners, horticulturists and scientists.

Gardeners
These are gardens of diverse and beautiful plants that will grow in our Pacific Northwest maritime climate—because the places they come from have climates like ours.

Horticulturist
Each of these places (gardens) represents a rich diversity of plants that can be propagated and integrated into our northwest landscapes.

Scientists
The structure of these (larger) gardens represents the ecological relationships between plants found in (these) locations around the Pacific Rim.

5. Concept Development

Concept development integrates the program elements and design criteria into an overall approach and organizational theme that guides the development of the schematic design. The concept provides the basis for determining the physical design, plant collections, and the style and character of architectural, interpretive exhibits and wayfinding elements.

Plant Collections Approach
Plants are selected from five geographic regions of the world for their ecological appropriateness to Seattle and the Puget Sound region. The geographic collections will allow the visitor to compare and contrast plant communities of our own Pacific Northwest cool winter-rain, summer-drought climate with other climates found in central Chile, eastern Asia, New Zealand and southeastern Australia.

Organizational Theme
These five geographic regions are all situated on the rim of the Pacific Ocean and look to the Pacific for trade, cultural exchange, education, and recreation. The Pacific Ocean lends itself to adoption as a unified region even though it spans a huge part of the Earth's surface. Its tremendous latitudinal range, which effects climate and creates in turn a great diversity of habitat and plant communities, provides a rich palette of plants, many of which are suited to the growing conditions of the Pacific Northwest.

In the northern hemisphere, occupying a latitudinal band between 40° and 50° north latitude are the Cascadia region, northeastern China, Japan and Korea. Central Chile, southeastern Australia, the south island of New Zealand occupy the southern hemisphere counterpoint between 40° and 50° south latitude.

Geologically, this region is bound by the volcanic "Ring of Fire," influenced by plate tectonics and dotted with a myriad of topographic conditions similar to the Olympic and Cascade Mountains that surround and influence the Puget Sound. The Pacific Rim theme allows for the interpretation and collection of plants from the western hemisphere, offering opportunities to display native plants from the Cascadia region of the Pacific Northwest, stretching from the Siskiyou Mountains along the Oregon/California border, to the Puget Sound region, as well as hardy species from central Chile able to thrive in our climate and growing conditions. In addition, the theme allows for the collection of plants from the temperate regions of the eastern hemisphere: eastern China, Japan, and Korea, as well as New Zealand and southeastern Australia.

Site Concept
The site concept is a refinement of the plan and layout described in the Master Plan. The concept includes five of the six collections identified in the master plan for Madrona Terrace: Cascadia (Northern California, Oregon and Washington), central Chile, eastern Asia, New Zealand and southeastern Australia, and the existing New Zealand collection. It was decided at the first charrette not to include plants from either the cool Mediterranean region of the Mediterranean Basin or from South Africa, due to the potential duplication with existing collections, and plant hardiness concerns.

An organizing meadow includes open space for informal gatherings, an interpretive shelter, trailhead and collection preview plantings for each of the geographic collections that act as an introduction to the larger adjacent exhibits. The 30 car parking lot is also sited adjacent to the meadow. The Cascadia collection area includes the knoll and highest point of the Arboretum, the south facing slope below it and incorporates the existing madrona trees. The central Chilean collection marks the southern entry to the Arboretum and is located at the intersection of Lake Washington Blvd. and Arboretum Drive. The eastern Asian collection includes the west facing slope above the Japanese Garden, extending north toward the existing overlook. The New Zealand collection includes the area between Arboretum Drive and the existing overlook while the southeastern Australia collection is located on the east side of Arboretum Drive.

Collections Arrangement
There are three types of plant collections for each geographic area. Each type of collection is organized and arranged as it relates to the site conditions. Their appeal responds to the varying interests of the audience the Arboretum serves. A description of each type of collection follows:

1) **Preview display gardens** - These gardens showcase plants suited to the Northwest garden. The display gardens surround the meadow and the adjacent interpretive shelter. The gardens primarily preview shrubs and groundcovers, from each of the five geographic regions, suitable to the climate conditions of the Pacific Northwest.

2) **Horticultural plant groupings** – These collections are arrangements of seasonally interesting plants with horticultural value. Small meadows, glades and shrublands are located throughout the South Entry/Madrona Terrace project providing opportunities to grow a wide range of sun-loving and understory plants. These collections are displayed for their visual appeal and demonstration for use in our regional landscape.

3) **Primary temperate forest associations** - The primary temperate forest associations found around the Pacific Rim are:
   a) Coniferous forest
   b) Mixed conifer and deciduous woodlands
   c) Deciduous forests
   d) Broad-leaf evergreen (sclerophyllic) woodlands

The forests associations displayed in each of the geographic regions incorporate portions of the site's native tapestry of trees. The forest and shrub associations located within each of the geographic collections are described below.

Cascadia – A combination of a broad-leaf evergreen woodland and a coniferous forest is sited on the knoll and high point of the Arboretum, where its warm southern exposure is representative of southern Oregon, northern California and the Siskiyou Mountains. Some species represented in the broad-leaf woodland are *Arbutus, Lithocarpus, Quercus, Garrya* and *Kalmiopsis.* The woodland is bounded by a coniferous forest representative of the range of Northwest evergreens such as *Pseudotsuga, Calocedrus* and *Thuja.*

Central Chile – Mixed coniferous and deciduous woodlands located above Lake Washington Boulevard, where the plants are to thrive under the southern and western exposure. The *Araucaria, Nothofagus* and *Eucryphia* woodlands are interspersed with punctuations of flowering shrubs such as Ber*beris, Lomatia,* and *Escallonia* are integrated into the renovated Holmdahl rockery.

Eastern Asia – Deciduous forests of *Betulus* and *Populus* grow near the pond and wetlands along the restored Arboretum Creek. In addition, flowering *Cornus* and *Styrax* border glades planted with swaths of *Hydrangea, Mahonia* and other shade-loving understory plants. The upper west facing slope is dominated by a coniferous forest of mixed species with associated shrubs and groundcovers.

New Zealand – A scrubland of texturally diverse broadleaf evergreen shrubs such as *Hebe, Phormium* and *Fuchsia* occupy the open sunny west facing slope above the Eastern Asian collections, directly below Arboretum Drive. This allows for the expansion of the existing New Zealand alpine plant display currently on the east side of Arboretum Drive. The scrubland is framed by a variety of broadleaf evergreen trees such as *Podocarpus* and *Cordyline.*

Southeastern Australia – A broad leaf evergreen forest of *Eucalyptus* and *Podocarpus* with open shrublands of flowering *Grevillea, Drimys* and *Banksia* inhabit the east side of Arboretum Drive. Earthen fill and site contouring subtlety modifies the slight north facing aspect of the site to create a level plateau for increased southern and western exposure more suited to the growing requirements of these plants.

Architectural Design Principles and Approach
The design of the Madrona Terrace shelter will follow the guidelines adopted by the Arboretum and Botanical Garden Committee (ABGC). These guidelines ensure that new buildings in the Arboretum will balance the desire to maintain and enhance the landscape setting while allowing for the creation of beautiful structures. The shelter design for Madrona Terrace will consider the historic value of the Arboretum and will naturally integrate into the park setting both in scale and materials. Construction materials will reflect those used for other structures in the park including stone, wood and metal.

Shelter Program and Concepts
The shelter provides rain protection and is a focus for field trips and interpretation of the geographic exhibits. The structure is approximately 300 square feet in size. A range of architectural styles and concepts were explored. The initial design used timber beam construction with a stone foundation reflecting the style of the existing Stone Cottage built in 1936 during the Works Progress Administration (WPA). As an alternative concept, the planning team and the Seattle Design Commission encouraged the use of historical materials in a modern way, incorporating natural materials found on the site. The shelter design will consider the following functions and features:

Potential Functions of Shelter
- Informal gathering / seating / picnicking (design for multiple groups and uses).
- Formal gathering – university groups, school groups, tour groups (educational).
- Events / rental.
- Storage (educational materials, etc.).

Design and Materials
- Sheltering – roof/cover/eaves.
- Interpretation setting/wayfinding to geographic regions.
- Integration of inside and outside uses – spaces, seating, terraces, etc.
- Gardenesque – trellis, scale and comfort.
- Materials – local stone and wood (possible salvaged from the site).

Environmental Responses
- Water harvesting.
- Green roof – planted.
- Solar lighting (day and night).

Interpretive Elements

The Interpretive elements at Madrona Terrace meet the criteria established in the Arboretum's Interpretive and Wayfinding plan. There are five primary types of interpretive elements:

- **Garden gateways** that introduce the primary entries to each of the geographic collections.
- **Lookout** located in Cascadia for views from the highest point of the Arboretum.
- **Interpretive waysides** carefully sited within each geographic region to provide seating and areas for contemplation, as well as interpretive and wayfinding information.
- **Graphic window panels** at the shelter to provide an introduction to the types of plant collections from each of the five geographic regions.
- **Graphic signs** located at each of the waysides with specific information on the geographic area.

6. Schematic Design

Visitor Experience
The following is a narrative walk-through of the gardens and woodlands of Madrona Terrace. It provides an experiential description to the plant collections, architectural features and interpretive elements within each of the geographic locations.

South Entry Arrival and Parking
The south entry at Arboretum Drive and Lake Washington Boulevard is marked by the restoration of the rockery designed by Otto Holmdahl in 1938. It has been transformed by sweeps of color and texture formed by plants native to central Chile. A new entry sign directs the visitor to parking concealed within the shrub and grassland of the eastern Australia collection. The small scale parking lot models environmentally sound design through its permeable surfacing, adjacent swales for collecting rainwater and surface water run-off and deciduous trees that provide summer shade.

Southeastern Australia
Visitors slow their walk as they enter this exotic garden of unusual color and texture unfamiliar to the common Northwest gardener or botanist. The varied leaf forms alone let you know you are within an unusual plant community unlike anything you have experienced so far. The broadleaf evergreen shrubs take on an assortment of juvenile and mature forms and shapes. Foliage varies from needle-like leaves of the *Leptospermum*, to feathery finely divided compound leaves of the Acacias, as well as shiny, waxy stems and foliage of *Drimys*. Graceful Eucalyptus groves frame the garden offering a striking contrast to the brilliant red blooms of the *Grevillea*.

Pacific Rim Meadow and Preview Gardens
Families regroup and head to the sunny meadow across Arboretum Drive where they meet friends and gather for a weekend picnic. The perimeter path surrounding the meadow is popular for strollers and visitors interested in the plants along the shrub border. The border changes with the seasons and serves as preview display gardens showcasing sun-loving plants from the five geographic regions. Along the perimeter walk, paths are marked by monuments, leading to each of the naturalistic geographic garden displays.

An interpretive shelter and terrace nestled beneath Douglas fir and madrona trees marks the midway point around the meadow. Distant views down the Hydrangea slope lead to Azalea Way below and into the East Asian woodlands. The interpretive shelter provides cover in inclement weather. In accordance with the Interpretive and Wayfinding Plan, interpretive displays are integrated into the design of the structure reflecting the botanical character of the collections and offers information on each of the five geographic regions. Here, at the shelter, the visitor realizes the slight mound of the meadow, and irregular band of edging represents a large scale map of the Pacific Rim where the origin and entry into the geographic regions are noted by stone markers. From the center of the circle, one can glimpse of the interpretive waysides within each geographic collection.

Cascadia-Siskiyou Mountains
The gardeners and scientists in the group are eager to explore the loop trails through each of the geographic regions; the children join them for the 20 minute loop through Cascadia, where they can climb through the broadleaf evergreen and coniferous forest to the lookout, situated at the high point of the Arboretum. Cascadia is represented by a diversity of plants associated with our native Madrona found from Washington to its southern reaches in the Siskiyou Mountain range of southern Oregon and California. Plants are displayed in a natural setting of layered vegetation. The lookout at the edge of the clearing, offers opportunities to sit, capture the sun, and take in extended views of both the Holmdahl rockery to the south and the Chilean collections to the south and west.

Cental Chile
The loop trail winds it way down to the renovated Holmdahl rockery where a display of florific plants from central Chile are sited to capture the southern sun. Seasonal displays of color and olfactory stimuli bring visitors to this part of the garden throughout the year. Despite the changes in grade, the path is accessible to all. An interpretive wayside provides a place of respite and an opportunity to learn the origin of these plants in Chile and why they are so well suited to this sunny, dry location in the Arboretum. Several members of the group decide to wander through the signature tree groves of the coniferous Monkey-puzzle trees back to the meadow while the rest of the group continues on to explore the woodlands and glades of eastern Asia.

Eastern Asia
Loop trails through the Asian slopes reveal a range of primary temperate forest associations found around the Pacific Rim: coniferous forests, mixed conifer and deciduous woodlands, deciduous forests. Several hikers in the group comment on the familiarity of the woodlands as they notice a tapestry of native conifers - Douglas firs, western hemlocks and western red cedars - woven throughout an Asian woodlands composed of Japanese maples, dogwoods, spruces and pines. Tree trunks support the twining vines of roses, *Actinidia* and *Sinofrancheti* as they reach to the sky for light. A shaded seating area amidst a thick ground plane of woody shrubs and groundcovers provides the opportunity to relax and enjoy the sights and sounds of the woodland before ascending the path to two of the favorite Asian collections, the Paper-bark maple grove and Hydrangea slope. A stairway adjacent to the Hydrangea slope provides a direct connection for several of the group to return to the shelter and meadow. The terraced ascent offers views downhill to the ponds adjacent to Arboretum Creek below.

A secondary path near the wayside offers an opportunity during a return visit to explore the lower route toward Arboretum Creek to walk among the poplars, alders, and willows that inhabit the wet valley bottom.

New Zealand
Trail markers indicate where the final trail sequence meanders its way across the western slope toward the New Zealand collection and the existing Overlook. Children gravitate toward the garden beds with whimsical forms of evergreen shrubs and grasses. Tropical palm-looking cordylines with sword-like leaves, and an explosion of multi-colored

foliage blades of flax invite close inspection and observation. The variety of plants displayed in the gardens range from the high alpine regions of New Zealand to the coastal shorelines. The number of species and array of broad leaf evergreen shrubs entice the horticultural visitor and gardener as they imagine the potential uses for each in local garden settings.

A continuation of the trail through the New Zealand garden links the visitor back to parking across Arboretum Drive or back to the meadow. As the sun slips behind a cloud, visitors convince themselves it's time to leave the collections and return to their families waiting for them in the meadow – they make plans to return soon, knowing whatever the ages or impulses are of the day, the new gardens of Madrona Terrace promise future exploration and fun.

Geographic Collections and Planting Design
The schematic design for Madrona Terrace has developed a preliminary list of plants that:

- Display their beauty and function in an urban landscape.
- Demonstrate their natural ecology and diversity.
- Conserve important species and cultivated varieties for the future.
- Serve the publics' educational, interpretation and recreational interests.

The following narrative provides an understanding of some of the important flora that will be displayed within each of the geographic regions:

Cascadia
The Cascadia exhibit will utilize the framework of our native trees and the Arboretum's best specimens of *Arbutus menziesii* to showcase the flora of the Klamath Knot in southern Oregon and northern California. The rise along Arboretum Drive provides a natural location for displaying the wide range of conifer genera native to this geographic area. The clearing at the high point allows for optimal light to grow the wealth of species representative of the diverse understory. Shrub and groundcover species offer seasonal interest with displays of flowers and fruits throughout the year. Diversity in foliage texture is also a hallmark for this collection. This unique flora will be represented by; *Arctostaphylos spp., Ceanothus spp., Lithocarpus densiflorus* (and *L. densiflorus 'Attenuatus Dentatus), Calycanthus floridus, Neviusia clifftonii, Quercus garryana, Q. sadleriana, Q. kelloggii, Rhododendron occidentale, Chrysolepis chrysophylla, Garrya spp., Myrica californica, Ribes sanquineum, R. speciosum. Conifers will include: Picea breweriana, Calocedrus decurrens, Chamaecyparis lawsoniana* as well as *Thuja plicata and Pseudotsuga menziesii.*

Interpretive Opportunities

- Drought tolerance and water conservation using native plants.
- The Klamath Knot; Glaciation and Plant Speciation.
- Ethnobotanical uses.

Central Chilean Collection
The western slope of the Andes in Chile supports a diverse assemblage of plant species that have been part of horticulture in the Pacific Northwest for decades. The monkey puzzle tree *Araucaria araucana, Escallonia* spp., *Embothrium coccineum* and *Cortaderia selloana* are just a few species that are familiar to a wide audience. The Chilean exhibit will serve as a showy embellishment of the south entry while announcing the Arboretum to motorists using Lake Washington Park Boulevard. Because this area will be often viewed by passing automobiles, an emphasis will be placed on a cohesive, repetitive design. The collection will provide views into the Arboretum by judicious openings and the creation of lower shrubby plantings flanked by walls of Chilean trees and conifers which will provide seasonal impact of the Holmdahl rockery. With its south facing exposure and proximity to Lake Washington Boulevard and Arboretum Drive, the

rockery is an ideal site to recreate a Chilean eco-type with these as well as numerous other lesser known taxa. The gentle slope of this part of the Arboretum provides both excellent drainage of water and cold air, significantly increasing the palette of plants employed here.

Representative Flora
Tree and Shrub Overstory:
Nothofagus dombeyi, Nothofagus antarctica, Nothofagus procera, Nothofagus obliqua, Araucaria aurucana, Austrocedrus chilensis, Fitzroya cuppresoides, Prumnopitys andina, Saxegothaea conspicua, Weinmannia trichosperma, Maytenus boaria, Eucryphia glutinosa, Eucryphia cordifolia.

Secondary Layer:
Drimys winteria, Desfontainea spinosa, Fuchsia magellanica, Azara microphylla, Azara dentata, Azara lanceolata, Myrtus luma, Eucryphia glutinosa, Rhaphithamnus spinosus, Escallonia spp., Berberis darwinii, Berberis buxifolia, Berberis linearifolia, Buddleia globosa, Hydrangea serratifolia (growing on substrate of native conifers).

Groundcovers and Herbaceous Plants:
Pernettya (Gaultheria) mucronata, Cortaderia spp., Maytenus magellanica, Baccharis magellanica, Myrtus nummularia, Lobelia tupa.

Ornamental Sequencing:
Winter: *Pernettya, Azara microphylla, Fuchsia magellanica, Drimys winteri, Berberis darwinii, Berberis linearifolia.*
Spring: A*zara dentata, Azara lanceolata, Buddleia globosa, Embothriuim coccineum.*

Summer: *Eucryphia glutinosa, E. cordifolia, Escallonia spp., Desfontainea spinosa Cortaderia seloana, Lobelia tupa.*

Interpretive Opportunities

- Natural distribution of Gaultherias throughout northern and southern hemispheres
- *Drimys winteri*; first commercial source of Vitamin C.
- *Berberis darwinii*; collected by Darwin on Chiloe Island.
- *Austrocedrus chilensis*; distribution of Calocedrus complex throughout entire Pacific Rim.
- *Nothofagus*; nitrogen fixing colonizing species taking on a similiar role to *Alnus rubra* in the Pacific Northwest.

East Asia
Asia has been described as the mother of all gardens and indeed, in the Pacific Northwest, this is certainly the case. From *Pieris* to *Acer palmatum*, the number of Asian plant species in our landscapes in staggering. The east Asian exhibit will attempt to bring these plants home for visitors, experiencing many familiar plants within the setting of a naturally inspired plant community. In addition, numerous other taxa currently not

represented in the Arboretum collections will be included. The eastern Asian exhibit will be comprised of numerous immersive experiences and collections planted in a naturalistic scheme. The approach will be based on providing alternating open glades defined by groves of native coniferous species, and shaded woodland sites. Defining collections or monotypic plantings will be integrated as follows:

Hydrangea Slope
A comprehensive collection of Asian *Hydrangea* species (currently poorly represented in the Arboretum) in large sweeps of single species for maximum impact when in blossom. This could include a national collection of *H. macrophylla* and *H. serrata* cultivars, also planted in large single sweeps, offering the opportunity to draw people to the Arboretum in late summer to the degree that Azalea Way is currently visited in the spring. The surrounding trees can host both deciduous and evergreen climbing Hydrangea species from Asia as well as closely related species such as *Schizophragma* and *Decumaria* and a mass planting of closely related but little known *Dichroa febrifuga* with fantastic crops of sapphire blue fruit in winter. Herbaceous groundcovers could include *Deinanthe caerulea, Deinanthe bifida* and *Cardiandra alternifolia*, all members of the Hydrangea family. For ease of maintenance and summer interest, a deciduous groundcover such as *Hakone* grass, *Hakonechloa macra*, should be considered, while a comprehensive collection of herbaceous Peony species could be employed beneath the Hydrangeas for late winter and early spring interest.

Ornamental Sequencing:
Late Spring to Early Autumn; *Hydrangea* species and cultivars, peaking in August and September.
Late Winter to Early Spring; Herbaceous (and woody) Peonies. Fruit of *Dichroa febrifuga*.

Interpretive Opportunities
- Hydrangea pruning and drying flowers.
- Distribution of Old World and New World Hydrangea species.
- Siebold's first Hydrangea introduction from Japan, 'Otaksa', and its associated tale of intrigue, lost love and his arrest for spying.

Wet Meadow along Arboretum Creek
Responding to the wet soils of this site, create the feel of an open moist glade, using Asian species of *Populus, Betulus, Alnus,* shrubby cornels and willows that will thrive in this area. A large planting of *Betula albo-sinensis var. septemerionalis* is proposed which will be a winter seasonal draw. Coniferous species such as *Abies firma, Metasequoia glyptostroboides* and *Glyptostrobus pencilis* will also thrive here.

Ornamental Sequencing:
Winter interest with colorful stemmed *Cornus, Betula* and *Metasequoia*.

Interpretive Opportunities

- Rediscovery and introduction of *Metasequoia* (comparing it to *Glytostrobus*).
- Why and how some plants survive in airless soils.

Acer palmatum Grove
A re-creation of a Central Honshu mid-elevation forest of *Acer palmatum,* using seedling grown wild collections of this species with peripheral plantings of Japanese conifers. This planting is close to and in sync with the aesthetics of the Japanese Garden, while providing an immersive, authentic autumn experience for Arboretum visitors. It affords the observation and study of genetic variation between individuals of this genus. This grove could encompass more than just *Acer palmatum*; for instance *A. shirwasianum, A. japonicum, A. sieboldianum, A. pseudosieboldianum, A. pubipalmatum* as well as background plantings of Japanese and Korean white pines (*Pinus parviflora and P. koreana*) and *Betula* species will offer seasonal interest. Dense and sturdy, low maintenance groundcovers of *Ophiopogon, Pachysandra* and *Disporopsis* will add substance during the winter when the bark and silhouettes of the maples can be appreciated.

Ornamental Sequencing:
Autumn; color from maples has the potential to become a large draw.

Winter; Lighting the trees in winter, or seasonally, also has potential here. Birch and Pine collections on grove margins will provide winter interest.

Interpretive Opportunities

- Where and how do plant cultivars arise.
- Natural diversity of form within native populations.
- Explaining the processes of autumn color.

Stewartia, Styrax, Cornus Group:
A forest margin comprised of deciduous and evergreen taxa of Styracaceae (*Styrax, Rehderodendron, Pterostyrax, Alniphyhllum, Halesia* etc.) Theaceae (*Camellia, Eurya, Ternstroemia, Cleyera*, *Polyspora,* and Cornaceae (*Cornus, Aucuba, Helwingia*) native to Asia will flank the native woodland margins here. Integration of some of the species of *Camellia*, including *C. sinensis*, from the existing collection can be put here as well in a more naturalistic planting design rather than blocks. Additional taxa to be included here are: S*tachyurus, Pyracantha, Weigela, Ilex* (from existing collection), *Kolkwitizia, Dipelta, Illicium, Lyonia, Rhododendron, Callicarpa, Symplocus, Cotoneaster, Daphniphyllum, Hamamelis mollis* and *H. japonica*.

Ornamental Sequencing:
Winter: Bark effects from *Stewartias*, fruit from numerous shrubby taxa in late autumn including *Pyrancantha, Callicarpa, Cotoneaster*. Winter flowers for *Hamamelis* late winter flowers of *Stachyurus.*
Spring: floral effects from numerous shrubby taxa included here.
Summer: floral season of *Stewartias.*
Autumn: foliage color of *Stewartias* and numerous other taxa.

Interpretive opportunities

- What is tea?
- Highlighting ornamental interest in bark such as *Stewartias.*
- Small flowering trees and shrubs for the residential landscape.

Acer griseum Grove
A large planting of *50+* specimens for visual impact in autumn and winter of the paperbark maple, *Acer griseum*. This can have perimeter plantings of Asian conifers as well as for textural contrast. Emphasis can be put on obtaining distinctive wild-collected clones rather than nursery propagated specimens. As this will most likely be visited during the winter, using associated plants with winter interest within the planting should be emphasized. Winter flowering species of *Daphne* (*D. bholua, D. odora, D. mezereum, D. pseudomezereum*) might be considered here as well as large plantings of *Sarcococca*.

Ornamental Sequencing:
Winter: bark effects from maple and *Daphne* floral attributes.
Autumn: foliage effects from maple grove.

Interpretive Opportunities

- The intriguing sexuality of maples.
- The seed of maples; samara.
- What is exfoliating bark?

East Asian Woodland
An immersive woodland experience using understory shrubs and herbaceous groundcovers planted in a naturalistic style with interpretation based on the plant collector responsible for introduction or possibly by specific eco-geographical compositions. An overstory of native coniferous tree species, in addition to Asian taxa including *Abies, Sorbus, Acer, Fraxinus, Pterocarya, Cyclocarya, Machilus, Persea*, bamboo species (this could be an opportunity for a major collection here while providing some very good dwarf groundcover plants). Native trees will be translated to this site by vines and llianas, including *Actinidia, Rosa, Hydrangea, Holboellia, Stauntonia, Sinofranchetia and Clematis.* Additional taxa to be included here are: *Decaisnea, Stachyurus, Ilex* (from existing collection), *Illicium, Lyonia, Rhododendron, Alangium platanifolium var. macrophyllum, Callicarpa, Symplocus, Cotoneaster, Daphniphyllum, Hamamelis mollis and H. japonica*. Brighter woodland margins can integrate *Weigela, Pyrancantha, Dipelta, Kolkwitizia.* Groundcovers can include; *Pachysandsra axillaris, Pachysandra stylosa, Sarcococca* spp., *Beesia deltophylla, Disporopsis perneyi and D. arisanensis,* evergreen fern species, *Polygonatum spp. Disporum spp*.

Ornamental Sequencing:
Winter: Flowers of witch hazels, *Sarcococca*, winter flowering Rhododendrons (*R. rarei, R. strigillosum*) fruit of *Callicarpa, Cotoneaster, Pyracantha*.
Spring:and Summer; Climbing rose species and *Clematis*, taxa within Lardizabalaceae.

Interpretive Opportunities
- Climbing mechanisms for plants.
- Understanding bamboo.
- Flowering shrubs for the residential landscape.

Euonymus Collection
A re-creation and expansion of the popular grove of shrubby fruiting *Euonymus* which is now mostly derelict due to lack of light. With brighter conditions, this collection will again become an autumn destination for visitors to the Arboretum with both fruiting and autumn color displays. This is an opportunity to display numerous other Euonymus species including evergreens species that could be employed as durable groundcovers.

Interpretive Opportunities
- Why are these plants related?
- Heteroblasts- plants that have a mid-life crisis such as changing from climbing to shrubby plants.

New Zealand
The New Zealand exhibit will expand substantially the planting palette. *Nothofagus solandri, N. menziesii and N. fusca can* be used to create a South Island beach forest with associated flora including numerous ferns, *Pseudowintera colorata, Coprosma spp., Hebe spp., Cordyline australis, C. indivisa, Clianthus puniceus, Muhlenbeckia spp., Leptospermum scoparium, Corokia cotoneaster* and *C. buddleioides, Pittosporum tenuifolium, P. eugenoides, Fuchsia excorticata, Sophora microphylla, Phormium tenax*. Conifers will include; *Dacrycarpus dacrydioides, Dacrydium bidwellii, Podocarpus totara, Libocedrus plumosus and Dacrydium cupressinum.* Signature plants (possibly containerized for seasonal use) should include *Pseudopanax crassifolius* and *P. ferox. Astelia nervosa* and *A. chathmanica.* Grasses should include *Chionochloa flavescens, Carex buchananii, C. comans* and *C. flaggilifera*. A containerized Kauri (*Agathis communis*) could also be used seasonally in the display.

Interpretive Opportunities:
- The divaricated shrubs of New Zealand and their co-evolution with the Moa: The bird that created an island flora.
- An experiment gone bad; the Acclimatization Authorities of late 19th century New Zealand.

Southeastern Australia
The Australian exhibit will highlight the numerous hardy taxa from S.E. Australia and Tasmania, including; *Eucalyptus spp., Callistemon spp., Leptospermum spp. Grevillea spp., Drimys lanceolata, Gaultheria spp., Telopaea truncata, Acacia spp,. Acradenia frankliniae, Billardiera longiflora, Eucryphia spp., Cyathodes and Richea*. Conifers will include: *Diselma, Phyllocladys, Athrotaxus, Callitris and Lagarostrobus*. The pollination biology of plants from Australia and New Zealand is highly specific and few if any have proven bio-invasive in the Pacific Northwest. The problem these countries face with exotics, however, can be used to as an interpretive tool in this display.

Ornamental Sequencing:
Winter: *Grevilleas* will blossom throughout the winter in the Pacific Northwest.
Summer: *Eucryphia* flowers late summer, *Billardiera longiflora* fruit effects throughout autumn.

Interpretive Opportunities
- Godwana and plant distribution.
- A plant out of place; exotics and bio-invasion.

Preliminary Plant List for Each Geographic Region

The design and planning teams generated preliminary plant lists for each geographic region. The preliminary lists also offer opportunities to explore plant combination options. Plant lists will be refined during the design development phase. The following preliminary plant lists represent possible species to be included within each geographic area:

Cascadia

Abies concolor
Abies procera
Arctostaphyllos uva-ursi
A. patula
A. columbiana
Calocedrus decurrens
Ceanothus cuneatus
C. prostratus
C. pumilus
C. thysiflorus
Chamaecyparis lawsoniana
Chrysolepis chrysophylla
Darlingtonia californica
Garrya fremontii
G. buxifolia
G. elliptica
G. humifusa
G. x isaquahensis
Gaultheria ovatifolia
Kalmiopsis leachiana
Ledum glandulosum
L. groenlandicum
Lithocarpus densiflorus
Lithocarpus densiflorus attenuata dentata
Mahonia nervosa
M. pumula
Picea breweriana
Pinus jeffreyi
Pinus ponderosa
Quercus vaccinifolia
Q. garryana
Q. kelloggii
Q.sadleriana
Rhododendron macrophyllum
R. occidentale
Ribes speciosum
Thuja plicata
Tsuga mertensiana
Umbellularia californica
Vancouveria chrysantha
V. hexandra
V. planipetala

Central Chile

Araucaria araucana
Araucaria Forest
Austrocedrus chilensis
Azara integrifolia
A. microphylla
Berberidopsis corallina
Berberis darwinii
B. empetrifolia
B. valdiviana
Buddleia gobosa
Crinodendron hookerianum
Dasyphyllum diacanthoides
Desfontania spinosa
Drimys winteri
Drimys winteri var. andina
Embothrium coccineum
Escallonia pulverulenta
Eucryphia Forest
Eucryphia glutinosa
Fabiana imbricata
Fasicullaria bicolor
Fitzroya cupressoides
Fuchsia magellanica
Gevuina avellana
Gunnera magellanicus
Gunnera tinctoria

Hydrangea serratifolia
Junellia sp.
Lomatia ferruginea
L. hirsuta
Luma chequen
Maytenus boaria
Mutisia decurrens (vines)
M. spinosum
Nothofagus obliqua
N. antarctica
N. dombeyi
N. procera
Ovidia andina
Pernettya (Gaultheria) mucronata
Pilgerodendron uviferum
Podocarpus saligna
P. vigina
Prunopitys andina
Ribes magellanicum
Weinmannia trichosperma

Eastern Asia

Abies firma
Acer griseum Forest
Acer palmatum
Betula albosinensis var. septemtrionalis (Grove)
Betula dahaurica
Catalpa duculxina
Cardiocrinum giganteum
Cinnamomum chekienenesis
Cornus chinensis
Cornus controversa
Cornus kousa
Cornus macrophyllus
Cotinus coggygria
Cryptomeria japonica
Daphne bholua
Disanthus cercidifolius
Epimedium acuminatum
Epimedium chlorandrum
Epimedium davidii
Euonymus Grove (Euonymeetum)
Gaultheria forrestii
Gaultheria hookeriana
Helwingia chinensis
Helwingia japonica
Hydrangea anomala (climbing)
Hydrangea Collection, species/cultivars
Hydrangea integrifolia (climbing)
Lindera erythrocarpa
Lindera glauca
Lindera obtusifolia
Magnolia spp.
Mahonia confusa
Mahonia gracilis
Mahonia japonica
Paulownia tomentosum
Persea ichangense
Picea koreana
Picea orientalis
Pinus koreana
Podocarpus chinensis
Populus chinensis
Prunas mackayi
Pseudotsuga wilsonii
Rosa mulliganii
Sassafras tzumua
Schefflera taiwanense
Stachyurus salicifolius
Stewartia monodelpha
Stewartia pseudocamellia
Stewartia rostrata
Styrax japonica
Taiwainia cryptomeroides
Tetrapanax papyrifera
Trachycarpus fortunei
Trochodendron aralioides

New Zealand

Carex albula
Carex bucchananii
Carex flaggilifera
Coprosma nitida
Cordyline australis
Fuchsia excorticata
Fuchsia procumbens
Gaultheria spp.
G. hamiltonianus
Greselinia littoralis
Gunnera prorepens
Hebe spp.
Hoheria sexstylosa
Libocedrus bidwillii
Nothofagus solandri
N. fusca
N. solandri var. cliffortioides
Olearia spp.
Phormium tenax
P. lawrencei
P. nivalis
Phyllocladus alpinus
Pittosporum eugenoides
Pittosporum tenuifolium
Podocarpus totara
Sophora microphylla
Stellias banksiana

Southeastern Australia

Acacia gracifolia
Athrotaxus cuppresoides
Bakea gunnii
Banksia integrifolia
Callistemon sp.
Chorizema cordatum
Dicksonia antarctica
Drimys lanceolada
Eucalyptus coccifera
E. glaucescens
E. neglecta
E. niphophyla
E. nivalis
E. perriniana
Eucryphia lucida
Gaultheria hispida
Grevillea victoriae
G. rosmarinifolius
Hakea bucculenta
H. multilineata
Leptospermum scoparium
L. rupicola
Nothofagus gunnii
Podocarpus alpinus
Prostanthera cuneata
P. rotundiflius

Shelter and Interpretive Elements Descriptions

Interpretive Shelter

The shelter is designed around a semicircular stone wall with a five faceted, inward sloping roof. The structure is scaled to give the shelter an airy, gardenesque feel. The roof design is a planted green roof demonstration, and its roof structure will extend to create a trellis armature for plantings from the regions of the gardens. An intermediate trellis brow will provide weather and wind protection to visitors while providing additional planting demonstration places. The inner wood columns will create five interpretive venues, one for each of the gardens. The center space can be a Pacific Rim world map, a water collection demonstration, or simply a pleasant paved court or planting area.

The seat is flanked by a stone paved walkway that will allow visitors to sit on the outside and read about the gardens on the inside. On the opposite side to the openings is a break in the seating wall that will contain an overall Madrona Terrace interpretive installation and messages.

Interpretive and Wayfinding Elements

The materials and design selected for interpretive elements reflects those used in architectural structures and reinforces the design concept of featuring five geographic regions around the Pacific Rim. Interpretive waysides, or gathering places located throughout the gardens, provide seating and information on that geographic region. The waysides are designed and built using themed materials and patterns reflective of the geographic region. Additional interpretive elements are located within the gardens to describe significant plants or plant groupings.

Stormwater Management Approach

The Civil Engineering design of the South Entry / Madrona Terrace will use a "Low Impact Development" (LID) approach. LID is an ecologically friendly approach to site development and stormwater management that aims to mitigate development impacts to land, water, and air. The approach emphasizes the integration of civil engineering stormwater systems, landscape design, site design and planning techniques to conserve natural systems and hydrologic functions of a site. The practice has been successfully utilized to meet or exceed the regulatory requirements for stormwater management while creating sites that are more ecologically sound.

Specifically, LID aims to:

- Preserve open space and minimize land disturbance.
- Protect natural systems and processes (drainage ways, vegetation, soils, and sensitive areas).
- Reexamine the use and sizing of traditional site infrastructure (lots, streets, curbs, gutters, sidewalks) and customize site design to each site.
- Incorporate natural site elements (wetlands, stream corridors, mature forests) as Design Elements.
- Decentralize and micromanage stormwater at its source often integrating the landscape design and the civil engineering stormwater management design.
- Restore natural pre-development hydrology by maximizing infiltration and stormwater retention on site.

LID will be applied to this project with the implementation of certain LID Best Management Practices (BMP). These practices aim to restore the natural hydrologic balance of the site by maximizing the use of any available infiltration capacity in the soil to reduce run-off volumes and rates. The use of these practices also will provide treatment to any vehicle driving surfaces via ecological means. Some of the practices proposed for this project include:

- **Pervious concrete** pavement in the proposed parking area.
- **RainGardens** (or bio-retention areas) to provide stormwater treatment and flow attenuation to the existing asphalt pavement along Arboretum Drive within the project limits.
- **Compost soil amendments** in certain areas of the site to increase the water holding capacity of the site soil and utilize a recycled product.
- The use of **sheet flow** (i.e. reduce or eliminate raised curbs and catch basins) to the greatest extent possible to avoid concentrating stormwater.

A goal of the civil engineering design is to be part of the educational program and to demonstrate emerging ecologically compatible site design and stormwater management techniques. An intent of the design is to minimize the impervious surfaces created for the project. With the replacement of existing impervious parking areas with one central pervious parking area it is possible that this project will result in a net decrease in the overall imperviousness of the Arboretum.

7. Implementation Strategies

The implementation phase for the South Entry/Madrona Terrace will depend on financial support and require further discussion and decisions by the Arboretum administration. The approach for development will depend on continued fundraising efforts and available construction budgets. The following options provide potential phasing alternatives:

- Whole thing at once.
- Implement one geographic collection at a time in its entirety (i.e. Chile).
- Develop horticultural preview gardens, meadow and shelter as an introduction to the geographic regions.
- Prepare site with enough clearing to plant all major tree groves and woodlands, providing a structure and a framework for the development of the understory within the geographic gardens.
- Develop all circulation and infrastructure: parking, pathways and irrigation.

Donor Recognition (This is guided by ABGC policies in progress)

- Centralized location.
- Interpretive wayside with recognition elements.
- Focus at structures.

Potential Procurement Strategies

Several viable strategies are available to aid in assembling a collection of specimen plants of diverse age, size and origin in support of the new geographic collections planned for the Arboretum's South Entry. These strategies include:

- Employing an in-house Plant Procurement Manager, responsible for:
  a) investigating and recommending potential sources of specimen plants or propagules of desired species,
  b) procuring these plants through gift or purchase,
  c) coordinating the assembly and short-term maintenance of these specimens at growing grounds set aside in support of the project.

- Engaging a wholesale plant broker and/or nursery to perform some or all of the tasks described in above and contracting with this company to assemble and/or maintain all or part of the desired collection of specimens.

- Developing overseas contacts and/or mounting or sponsoring plant-collecting expeditions to acquire and import seeds or small, bare-rooted plants to be propagated and/or grown-on by Arboretum staff.

Potential Sources of New Plantings

- Specimens in the ground currently on accessible sites at the Arboretum and capable of transplantation and/or requiring relocation.

- Specimens in the ground currently on accessible sites at other public or private landscapes and available for relocation to the Arboretum.

- Containerized or field-grown specimens at commercial nurseries and available for purchase, gift or trade.

- Containerized or field-grown specimens at other botanical gardens or universities and available for purchase, gift or trade.

- Small plants purchased abroad and imported bare-root.

- Seeds acquired from wild or cultivated plants through gift, purchase or trade.

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Estimate of Probable Costs (insert follows)

8. Appendix

1. Seattle Parks and Recreation – Design Program

Washington Park Arboretum
South Entry – Madrona Terrace Project
Design Program
February 10, 2004

I. Introduction

A. Purpose

This Design Program expresses the project objectives for the South Entry/Madrona Terrace project at the Washington Park Arboretum. The purpose is to satisfactorily complete the specified work within the budget and schedule. The Design Program establishes the scope, schedule and budget along with associated considerations and review requirements. The Program shapes the planning, design, review and construction by providing specific direction to the designer and to those staff involved directly in the design and construction management. Once the Arboretum Botanical Garden Committee (ABGC) approves the Design Program, any changes must be approved in writing by ABGC.

Seattle Parks and Recreation (Parks), the University of Washington (UW) and the Arboretum Foundation (Foundation) are undertaking an extensive program to improve the Washington Park Arboretum. *Renewing the Arboretum*, the master plan adopted by the City and Arboretum identifies the planned improvements. The South Entry/Madrona terrace project will be the first major step to implement the Master Plan. After significant public involvement, Parks, the UW and Foundation chose this project because of its visibility and the ability to fulfill the primary elements of the master plan - conservation, education and recreation. It is essential that this project sets high standard in each of these areas.

B. Intent

The intent of this project is to improve the southern entry area of the Arboretum by renovating existing Arboretum features and developing new elements that are recommended in the Arboretum Master Plan. The project will create strong visual and functional improvements that re-establish this key entry to the central portion of the arboretum and set the tone for future improvements.

C. Background

1. Washington Park Arboretum

The Washington Park Arboretum http://depts.washington.edu/wpa/ is managed cooperatively by Parks and the UW. The Arboretum Foundation is its major support organization http://www.orgsites.com/wa/arboretumfoundation/. The City of Seattle owns the Arboretum's land and buildings, Parks maintains the park functions and the UW owns, maintains and manages the plant collections. The Seattle City Council and UW Board of Regents adopted a new Master Plan for the Washington Park Arboretum in May, 2001. The Master Plan, *Renewing the Washington Park Arboretum* was funded largely by the Foundation. Its adoption was the culmination of seven years of analysis and public outreach. The Arboretum Botanical Garden Committee (ABGC) is the legally mandated advisory committee for the Washington Park Arboretum, established by the Arboretum's enabling ordinance in 1934. It is comprised of nine members appointed by the UW, City, Governor, and the Foundation.

2. Master Plan Implementation

This project implements several elements contained in the master plan for improving the Washington Park Arboretum, *Renewing the Washington Park Arboretum*. The plan can be viewed at http://www.cityofseattle.net/parks/arboretum/eisacrobat.htm. The Implementation Plan can be viewed at http://depts.washington.edu/wpa/implementation.htm

3. Roles and Responsibilities

The roles and responsibilities for this project will be as follows:
University of Washington: The UW owns, maintains and manages the plant collections. The involvement of UW staff and administration will be coordinated through the ABGC, the Project Team, and the Design Coordination Group to ensure their input on the design of collections and potential impacts to them.
City of Seattle: The City of Seattle owns the Arboretum's land and buildings; Parks maintains the park functions, buildings and infrastructure. The involvement of Parks staff will be coordinated through the ABGC, the Project Team, and the Design Coordination Group to ensure their input on relevant building and infrastructure topics.
Arboretum Foundation: The Arboretum Foundation is its major support organization for the Arboretum. The involvement of Foundation members will be coordinated through the ABGC, the Project Team, and the Design Coordination Group to ensure their input.
Arboretum Botanical Garden Committee (ABGC): The ABGC will be the forum for discussions regarding the scope, budget, scheduling and management of Master Plan implementation projects. http://depts.washington.edu/wpa/abgcmain.htm
The Master Plan Implementation Group (MPI Group): The MPI Group is a staff committee established by UW, Parks and Foundation to assist the ABGC with implementing the master plan. The MPI Group is responsible for considering issues and making recommendations to the ABGC concerning timing, scope, schedule and budget of each project. The MPI Group will also make recommendations regarding project oversight and review, project management, environmental review, public involvement, communications and future maintenance.
Project Management: The Project Manager will be the main contact, and will be responsible for administering the contract and ensuring the project objectives are met. The Project Manager will coordinate all reviews and approvals. Seattle Parks and Recreation staff will serve as Project Manager.
Project Team: The composition of the Project Team is recommended to the ABGC by the MPI Group. It will assist the Project Manager with defining project objectives and will provide technical input, reviews and recommend approvals to the ABGC. The Project Team reviews do not replace relevant City and UW review and approvals.

- Parks Project Manager
- Parks Plumbing Crew
- Parks Arboretum Lead Gardener
- UW Horticultural staff (please provide titles)
- UW Maintenance staff

Design Coordination Group (DCG): This group will provide design input and review utilizing a series of design "charrettes." These charrettes, as appropriate, will be used at key design points (or stages) to expand participatory input from stakeholders and a broader group of experts. These stages will be determined by the DCG. The DCG will have limited membership, representing stakeholders and design peers. Design peers will be determined by the nature of the project and stakeholders will include appropriate representatives from the Arboretum Foundation, City, University and general public.

II. Design Intents

A. Project Elements

The project consists of several elements. Some are free standing and others are linked.

- Holmdahl Rockery: Renovate an existing 40,000 s.f. (approximately) rockery designed by Otto Holmdahl in 1938 that is above Lake Washington Boulevard and the south entry to

Arboretum Drive (the rockery is currently obscured from view by overgrown vegetation). The renovation will include clearing of overgrown vegetation and new plantings. Plantings in the renovated rockery will showcase plants suitable for warm, sunny environments created by the southern exposure of the rockery.

The rockery was installed by WPA laborers in 1938 using Basalt stone from Cle Elum. Plants were added gradually after that period. There are no design drawings for this element. Although overgrown, the original rock work is intact. Adjacent concrete curbs appear to be in their original location. The approximate footprint of the rockery is 40,000 s.f.

- Eco-geographic exhibits: Establish several "eco-geographic" exhibits that offer educational and recreational experiences for students and visitors to immerse themselves in accurate, naturalistic recreations of forest communities of the world. These provide opportunities for active conservation of endangered species from the following selected forest communities:
  - Southern Oregon/Northern California – Forests related to our Pacific Northwest plant communities, but with additional trees and shrubs that are northern elements of Californian flora, incorporating existing Madrone and other native trees. The approximate footprint of this area is 46,000 s.f.
  - Cool Mediterranean – A naturalistic arrangement of plants from a winter rain region inland from the coast of the Mediterranean Sea which thrive in the Pacific Northwest climate. The approximate footprint of this area is 45,000 s.f.
  - Chile – A demonstration of plant communities emphasizing the forests of the Lakes District in south central Chile, one of the principal sources of new, ecologically appropriate landscape plants for the Northwest. The approximate footprint of this areas is 27,000 s.f.
  - South Africa/Australia./Tasmania – A small exhibit of plants from regions that are typically considerably warmer than the Puget Sound area. The approximate footprint of this area is 4,000 s.f.
  - New Zealand – Incorporating a relocated assemblage of hardy plants from the Southern Alps. The approximate footprint of this areas is 42,000 s.f.
  - China – An eco-geographic collection representing the forests of Mount Omei, located across Lake Washington Blvd. and northeast of the Japanese Garden. The approximate footprint of this areas is 85,000 s.f.
- Irrigation: Design irrigation for all affected landscaping. An independent project will install new irrigation mainlines along Arboretum Drive. Irrigation for the eco-geographic exhibits will connect to the new mainlines. The project assumes existing irrigation will be abandoned in place except were discussion with Parks and UW maintenance indicates that systems can be cost effectively salvaged and integrated with other new irrigation and the new irrigation mainlines. The approximate total area to be irrigated is 382,000 s.f.
- Parking: Locate and design a 30-space parking lot at the Madrona Terrace near the south end of Arboretum Drive, to support a new education shelter. The parking lot element will include shrubs and groundcover for landscape reestablishment and screening.
- Education Shelter: Site and design a 300 square foot education shelter and adjacent displays to interpret the nearby plant communities of cool, winter-rain regions of the world.
- Interpretive and Wayfinding Signs: Identify locations and provide graphic signs that are consistent with the approved wayfinding and signage plan, and that locate and identify exhibits and features. The consultant will need to coordinate with UW who is leading the wayfinding and signage plan.

B. Design Considerations

- Renewing the Washington Park Arboretum: The Arboretum's master plan provides the rationale and direction for all improvements. Attachment 1 and 2 of the Master Plan provides Implementation Guidelines and Mitigation Measures that shall be consulted when designing and constructing the outlined improvements.
- Washington Park Arboretum Implementation Plan: The Implementation plan provides details on this and other projects.

- Design Phasing: The design process will be phased to allow for flexibility in moving forward funded projects. See section C. below.
- Historic and Cultural Resources: Elements of the project may be either eligible for City landmark designation or may affect designated or potentially designated elements. Additionally, the consultant shall also consider UW policies concerning historic and cultural resources during projects that affect their collections.
- Sustainable Design: The UW, Parks and Arboretum Foundation are committed to incorporating sustainable design concepts in this project. The consultants will meet with Parks liaison to the City's Office of Sustainability and relevant UW staff to identify opportunities and set specific project goals.

Project Area

C. Scope of Design Services

The consultant services will include the design, preparation of construction documents and the administration of the construction of improvements to the South Entry – Madrona Terrace area of the Washington Park Arboretum. Standard instructions to consultants are available at the following site http://www.ci.seattle.wa.us/parks/projects/standards/gettingStarted.asp. Parks anticipates that design and construction of the project will be completed within three phases as described below. Public involvement will be an element of all phases.

- Phase 1. Inventory and Site Assessment, and Schematic Design. The first phase will encompass all tasks necessary to bring all elements of the South Entry/Madrona Terrace project through schematic design. The schematic design will show the extent and relationships of project elements, and provide sufficient context to enable further design work of individual elements to proceed independently. The consultant will consider all project elements complete during this phase. It is likely that elements of the project may proceed to final design on different schedules as determined by the availability of funding and other considerations.
- Phase 2. Design Development, and Preparation of Construction Documents. Phase 2 will bring selected elements (to be determined by available funding and other considerations) through design development and construction documents.
- Phase 3. Construction

The selected consultant shall initially complete the Phase 1 scope of work. Parks and Recreation reserves the right to award addition work for Phase 2 to the same firm, or another firm, as necessary to complete the project. The following is the preliminary scope of work for this project, which may be modified as required to fulfill the goals of the project.

PUBLIC INVOLVEMENT

Public involvement will be an integral element of the project. The consultant will be responsible for integrating the following efforts into the design and decision making processes.

- Conduct two or more Design Input Group charrettes during schematic design. The meetings will include a defined group of design peers, and arboretum and community stakeholder to actively participate in development of design and project review.
- Develop a format for and facilitate two public workshops during the schematic design phase. Additional meeting will be required during design development.
- Produce written and graphic material for the public workshops.

1. Schematic Design Phase

The Consultant will, in consultation with Parks, review the Design Program, perform site inspections, and obtain background information necessary to gain a thorough knowledge of the site. Prepare and present schematic design studies and sketches to identify the general extent, the size and character of all elements of the Program in complete detail as to size, location, appearance, and finish. The graphic products will include both plans and perspectives of the entire project, and key elements or views. The graphics should provide clear illustrations of the intent of the schematic design since individual elements may proceed to final design at different times. The consultant will complete a detailed cost estimate. The ABGC will review recommendations and confirm the elements that will progress to Design Development plans, and construction documents.

2. Design Development

The consultant will prepare drawings and other documents which shall fix and describe the size and character of all elements of the project in complete detail as to size, location, appearance, and finish. All landscape, structural, mechanical, and electrical systems shall be defined with specificity and shall be compatible with each other and the completed project. The Design Development Phase shall include all necessary conferences, investigations, drawings, documents, and models which clearly portray the completed project and shall be based upon the design program and the approved Schematic Design solution. The consultant also will complete a detailed cost estimate.

3. Construction Documents Phase

The Consultant will prepare all drawings, specifications, cost estimates, and other documents necessary to support a contract for the construction of the project as defined in the approved Design Development Phase. The consultant will also assist the City with preparation of an Environmental Checklist. The consultant will be responsible for scheduling an intake appointment with the City of Seattle's Department of Planning and Development (DPD) and making application to DPD for any required permits.

4. Bidding Phase

The consultant will assist the City in preparing the bid package, and will prepare any design-related addenda or revisions to the Bidding Documents. The consultant may also conduct the pre-bid conference and provide written minutes of the meeting.

5 Construction Phase

The consultant will administer the general construction contract in accordance with the City's current Public Works Standard Specifications, and advise and consult with the City and issue all of the City's instructions to the Contractor. The consultant will also observe the construction activities and the construction site as necessary to ensure compliance with the project schedule and contract documents.

Department and City Reviews

- Prepare written and graphic materials and assist with presenting the project at Project Team technical reviews. One meeting will be held at the schematic design, design development, 65% construction documents and 95% construction documents stages.
- Prepare a Certificate of Approval and attend two Landmark Preservation Board review meetings if necessary.

Permitting and Environmental Review

- Identify permitting requirements and deadlines.
- Complete SEPA checklist for the preferred alternative. Preparation of an environmental impact statement is not within the anticipated scope of work.

D. Technical Qualifications

The consultant team must posses the range of technical expertise to provide the full range of services to complete designs, facilitate public involvement, prepare construction documents and administer the construction of improvements to the South Entry – Madrona Terrace area of the Washington Park Arboretum. The areas of expertise include, but are not limited to:

- Landscape Design including design and renovation of rockeries.
- Horticultural knowledge and an in depth understanding of the requirements for designing the ecogeographic exhibits.
- Graphic Drawings and Rendering
- Design of Arboreta
- Irrigation Design
- Design of Park Shelters
- Public Involvement Planning and Facilitation
- Preparation of Detailed Construction Documents and Specifications
- Civil Engineering
- Geotechnical and Soils Analysis
- Interpretive Signage
- Cost Estimating
- Construction Administration

III. Schedule - Draft

The proposed schedule for this project is provided below.

Event	Purpose	Key Involvement	Schedule
Phase 1			
Consultant Selection	Advertise and hire consultant	Project Planner, UW, AF	February – March
Charrettes	Design Coordination Group involvement	Design Input Group, Consultant	May – July '04
MPIG and ABGC Review	Review Schematic Design Options	MPIG, ABGC Consultant, Planner	July, '04
Public Involvement	Public Meeting – Review existing conditions and opportunities and constraint, and schematic design options.	Planner Consultant, community	July, '04
Seattle Design Commission	Commission Review of Schematic Design Options	Commission, Planner, Consultant	July
Landmarks Preservation Board	Early review. Potential nominations?	Planner, Landmarks	July, '04
MPIG and ABGC Review	Review Final Schematic Design	MPIG, ABGC Consultant, Planner	September, '04
Public Involvement	Public Meeting – Presentation of final schematic design.	Planner Consultant, community	September, '04
Phase 2			***Tentative***
MPIG and ABGC Review	Design Development Review	MPIG, ABGC Consultant, Planner	TBD
Public Involvement	Presentation of Design Development	Parks, Consultant, community	
Seattle Design Commission	Commission Review of Design Development	Commission, Planner, Consultant	
Technical Review 65% CDs	Parks technical review of 65% construction drawings	Project Mgr., Consultant, Project Team	
Landmarks Preservation Board	Certificate of Approval	Project Manager, Landmarks	
Technical Review 95% CDs	Parks technical review of 95% construction drawings	Project Mgr., Consultant, Project Team,	
Phase 3			
Construction Bid		Project Manager, Consultant	
Construction		Project Manager, Consultant, Engineering and Design	

IV. DESIGN FEES AND CONSTRUCTION BUDGETS

Fees will be based upon the scope of work developed during contract negotiation and the construction budget. The total project budget including planning, design and construction of these improvements is estimated to be $4,100,000. The first phase of the consultant's work will provide more detailed cost estimates.

V. REVIEW PROCESS

A. Public Involvement Plan

1. Ongoing Notification

a. Project Sign: When the MPIG authorizes the start of design on the construction document, the Project Manager The sign will include the following:
   - *A description of the proposal, who and what prompted it, budget information (amount and source),* - "Improve the southern entry area of the Arboretum by renovating existing Arboretum features including a rockery, and developing new elements recommended in the Arboretum Master Plan. The project will create strong visual and functional improvements that re-establish this key entry to the arboretum. Project is funded by the City of Seattle Pro Parks Levy, University of Washington, and the Arboretum Foundation."
   - *How the project would change the existing area* - "The project will renovate the existing rockery, add new eco-geographic exhibits and an educational shelter, and provide a new parking area."
   - *Why project meets citizens' and community needs,* - "This project implements improvements contained in the Arboretum Master Plan that was developed with citizen input and adopted by the Seattle City Council and University of Washington Board of Regents."
   - *An invitation to the next scheduled public meeting where the public will be able to comment and ask questions.* – A space will be left open on the board for posting meetings.
   - *An explanation of the steps necessary to carry out the proposal, and a timeline.* The schedule for following key phases will be included.
     2004 – Design
     TBD - Construction
   - *The name telephone number and e-mail address of the knowledgeable contact person*
     Seattle Department of Parks and Recreation
     Planning and Development Division
     800 Maynard Avenue S. 3rd Floor
     Seattle, WA, 98134-1336
   - *Appropriate maps or graphics*
     Map of proposed improvements

b. WEB: At the time the sign is erected, the same information will be posted on the internet (on the page for a specific park, under the "Pro Parks Levy" section, and on the ABGC and Arboretum Foundation Web sites).

c. Minority Communities and Translation Needs – To be defined.

2. Public Meetings and Notification

This PIP proposes two meetings during schematic design to inform the public during the course of design. At least one additional meetings will be held during design development.

a. Schematic Design
   - Public Involvement: The Project Manager will schedule and advertise the first public meeting to describe and seek input on schematic design options for the design of the South Entry/Madrona Terrace improvements. A second meeting will be held to present the final schematic design.
   - Flyer/Mailer: The Project Manager and the public relations specialist will design an invitation flyer and distribute it to all invitees. The flyer will contain the same information as the site sign and any other important information; may include a mail-in response form if applicable; and will be mailed at least three weeks before the public meeting date. The key information will be translated into the languages used in the surrounding community. The meeting site will be as close as practical to the project site and will be ADA-accessible. The flyer will be delivered by the following means:

- Carrier Route – The flyer announcing the public meetings will be sent to carrier route addresses in the neighborhood.
- First Class Mail - To Arboretum Foundation and ABGC group mailing lists as available.

♦ News Release – A news release announcing the project and public meeting will be sent to the Seattle Times and Seattle Post Intelligencer.

b. Design Development

♦ Public Involvement: The Project Manager will schedule and advertise a public meeting to seek input on design development drawings for the South Entry/Madrona Terrace improvements.

♦ Flyer/Mailer: The Project Manager and the public relations specialist will design an invitation flyer and distribute it to all invitees. The flyer will contain the same information as the site sign and any other important information; may include a mail-in response form if applicable; and will be mailed at least three weeks before the public meeting date. The key information will be translated into the languages used in the surrounding community. The meeting site will be as close as practical to the project site and will be ADA-accessible. The flyer will be delivered by the following means:

- Carrier Route – The flyer announcing the public meetings will be sent to carrier route addresses in the neighborhood.
- First Class Mail - To Arboretum Foundation and ABGC group mailing lists as available.

♦ News Release – A news release announcing the project and public meeting will be sent to the Seattle Times and Seattle Post Intelligencer.

c. Construction

♦ Public Involvement: The Project Manager will attend stakeholder group meetings as needed to provide information about construction scheduling and potential impacts.

♦ Flyer/Mailer: The Project Manager and the public relations specialist will design a notice of construction start. The key information will be translated into the languages used in the surrounding community. The flyer will be delivered by the following means:

- Carrier Route – A mailer postcard announcing the start of construction will be sent to carrier route addresses in the neighborhood.
- First Class Mail - To AF and ABGC group mailing lists as available.

♦ News Release – A news release announcing the start of construction will be sent to the Seattle Times and Seattle Post Intelligencer.

3. Design Input Group

a. Membership – Membership will be established by invitation to representative stakeholders and design peers. This group will provide design input and review at a series of design "charrettes." The intent is to facilitate stakeholder participation in greater depth than can be achieved through general invitation public meetings. Stakeholders could include horticultural staff, arboretum support groups, community organizations, and design peers.

4. Decision Making

a. Decision Making Process – The Project Manager will develop and make available at public meetings a document that summarizes the decision making steps in this project.

b. Notification of Decisions - The project manager, the operations division representative, and/or the public relations specialist will draft and send out to the accumulated mailing and e-mail lists a letter that:

- Recounts the steps and participants in the public process
- Summarizes the community concerns that were expressed, the basis for the decision, and whether it was consistent with existing policies and plans
- Notifies all interested people and groups of the decision on the proposal
- Describes amendments or changes that resulted from the public process.

A copy of the letter will be posted on the site sign and on the internet on the appropriate web sites.

c. Meeting Summaries - Within one week after the public meeting (or after the last meeting, if more than one is held), the project manager and the operations division representative or other responsible staff will post a meeting summary on the appropriate internet web sites.

B. Technical Project Reviews

1. Project Reviews and Approvals

Phase 1

- Meetings/charrettes, as needed, with the Design Coordination Group to develop and review schematic design options and final schematic design.
- Two meetings with the ABGC to review schematic design options and to review and approve the final schematic design.
- One meeting with Seattle Design Commission.
- One meeting with the Landmarks Preservation Board.
- Two Public Meetings to review schematic design progress.

Phase 2

- Prepare written and graphic materials and assist with presenting the project at Project Team Technical reviews. One meeting will be held at the schematic design, design development, 65% construction documents and 95% construction documents stages.
- One meeting with Seattle Design Commission
- One meeting with the Landmarks Preservation Board.
- One meeting with ABGC for final project approval prior to construction.

2. Environmental Review

A SEPA Checklist may be required for this project.

3. Permits

The following permits and reviews may be necessary. It is the responsibility of the Designer to determine the needed permits.

- Seattle Stormwater, Grading & Drainage Control Code: Investigate to determine whether permits are required at the planning, design or construction phases. Parks is exempt from grading permits, at least under some circumstances, however DPD sometimes requires Parks to get them.
- Certificate of Approval: If elements of the site are identified by the Landmark Preservation Board as landmarks, the consultant will need to obtain a Certificate of Approval for work in the affected area(s).
- Construction Permit: Required for any structures.
- Street Use Permit(s): Required if work (paving, staging, sidewalk closure, utility work, etc.) is done within non-vacated street rights-of-way. Usually the contractor is responsible for obtaining street use permits, however any design issues must be resolved as part of the construction permit review.
- Electrical, Plumbing, Side Sewer Permits: Required if scope of work includes work on these items. The contractor will be responsible for obtaining these permits.

C. Coordination

The MPI Group and the ABGC will facilitate coordination among UW, City and stakeholders to define and implement improvements.

D. Compliance & Standards

The Parks Department has adopted several written Park Standard Guidelines and Specifications. Standards are available on line at http://www.ci.seattle.wa.us/parks/projects/standards/.

2. Concept Analysis

In developing a concept for the schematic design of Madrona Terrace, the following attributes have been identified with the concept:

- Provides collections and park space that supports the mission of the Arboretum (conservation, education and recreation).
- Collections are sizable enough to work well.
- Allows for preservation of some native trees, on knoll particularly (reserves Madronas) but also in Asia.
- Improved Entry.
- Provides showy entry with Chilean plants.
- Meadow captures opportunity for creating open space and subsequent public use.
- Modest holly retention opportunity.
- Collections previews allow for rich cultural and botanical interpretation at shelter as well as good transitions to immersive displays.
- Opportunities for interpretation.
- Demonstrates sustainability and wise water use
- Opportunities to match plant to site.
- Demonstration for home gardeners.
- Connections to the Japanese Garden.
- Enhanced views from Japanese Garden.
- Asia woodland area complements Japanese Garden.
- Retains and expands New Zealand collections.

Based on climatic and space limitations, the concept eliminates plant collections from the following two geographic regions:

- No Mediterranean Basin, nor South Africa (opportunities for plant collections from these regions are available in other areas of the Arboretum)

3. Tree and Collections Inventory Assessment

The Arboretum staff presented the approach being used in the field to assess the health and condition of existing trees and plant collections. The following 1-3 rating system was developed to make a recommendation for the management of each tree: 1) remove 2) further observation and/or ‘watch’ status, 3) preserve and protect. Criteria used to evaluate the existing trees:

- Live-crown ratio.
- Structural form and hazard potential.
- Longevity and vigor (looking at a 50+ year survival capability).

The Arboretum curatorial staff is now using a similar approach and mapping system to evaluate the collections for retention, transplant, removal and/or propagation.